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MOTORCYCLES

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2007 OWNERS MANUAL

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MOTORCYCLES

WELCOME

We thank you for your purchase, your new motorcycle is designed and manufactured to be among the finest in the American V-twin industry.

We have prepared a simple and understandable guide for your motorcycle's care and operation and recommend that you follow the instructions carefully for maximum performance, vehicle safety, and enhanced personal motorcycling pleasure. You should become thoroughly acquainted with your manual before riding your motorcycle.

This Owner's Manual provides instructions for the care and maintenance of minor service items that can be performed by you, the owner. Maintenance and repair procedures that involve major components such as engine, transmission, brakes, and electrical, etc. are also addressed in this manual, but it is recommended (and in some instances required) that the motorcycle be serviced by an Authorized Service Center. Specific procedures require the skills of a qualified, skilled technician and the use of special tools and equipment.

This manual also serves as a central location to maintain all data and records pertinent to your motorcycle. Should you ever decide to sell your motorcycle, the manual is designed to be forwarded to its new owner in order to provide its history along with necessary support information to continue its proper care and maintenance.

Driver and passenger safety is our top priority and as a supporter of the Motorcycle Safety Foundation, we have included help on how to ride safely as well as respond to potential riding hazards. Additionally, we have reprinted the MSF's booklet "You and Your Motorcycle – Riding Tips" which includes insights from seasoned riders and included it in this book.

Please pay particular attention to the break-in procedures. Followed correctly, these procedures will ensure peak vehicle performance over a longer period of time.

The information in this manual is based on the most recent production information available at the time of printing and was created for our entire model line. Specific features vary among models, and some of the equipment mentioned may not be on your motorcycle. American Hotrod Manufacturing, LLC reserves the right to make changes on its motorcycles without notice or obligation.

Should you have any questions or concerns about your motorcycle or its operation, please contact your local Authorized Dealer or Service Center. For the authorized dealer or service center nearest you, visit our website.

We are committed to provide all of our motorcycles owners with service and support that is unmatched in the industry. Please complete the enclosed Warranty Form and return it to us. Subsequent owners can complete and return the Successive Owner information form in the manual which will allow us to communicate information and updates to all current owners.

Congratulations and thank you once again from all of us. Enjoy the journey!

NOTES, WARNINGS AND CAUTIONS

The **NOTES**, **WARNINGS,** and **CAUTIONS** throughout this manual should be read completely and fully understood before you begin your first experience on your new motorcycle.

Your safety and the safety of your passenger are the most important thing to consider when riding this motorcycle. Remember that you must do your part to ensure you have a safe and enjoyable trip.

The terms **NOTE**, **WARNING**, and **CAUTION** have specific meanings in this manual:

A **NOTE** provides additional information to make a step or procedure easier or clearer. Disregarding a **NOTE** could cause inconvenience, but would not cause damage or personal injury. *This information has been placed in italic type.*

A **CAUTION** emphasizes areas where equipment damage could occur. Disregarding a **CAUTION** could cause permanent mechanical damage which could cause personal injury. **A CAUTION IS INDICATED IN BOLD CAPITAL LETTERS**.

A **WARNING** emphasizes areas where personal injury or even death could result from negligence. Mechanical damage may also occur. **WARNINGS** are to be taken seriously. In some cases serious injury and death has resulted from ignoring **WARNINGS**.

WARNING

BOLD CAPITALS CONTAINED IN A BOX INDICATES THAT THE SUBJECT IS ONE THAT COULD LEAD TO PERSONAL BODILY INJURY TO THE RIDER, PASSENGER, OR OTHERS:

YOUR AMERICAN HOTROD MANUFACTURING, LLC PERFORMANCE PRODUCTS MOTORCYCLE, LIKE ANY OTHER HIGH PERFORMANCE MOTOR VEHICLE, IS SUBJECT TO VIBRATION FROM THE OPERATION OF THE ENGINE AND OTHER VEHICLE COMPONENTS, AS WELL AS FROM TRAVEL OVER VARIOUS ROAD CONDITIONS. SUCH VIBRATION, WHICH MAY BE SEVERE DEPENDING ON OPERATING CONDITIONS, MAY CAUSE NUTS, BOLTS AND OTHER FASTENERS TO LOOSEN OVER TIME. IT IS IMPERATIVE FOR SAFETY, AND TO KEEP YOUR BIKE IN GOOD OPERATING CONDITION, THAT FASTENERS ARE CHECKED FREQUENTLY FOR EXCESSIVE WEAR AND FOR TIGHTNESS. TO ENSURE THE SAFE AND DEPENDABLE OPERATION OF THE MOTORCYCLE, LOOSE FASTENERS SHOULD BE CHECKED FREQUENTLY AND TIGHTENED, IF NECESSARY. FAILURE TO MAINTAIN THE MOTORCYCLE AS DESCRIBED IN THE OWNER'S MANUAL MAY VOID WARRANTY.

IMPORTANT NOTE:

Although this owner's manual provides information for both novice and the experienced riders of motorcycles, it is not to be used as a substitute for instruction on riding a motorcycle on public streets and highways within the U.S.A. We strongly recommend each buyer take a motorcycle riding course to better familiarize him or herself with proper motorcycle riding techniques, safe riding practices, and local traffic laws of his or her state of residence. Each person who rides a motorcycle must be of proper age and must have the appropriate driver's license to operate a motorcycle (typically a "Class M" license). For further information regarding motorcycle rider education classes, please contact the Motorcycle Safety Foundation at (800) 446-9227 or visit their website at www.msf.usa.org.

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You and Your Motorcycle: Riding Tips

FORWARD

The publication *"You and Your Motorcycle: Riding Tips"* has been reprinted in it is entirety and included as a complete chapter in this owners manual with the express written permission of the Motorcycle Safety Foundation (MSF). This chapter or materials in this chapter may not be reproduced, for resale or otherwise, without the express written permission of the Motorcycle Safety Foundation.

The information in this publication is offered for the benefit of those who have an interest in motorcycles. The information has been compiled from publications, interviews and observations of individuals and organizations familiar with the use of motorcycles and training. Because there are many differences in product design, riding styles, federal, state and local laws, there may be organizations and individuals who hold differing opinions. Consult your local regulatory agencies concerning the operation of motorcycles in your area.

The Motorcycle Safety Foundation is a national, not-for-profit organization promoting the safety of motorcycles with programs in rider training, operator licensing and public information.

INTRODUCTION

Congratulations! You have gained admission to the wonderful world of motorcycling. You are going to have a marvelous time. You also have some new responsibilities, which is what this chapter is all about.

Motorcycling has grown more and more popular in recent years. We're very glad to see the increase in people who enjoy it. However, we're also interested in keeping this a safe sport. The way to do this is to tell the rider – whether novice or experienced – about operating a motorcycle safely. Your enjoyment, and your safety, depends on mastering not only the art of motorcycling but also the realities of the traffic around you.

The staff at the Motorcycle Safety Foundation has prepared this booklet to provide you – the motorcycle rider – with important tips that can help you to ride safely. Read these pages carefully. Thirty minutes spent reading this information can be one of the most valuable half-hours of learning you have ever had.

THE RIDER

The Rider – That's you! Riding a motorcycle properly is a skill you can learn. It's not something you are born with, like having red hair or blue eyes. It takes thinking and practice to ride one well. Unfortunately many riders never learn the critical skills to ride safely and enjoy the sport to its fullest.

The best thing you can do is take a *RiderCourse*®. Beginning riders may take the Motorcycle *RiderCourse* developed by the Motorcycle Safety Foundation (MSF). People who have been riding for some time can also benefit from taking an MSF Experienced *RiderCourse*. You CAN teach an old dog new tricks.

The courses cover topics such as:

- effective turning techniques
- protective gear
- traffic strategies
- special riding situations
- effective braking techniques
- evasive maneuvers

The instruction is available nationwide. If you call the national toll-free number, (800) 446-9227, you will get the phone number of a training site near you.

What to Wear When You Ride

Proper gear is essential to safe riding. Wearing the right clothing always makes the sport more enjoyable, and more comfortable, too.

Helmet

Around the block or around the world, it makes sense to leave home with a helmet on your head. IT'S ONE OF THE BEST ITEMS OF PROTECTION YOU CAN USE.

Helmets come in all sizes, from extra small (XS) to extra large (XL). There are also helmets for children. When you buy a helmet, make sure it fits properly. Try it on; it should be comfortable to wear, neither too tight nor too loose. Remember, it is going to spend a lot of time on your head.

Always fasten the helmet strap. If the helmet is not secured, it is doing about as much good as if it were on the shelf at home.

Did you know that all adult-sized motorcycle helmets now sold in the United States must have a sticker indicating DOT (Department of Transportation) approval, which means that the helmet meets certain basic impact standards? Don't buy a helmet without one; it may not meet standards. Helmets vary greatly in price and style. Buy one that suits you. Wear it. Fasten it every time you throw a leg over the motorcycle.

A good helmet makes motorcycling a lot more pleasurable because it cuts down on the wind noise and greatly reduces rider fatigue. The days of heavy or cumbersome helmets are gone; they're now made of light new materials with terrific designs and colors to choose from.

If you do drop your helmet onto a hard surface, or it receives a heavy blow, it is probably time to buy a new one. A motorcycle helmet is designed to absorb the impact of a blow, and a helmet should only do that once. If in doubt, get a new one.

Eye Protection

Riding with bare eyeballs is a gamble. Your eyes are precious, and it does not take much to injure one.

A fairing on a motorcycle is not eye protection; a bit of sand or tiny piece of glass can whip in behind it and get in your eye.

Proper eye protection means an approved shield on your helmet, a pair of goggles, or shatterproof glasses. Settling for less just isn't worth the risk.

Make sure your eye protection is clean and unscratched. If you use a tinted lens or shield for riding in the bright sunlight, take a clear one along as well, in case you are riding after dark.

Jacket

Motorcycle jackets are made in many sturdy materials: denim, nylon in its various guises, corduroy, and leather. The hide of a cow, or any other commonly used leather, offers you the most protection when it comes to abrasion. You can buy leather jackets with zippered vents, which are comfortable to wear even in hot weather as they allow a breeze to flow through.

Pants

These should be made of a thick material, such as leather. They resist abrasion and provide protection from the elements. A pair of loose, light cotton pants that flap in the wind is not very good riding gear. A number of companies sell leather riding pants, and you can get pants and jacket combinations that zip together.

Gloves
Always wear gloves. Even on a hot day. The car in front of you may throw up a stone that hits your fingers. Ouch! Also, bare hands are not designed to withstand abrasion or accidental contact with a hot motorcycle part.

Boots
Over-the-ankle boots, please. Preferably made of strong leather. Your ankles are very complicated; protect them.

A boot with a slippery sole could cause embarrassment when you put your foot down at a greasy gas station. Rubber soles, with a good tread design, offer better gripping capabilities.

Rain Gear
It rains everywhere in this country, some places more than others. Inevitably you will be caught out in the rain. Why not have a good motorcycle rain suit along, with rain-covers for boots and gloves as well? It's a lot more fun riding in the rain when you're dry.

High-Visibility Gear
The better people see you, the less likely they are to run into you. Brightly colored clothing is preferable to drab, dark clothing.

You can buy special vests that are designed to make it easier for others to see you. Some military bases feel strongly about this feature and require all motorcyclists to wear them.

For nighttime, you can buy clothing that reflects light, and put reflective strips on your helmet and the backs of your boots. Every little bit helps.

YOU AND YOUR LEGAL RESPONSIBILITIES

Don't forget, driving is a privilege, not a right. You have to prove your competence before your license is issued. If you ignore the laws of your state, your license may be taken from you.

Laws are intended to protect you, not to harass you. You may be the best and safest rider in the country, but these laws are to keep incompetent, dangerous drivers off the streets. Just think of the chaos if we didn't have these laws. Respect them.

Licensing Requirements

These vary from state to state. Most states require a separate license in order to operate a motorcycle. Go and get one. Drop by your local department of motor vehicles and ask for licensing information. You put yourself, your wallet, and your insurance at risk if you choose to violate the law.

If your state requests it, take the written test. And the riding test. Get your motorcycle operator's license. Become a full-fledged member of the motorcycling fraternity.

Insurance

The registration is easy; pay your money, and you get a license plate to bolt onto the back of the bike.

Insurance is harder, but most states require liability insurance. (Check your state's laws.) Shop around for it. Some companies give a discount if you've taken an MSF *RiderCourse*.

You can also get other coverage on you and your bike: comprehensive, collision, medical payments, uninsured driver (the other guy), et cetera. Ask your insurance agent what each type of coverage can do for you, and how much it will cost.

The better your driving record, the less costly the insurance. It pays to be safe.

KNOW YOUR MOTORCYCLE

To be a safe rider, get to know your motorcycle extremely well. It's very different from a car and makes more demands on the operator. The motorcycle goes and turns and stops smoothly according to your degree of skill and knowledge.

Get to know your owner's manual; not all motorcycles are exactly alike. Types range from street machines (large touring bikes, cruisers, sport, and traditional) to off-road and dual-purpose bikes. The manual gives you many specifics you will find helpful in understanding and maintaining the bike you've chosen.

A close relative to the motorcycle – the scooter – is different from most motorcycles and you'll need to find out its particular features. Some have automatic transmissions, as well as starter interlocks. As with other small-displacement machines, certain models may not be allowed on high-speed, limited-access highways.

It takes a long time to become properly familiar with a motorcycle, so it is best not to lend it or borrow one. Think of your motorcycle as being as personal as a toothbrush.

The Controls

Over the years, the basic controls on motorcycles have been standardized.

Put the bike on the centerstand and sit on it. Become familiar with the controls and how to use them. Work the levers and pedals. If something isn't within easy reach of fingers or toes, maybe it can be adjusted to suit you. Check your owner's manual.

Practice with the turn signals. Find the horn button, so you won't have to look for it when somebody starts backing out in front of you. Figure out how the dimmer switch works before it gets dark.

Do become familiar with the RESERVE fuel valve if there is one on your machine. When you are running along the highway and your engine burbles, indicating it is running out of fuel, you want to be able to turn that reserve on without a second's thought. It is not fun or safe to be fumbling around when you are in gear and moving.

Shifting Gears

Starting off and changing gears requires coordination of the clutch and throttle and gearshift lever. If you don't do things right, the amount of control you have over the bike is lessened.

To start off, pull in the clutch, shift into first gear, roll on the throttle a little, and ease out the clutch. You will become familiar with the friction zone (that's where the clutch begins to take hold and move the bike), and you add a bit more throttle. You don't want to stall the engine, nor do you want to over-rev it. There's a sweet spot in there; find it. Shift while traveling in a straight line. Shifting in a curve is not good practice, and something to be avoided.

Become familiar with the sound of your engine, so you can tell when you should shift without looking at your instruments.

When you downshift to a lower gear, you should (in one swift, smooth movement) be able to squeeze the clutch, rev the engine a little to let it catch the lower gear smoothly, and shift down.

When you come to a stop in traffic, leave the bike in first gear with the clutch disengaged (just in case you want to accelerate out of there in a hurry). Who knows what may be coming up behind you.

Braking

Don't ever forget: The front brake on your motorcycle can supply as much as 70 percent or more of your stopping power. The single most important thing you can learn about braking is to use that front brake every single time you want to slow down.

Always apply both the front and the rear brakes at the same time. If necessary, apply them hard, but not so hard that you lock up either wheel. A locked wheel, as well as causing the bike to skid, results in downright inefficient braking.

The time to take your left foot off the peg and put it on the ground is just as the bike comes to a complete stop.

When you have the opportunity, practice your braking. You can always get better at it.

Turning

When you are riding along the road, you lean a motorcycle into a turn. Learning to lean is an essential part of riding a motorcycle. It is a normal function of the bike when you are changing its path of travel – and quite different from turning the steering wheel of your car.

To get the motorcycle to lean in a normal turn, press the handlebar in the direction of the turn and maintain slight pressure on that handlebar to take you smoothly through that particular turn. In other words: press right to go right; press left to go left. Your instincts to keep the motorcycle on a smooth path while keeping it from falling over usually take care of this without you even noticing it. (Demonstrate to yourself how a motorcycle moves by pressing a handlebar slightly while traveling in a straight line. The motorcycle will move in the direction of the handlebar you pushed.)

- Slow down before you enter the turn; look as far ahead as possible through the turn.
- Keep your feet on the pegs, and grip the gas tank with your knees.
- Lean with the motorcycle; don't try to sit perpendicular to the road while the motorcycle is leaning over.
- Keep an even throttle through the turn, or even accelerate a little bit.

Checking the Bike before the Ride

It's not fun to have things go wrong on a motorcycle, but if you spend a minute before you go off on a ride, you can increase the chances that nothing will.

Any information you'll need, such as correct tire pressures or chain adjustment, you'll find in your owner's manual. As soon as you finish this booklet, read the manual thoroughly. You will be much more acquainted with all the specifics of your motorcycle, since it might be slightly different from some other make or model.

1. Check the tires. They are the most important parts of your bike. If your engine quits, you roll to a stop. If a tire quits – trouble! Make the effort to check the surface of the tires, looking for cuts in the rubber or foreign objects – like a nail. Check the tire pressures with a good gauge. If a tire is low every time you check it, even though you have added the proper amount of air each time, you have a slow leak. Fix it before it becomes a fast leak.

2. Check the controls. Cables are quite strong and rarely break, but look for kinking or stiffness or anything unusual in their operation.

3. Check your lights, including brake light, headlights, and turn signals to make sure everything works. Also check your horn and adjust the mirrors.

4. Check the oil and fuel and, if the bike is liquid-cooled, the coolant levels.

5. If your motorcycle has chain-drive to the rear wheel, make sure that the chain is properly tensioned and in good shape. Chains do need an occasional cleaning and dose of lubrication.

6. Make sure the sidestand and centerstand fold up properly, and stay up. If one of the retraction springs is weak or broken or missing, replace it.

7. As you roll off, check your brakes. Just to make sure they haven't gone away.

Maintenance

There's not much to maintain on a day-to-day basis on most modern motorcycles, but do what you can do, including your pre-ride checks.

Your bike has a regular service schedule listed in the owner's manual. Unless you are an accomplished mechanic, we recommend that these services are done by an authorized dealer.

Keeping your bike clean is a good idea. It's astounding how dirt can cover up something that is about to go wrong.

Check your battery every month. Make sure the fluid level is where it should be. If it is low, top it up with distilled water.

Always take your tool kit along when you go for a ride. You never can tell when it will come in handy. Use the tools to go over the bike occasionally and make sure no screws or bolts are loose.

You should always have your owner's manual with the bike. It tells you where the fuse box is, in the unlikely chance a fuse blows. It tells you how to get a wheel off, should you have the misfortune of a flat tire.

Flat tires are pretty rare occurrences on motorcycles, but they can happen. In this case, you can either get on the phone to the dealer, or fix it yourself. If you want to know how to do it, we recommend you practice at home, rather than have your first shot at fixing a flat alongside a deserted road in the middle of the night.

Troubleshooting

Little things may happen to the bike that are cause for concern. Don't panic until you check out the obvious.

#1 If the engine doesn't start:

- Is the key on?
- Is there gas?
- Is the battery too weak?
- Or a battery lead loose?
- Have spark plug wires fallen off?
- Is the ignition cut-off switch in the OFF position?
- Do you have the choke in the appropriate position?

#2 If the engine stops when you don't want it to:

- Did you accidentally hit the cut-off switch?
- Did you run out of gas?
- Did a fuse burn out?

#3 If the bike begins to feel funny as you go down the road, especially in a curve, stop as soon as it is safe to pull over and check your tires. You may have a flat.

- Check your suspension. You may have it adjusted incorrectly.
- Your owner's manual is the best reference for proper settings and adjustments.

#4 If you detect any problems with the motorcycle – doesn't feel right, doesn't handle right, doesn't sound right – that you can't figure out yourself, take it to your dealer.

- Think about the problem a little so you can describe it to the service manager.
- Remember, an ounce of prevention is worth about a ton of cure. Pushing a motorcycle can get old very fast.

HIGHWAY, BYWAY, STREET AND ALLEY

This is what it all comes down to: you and the road. There are millions and millions of miles of roads in this country, from one-lane dirt to 12-lane highway.

When you ride, the surface conditions, traffic, and weather can be changing. You have to be constantly aware of a lot of things. Daydreaming when you're riding a motorcycle isn't a good idea. Things happen fast out there on the road, and you have to be prepared for them.

The SEE System

Here is a good reminder for riding safely in traffic:

- **S** Search around you for potential hazards.
- **E** Evaluate any possible hazards, such as turning cars, railroad tracts, etc.
- **E** Execute the proper action to avoid the hazard.

This **SEE** is a mental system for safe motorcycling. Use it effectively and you'll cover many safer, happy miles on your motorcycle

Increasing Your Visibility to Others

What's the most usual explanation from the automobile driver who just turned in front of a motorcyclist? "Gee, officer, I didn't see him."

It's a sad truth. We're not as big as a Mack truck, but we are visible. However, too often motorists don't see us because they aren't looking for motorcycles.

You have to attract their attention.

All motorcycle headlamps in recent years are hard-wired, which means that the headlight goes on whenever the engine goes on. If you have an earlier model, turn that headlight on every time you go out. It helps - even on a bright, sunny day!

We've said it before, we'll say it again: wear bright clothing and utilize retroreflective material (it shines when a beam of light hits it) whenever appropriate. The biggest thing that a following driver usually sees is your back. Make it stand out.

Always signal your intentions. Change lanes or make a turn using your turn signals. You want to be sure that the people around you know what you are about to do.

And it helps to assist your turn signals with hand signals at times. Remember to cancel your signals when you've completed your maneuver, otherwise drivers are getting false information from you...and you could cause yourself trouble.

Don't be shy about using your horn in some situations. If drivers are dozing, or about to pull an unthinking maneuver, give them a BEEP. You want to make them aware of what they are doing. And of your presence.

Position your motorcycle where it can be seen. Don't put yourself behind a large truck or ride in the blind spot of a vehicle near you. Get out there, take up a whole lane, make yourself seen.

Helping You to See Others

The other half of the visibility battle is being alert and seeing everything around you. Use your eyes effectively. Keep them moving. Don't get fascinated by that '39 Alfa Romeo Freccia d'Oro off to your right. Or go rubber-necking at an accident scene. If your eyes are locked on one thing, you may be ignoring some situation that could affect your ride.

Look ahead. Look to the side. Look in your mirrors. Look over your shoulders. Keep looking! Anticipate the oncoming, left-turning driver, the reckless fool coming up behind you, the car poking its nose out of the driveway, the guy beside and a little behind you who's moving across the lane divider. Never let your eyes fix on an object for more than two seconds. Keep looking around. It's one thing to see, another to have the time to react. No tailgating.

When you're riding in town, at speeds under 40 mph, always keep a two-second gap between you and the car in front. For example, when he goes by a phone pole, count "one-thousand-one, one-thousand-two" and then you should pass that pole.

Out on the open road, with higher speeds, you should adjust your gap to three or four seconds or more, depending on your speed. Use the same reference-point technique to determine how many seconds behind you are.

Intersections

It probably surprises no one to know that the majority of accidents involving collisions between a motorcycle and a car happen at intersections - the most frequent situation being that of a vehicle turning left in front of a motorcycle.

- Any intersection is potentially hazardous, whether it has stoplights, or stop signs, or is unmarked.
- Always check for traffic coming from the side, left and/or right.
- Check for traffic behind you to make sure no one is about to run up your tailpipe.

Passing Other Vehicles

The technique for passing another vehicle is the same whether you are riding a motorcycle or driving a car.

First, before passing you should be two (or more) seconds behind the vehicle you want to pass and have positioned yourself in the left-hand side of your lane.

From this position, you have to check oncoming traffic and the road to make sure you have enough distance to pass safely. Don't even think about overtaking if a corner is coming up.

If you have room ahead to make the pass, look in your mirrors, turn the signal on, and always look over your shoulder. That head check is essential; somebody in a hot rod might have just pulled into your blind spot, intent on overtaking you. Always remember the head check.

Everything clear? Move into the left lane and pass the car/truck/buggy/ whatever. Do not crowd close to the vehicle you are passing; you should be more or less in the center of the lane you are passing in. Get by this vehicle as quickly as possible, without exceeding the speed limit. If it is a slow-moving truck in front, you might want to shift down a gear so you can accelerate more rapidly as you go around it.

Before returning to your original lane, signal your intention and do a head check to make sure that there is enough room between you and the vehicle you just passed. Ever have someone speed up just after you've overtaken them? Hmmmmm!

Return to your lane, cancel your signal, and proceed merrily along ... with care.

Night Riding

Quite often you'll have to ride at night. After all, it is dark 50 percent of the time.

Dusk is really the worst time, when people's eyes are adjusting from daylight to headlights. Be especially careful just after sunset.

Usually it is advisable to slow down a little when riding at night, especially on any sort of winding road.

Use your own headlight and those of other traffic to keep an eye on the road surface. It is more difficult at night to see the patch of sand or something that fell out of a pickup.

The distance between you and the vehicle in front becomes even more important at night. Give yourself room to react.

Wear a clear face shield without scratches. A scratched shield can create light refraction that might confuse you; two headlights can look like four, and you don't know who is coming from where. One of your biggest hazards at night may be a "who" coming from a few hours of drinking. Be especially alert for drivers and vehicles doing odd things, like weaving in and out of traffic, and give them lots of room.

HANDLING SPECIAL SITUATIONS

In the best of all worlds the temperature would always be 78 degrees, the wind would be at our backs, and no emergencies would arise. Since it is a slightly imperfect world we live in, we should be prepared for whatever happens.

Emergency Braking

Sometimes you have to stop as quickly as possible. Here are some tips on how to get you and your motorcycle halted pronto:

Apply both brakes to their maximum, just short of locking them up. Practice in an open, good-surfaced place, such as a clean parking lot.

Keep the motorcycle upright and traveling in a straight line; and look where you're going, not where you've just been.

You don't want to lock the front brake. If the wheel does chirp, release the brake for a split second, then immediately reapply without locking it up.

If your rear wheel locks up, do not release the brake. If your handlebars are straight, you will skid in a straight line, which is all right. You have a more important priority and that is to get stopped! Read on and we will talk more about "skids."

Braking While Leaned Into a Curve

You should try to avoid this, but sometimes it might be necessary.

You can brake (with both brakes) while leaned over, but you must do it gradually and with less force than if the bike is standing up straight.

For maximum braking efficiency in an emergency (when traffic and roadway conditions permit), stand the bike up straight; brake hard.

Coping With a Skid

A skid – that's when your heart leaps up to your throat because your wheels have lost traction! You might hit a patch of sand on a mountain curve, or a puddle of oil as you're slowing for a stoplight. It's a frightening experience on a motorcycle, but you can handle it.

In a highway-speed, sand-in-the-corner skid, steer slightly in the direction of the skid. (If you're leaned to the left and skidding to the right, turn those handlebars a bit toward the right.) Chances are you will clear the patch of sand, the tires will grip the pavement again, the bike will stand up, and you'll continue on your way.

Should you hit a slippery spot while you're braking for a stop sign, and one or both wheels lock up, you want to get those wheels rolling right away. Release the brakes for an instant, and then reapply a little more gently. You want

those tires to have traction. At higher speeds, when traction is good and the rear wheel skids when braking hard, do not release the rear brake.

If your back end is skidding sideways because the tire is on a slick spot and simply spinning, ease off on the throttle. A spinning wheel provides no more control than a locked wheel.

You might be in one of those two-mile-per-hour parking lot scenarios, a mild, low-speed skid when your front wheel starts to go out from under you. A foot on the ground may keep the bike upright and the rubber side down. This is not an easy thing to do, and should only be done if all else fails.

Riding Across Poor Road Surfaces

Here are a few simple rules you should follow when you anticipate coping with sand, mud, water or any loose surface or obstruction in the road:

Downshift and slow before you reach the problem area.

If there is traffic in the area, make sure that the drivers are aware you are slowing.

Try to cross the bad surface in a straight line, or at least do not change direction or speed abruptly.

Stay ready to maintain the balance of the motorcycle.

If you are moving along and have to go over an obstruction that is lying across the road, like a 2-inch x 4-inch piece of wood, rise up on the footpegs and shift your weight toward the back of the saddle as your front wheel comes up to the obstacle. This will make it easier for the front wheel to bounce up and over. Then move your weight forward to help your rear wheel get over.
Do not accelerate until your bike is completely over the obstacle.

Steel Bridge Gratings and Rain Grooves

Steel-mesh bridges can be extremely unnerving. Keep an even throttle and keep the bike straight. Don't grip the handlebars too hard. If there is a vibration in the handlebars, do not fight it. This is a natural feedback from your tires going over these thousands of little squares.

Some parts of the country have rain grooves in the highways. They're not very popular among motorcyclists. This is when the road surface, usually concrete, has several dozen grooves running lengthwise down each lane. The purpose of the grooves is to prevent cars and trucks from losing traction when it rains.

The reaction of the bike to these grooves often has to do with the tread pattern on the tires. Sometimes it feels as though the motorcycle is getting a flat tire, with a squishy back-and-forth sideways motion. Don't worry, just keep going straight. Don't fight the handlebars. There is nothing dangerous about these rain grooves - it just feels funny to ride on them.

Rain

Haul out the rain gear you've stowed in a handy spot. Make sure your rain gloves and rain boots fit properly. Poorly fitted ones can lessen your ability to brake and shift.

Be most cautious when it first starts to rain. That is when the water goes into all the dimples in the road, and the oil residue from passing vehicles floats to the top. That gets slippery! A wise motorcyclist will stop for a cup of coffee when it starts to rain; who knows, it could all be over in 15 minutes, and you won't even have to put on the rain suit.

After a while the oil will be washed off to the side of the road. However, traction on a wet surface may not be as good as on a dry road. Be careful.

Wind
Strong winds can create problems for a motorcyclist. A constant 25-mph wind from the side can make for less-than-happy riding. Gusty wind is the worst. You might have to lean a bit into the wind to maintain your position. Keep the motorcycle on the side of the lane that the wind is coming from. This is in case a big blast moves you over a bit. Expect it and be ready to react.

Animals
The biggest problem is with domestic animals: i.e., dogs. Most seem to have an urge to chase motorcycles. Those that don't chase often are known to blunder into the path of moving vehicles. Don't let one distract you and cause a spill.

Here are three rules:

1. Slow down well before you reach the animal.
2. Do not – repeat – do not kick at the animal.
3. If the animal looks like he's going to intercept you, speed up just as you are about to reach him. It will throw his timing off.

If a deer jumps out in front of you on a country road, but is far enough ahead not to be worried about – watch out for its mate. They tend to travel in pairs. Hitting a deer with a motorcycle is a tough way to put venison on the table.

EQUIPMENT FAILURES
If your motorcycle is properly maintained, you greatly reduce the possibility of any equipment failure. However, just in case...

Blowouts
If you run tires of good quality, keep them at the proper pressure, and change them when the tread is worn, the chances of having a blowout are small.

However, should it happen to either of your tires, you must act quickly and properly.

1. Do not use the brakes; braking hard will only make things worse. If you must use some brake, apply gradual pressure to the brake on the good tire and ease over to a safe spot to stop.

2. Ease off on the throttle and slow down gradually; rapid deceleration could throw the bike out of control.

3. Hold those handlebars firmly; a great shuddering may take place as the out-of-round tire flops against the pavement, but you are concerned only with keeping that front wheel pointed ahead until you stop.

Stuck Throttle
Most riders have had bad dreams about this, but few have experienced the problem. That is why all contemporary motorcycles have a cut-off switch by the right thumb. Just in case. Practice flipping the cut-off switch. Chances are you will never have a throttle stick, but if you do, you'll know how to deal with it. As you hit the cut-off switch, pull in the clutch (you will probably be in gear); then look for a safe place to coast to a stop.

Broken Clutch Cable
Imagine you are cruising along in fifth gear; you want to shift down; you pull in the clutch lever – and there is no return action. It just lies up against the handgrip. No fun, but not dangerous. You can shift the bike without a clutch. This is not advisable unless necessary, but it can be done. Back off on the throttle and shift down a gear. If you have a sensitive foot, you can probably find neutral before coming to a complete stop. If not, get set for a jerky halt.

GROUP RIDING & PASSENGERS

As we said earlier, motorcycling is a sociable sport, so chances are very good you'll soon be riding with friends on their motorcycles, and have others who want to be passengers.

As with any sport, it's nice if the participants all have a general idea of what to do.

Riding in a Group

It is useful if, before taking off on a group ride, you get two or three hand signals organized amongst the participants: "let's stop; need gas; I'm hungry."

A few rules for the group:

- Riding in a group of more than four motorcycles can become confusing both for the group and other traffic around you. If there are too many people, break it up into smaller groups.
- Ride in a staggered formation, with first bike on the left side of the lane, second on the right side, etc., but not side by side.
- Always keep at least a two-second following distance from the motorcycle directly in front of you.
- At a stoplight or stop sign, wait in pairs.
- Pass other vehicles individually, when safe – not in pairs or groups.

Carrying a Passenger

Company is always nice. Some company weighs 100 pounds, other company weighs 200 pounds. Before riding with a passenger make sure your rear fender is designed to carry a passenger. Rigid frames and swing-arm mounted fenders are not designed for passenger use.

Putting extra weight on the motorcycle will affect its handling. Adjust your suspension and tire pressures to compensate for the amount of company you've brought along. (Check your owner's manual.)

Also realize that your braking capabilities have changed; take that into account. The more weight you have on the motorcycle, the longer it takes to stop.

Passengers should be instructed to always mount from the same side, and to warn you before they climb on. This goes a long way to preventing a muddled heap lying on the ground.

Passengers need the same protection that you do – proper clothes and helmet. Ten-foot scarves flapping in the wind may look dashing, but not on a motorcycle. You don't want shoe laces or loose pants legs catching on rear wheel or chain parts.

Never carry anyone sidesaddle. Passengers should always straddle the bike with their feet securely planted on the footrests. Tell passengers not to put a foot down when you come to a stop.

Show them where the hot things are – like header pipes and mufflers. Caution passengers against coming in contact with the hot parts to prevent any injuries. Also, rubber soles can melt and leave a mess.

Instruct passengers to hold onto you at your waist or hips. Ask them to lean forward slightly when you leave from a stop or accelerate along the highway.

Also, when you brake, passengers should be firmly braced against your waist and should lean back slightly. You don't want their weight to shift forward.

Advise passengers not to lean unless you do. You do not want the person behind hanging off the bike at 30 degrees; that will do funny things to the steering. However, when you lean going around a corner, passengers should definitely lean as well. So have them look over your shoulder in the direction of the turn when you go through a corner; that will put the weight where you want it.

LOADING THE MOTORCYCLE

Whether it is a carton of milk from the convenience store, or camping gear for a three-week trip, you will end up carrying more than people on your motorcycle.

All loads should be tied to the machine. Do not balance a bag of groceries between your legs for a short ride home. Strap it to the back seat with bungee cords or an elasticized cargo net.

A great carrying device is the tank bag. It puts the weight where it should be – near the bike's center of gravity. Make sure it is properly secured and remember never to carry anything on the gas tank or inside the fairing that might interfere with the steering of the bike. Just imagine what happens if the bars won't turn far enough – big trouble.

There are appropriate places to carry loads on a motorcycle, but they do not include your front forks or fenders. If your machine comes with saddlebags or a travel trunk, you're set. If you have none of this, you can always buy a luggage rack or throw-over bags; they are very useful items.

When you load saddlebags, keep equal weight on both sides. This is even more important when you are using soft throw-over bags, as an imbalance can cause one side to drop down and rest on the muffler. A blazing saddlebag is no joke.

Keep the weight relatively light in your travel trunk or on your luggage rack. Being aft of the rear axle, this is the worst place on the motorcycle to carry much weight. It can turn a well-handling motorcycle into a poor-handling terror. Sleeping bags go great back there; a 50-pound sack of dog food does not.

Check the security of the load frequently, and make sure nothing is dangling. It is one thing to lose part of your luggage, quite another to get it tangled up in a wheel.

Above all, DO NOT EXCEED THE GVWR (Gross Vehicle Weight Rating) of your motorcycle! You might find that figure on the plate attached to the steering head; sometimes it is found on the frame; but the best place to look is in the owner's manual. It is written in pounds, and it includes the weight of the motorcycle, all gasoline, oil and coolant, the rider(s), and the luggage.

DRUGS, DRINKING, AND DRIVING

In a word: Don't. We kid you not. Mixing alcohol and drugs and motorcycles is like putting nitro with glycerin: there's a dangerous reaction.

Alcohol is a depressant. The first thing to go is your judgment – and good judgment is essential. Bad judgment gets you into trouble. Drinking riders tend to run off the road more often, have a high percentage of rider error, and use excessive speed for conditions around them. Those are the statistics – and that spells trouble.

It takes a long time for the effects of alcohol to be cleared from your body, roughly one hour for each bottle of beer, glass of wine, or shot of liquor. Nothing but time will shed that alcohol - not showers, coffee, or other so-called remedies. Have a couple of beers if you wish, but have them at home. Then you don't have to go anywhere afterward. If you are going to drink, don't even think about riding.

Alcohol is not the only drug that affects your ability to ride safely. Whether it is an over-the-counter, prescription, or illegal drug, it may have side-effects that increase the risks of riding. Even common cold medicines could make you drowsy – too drowsy to ride – and mixing alcohol and drugs is even more dangerous than using either alone.

CONCLUSION

There is no conclusion. Motorcycling is a constant learning experience. You'll never know all there is to know about riding. But a year from now, you'll know a lot more than you know now – and 10 years from now; 50 years from now. Go forth, have a good time, don't do anything foolish, and we'll see you on the road. It's going to be a great ride!

Motorcycle Skill Test Practice Guide

Introduction

This chapter describes several exercises that you can practice by yourself or with a friend. The exercises will help you develop the skills you need to pass the motorcycle skill test and receive your license. *The proper execution of these exercises will also help prepare you for various traffic situations. Do not attempt these exercises unless you can already perform basic skills such as using the clutch and throttle correctly, shifting, and riding in a straight line. If you do not have these basic skills, be sure to seek instruction before practicing the skills in this guide. Of course, the best place to learn to ride is in a quality rider education program.

*Contact your local licensing agency for exact layout of the skill test in your area.

Read the entire chapter before you practice.

Take the chapter with you for reference when you practice.

Keep practicing until you can do each exercise without a problem. Do not practice for more than one or two hours at a time. When you get tired, you cannot practice effectively.

The instruction is available nationwide. If you call the national toll-free number, (800) 446-9227, you will get the phone number of a training site near you.

Choosing a Practice Area

A well-marked parking lot is the best practice area. Be aware however, of oil left by parked cars. Look for parking lots that are not used all the time at shopping centers, schools, churches or community centers. For instance, you might use a school lot in the evening hours, or a shopping center early in the morning.

Once you've selected a suitable location, it's important to gain permission from the owner.

Keep this basic parking lot diagram in mind when setting up the exercises.

If the parking lot you choose doesn't have lines, use the dimensions diagrammed here. Mark them using a tape measure and chalk.

Traffic is your greatest concern. Make sure you check to the front, sides and rear before doing an exercise. Also, make sure you watch out for children and animals and be considerate of others in the area.

Safety Precautions

The practice exercises are not dangerous. However, a few safety precautions should be followed:

Wear proper protective clothing that includes: helmet, eye protection, gloves, boots or shoes that cover the ankles, long pants, and long-sleeved shirt or jacket.

Inspect the motorcycle for defects before you start. If you are not familiar with the inspection procedures for your motorcycle, check the owner's manual.

Check the practice area for loose gravel, glass, oil left by parked cars, or other things that could be a problem.

If possible, take a friend along to:

A. Watch out for traffic.
B. Help you if anything goes wrong.

What to Bring

Bring six small objects that you can use as markers. Milk cartons or plastic bottles with a little water or sand in the bottom work well. Do not leave them at the practice area when you leave. If you cannot find any small objects, bring some chalk to draw markers on the pavement.

Exercise 1 - Normal Stop in a Straight Line

Practicing this exercise will help you stop smoothly, such as for stoplights and stop signs.

Directions

Accelerate straight ahead across the parking lot between 15-20 mph (shift to second gear). Begin to slow down and downshift at the first marker. Try to come to a smooth non-skidding stop with your front tire next to the last marker.

Coaching Tips

1. Keep head and eyes up.
2. Keep the motorcycle on a straight course.
3. Gradually apply both brakes and squeeze the clutch, downshifting to first gear at the same time. Keep the clutch squeezed in.
4. Do not release the front and back brakes until you come to a complete stop.
5. When stopped, the left foot should come to the ground first.

Common Problems

1. Rear tire skids.
2. Overshooting marker.
3. Unstable during stop.

Basic Corrections

1. Apply less pressure on the rear brake.
2. Begin slowing and braking sooner, or try slightly more pressure on the brakes.
3. Keep head and eyes up during stop. Delay braking until necessary.

Exercise 2 - Quick Stop in a Straight Line

Practicing this exercise will help you stop quickly when something suddenly appears in your path.

Directions

Approach marker 1, upshifting to second gear. As you r front tire passes marker 1, downshift and begin braking. Try to stop before marker 2. Practice this at 10 mph, then 15 mph, then 20 mph. Do not exceed 20 mph.

Coaching Tips

1. Keep head and eyes up.
2. When stopping, apply both brakes and squeeze the clutch, downshifting to first gear. Keep the clutch squeezed in.
3. Keep handlebars straight. Squeeze front brake – don't grab.
4. Do not release brakes until fully stopped.
5. When stopped, the left foot should touch the ground first.

Common Problems

1. Overshooting the final marker.
2. Motorcycle slides sideways, or leans to one side.
3. Engine over-revs when using the front brake.

Basic Corrections

1. Apply more pressure to brakes; however, avoid locking front brake by squeezing, not grabbing, the lever.

2. Sit straight on seat and do not turn handlebars, look straight ahead. NOTE: if the rear wheel inadvertently locks, keep steering the motorcycle straight.
3. Close the throttle before braking. Squeeze the front brake with all four fingers. Avoid pulling back on the throttle when applying pressure to the front brake.

Exercise 3 - Weaves

Practicing these exercises will help you in making lane changes in traffic or changes in direction.

Directions

Drill 1 – 30-foot Weave – Begin at one end of the parking lot lines or markers. Go to the right of the first marker, left of the second, right of the third, and so on. Practice this at 15 mph.

Drill 2 – 20-foot Weave – Proceed the same as you did in the 30-foot weave. Practice this at 15 mph.

Coaching Tips

1. Keep head and eyes up and knees in.
2. Weave by pressing on the handlebars in the direction you want to go. (Press right to lean right; press left to lean left.)
3. Maintain a steady speed.
4. Do not brake while performing weave.

Common Problems

1. Swinging too wide away from markers.
2. Hitting markers.
3. Too much handlebar movement.

Basic Corrections

1. Keep eyes up, looking forward, decrease lean angle; press less on the handlebars.
2. Keep eyes up, looking forward, increase lean angle slightly; press more on the handlebars.
3. Maintain a steady, stable speed. Don't slow down or brake.

Exercise 4 - Basic Turns

Practicing this exercise will help you with turning such as in curves on highways and winding roads.

Directions

Ride around the oval indicated by markers 1, 2, 3, 4, 5 and 6. Adjust your speed on the straightaways by braking as necessary before the turn. Hold a steady throttle around the markers at the ends of the oval. Repeat the exercise in the other direction.

Coaching Tips

1. Beginning speed of 10-15 mph.
2. Slow down before the turn. Brake if necessary.
3. Look through the turn to where you want to go. Lean with the motorcycle.
4. Hold a steady speed or roll on the throttle gently through the turn.

Common Problems

1. Swinging wide of the turn.
2. Cutting corner too close or turning too sharply.
3. Exiting wide out of the turn, making the oval into a circle.

Basic Corrections

1. Look to the exit point. Apply more pressure on the inside handlebar to lean more.
2. Look to the exit point. Do not look down. Apply less pressure to the inside handlebar. Keep a steady throttle.

3. Slow more before the turn. Look where you want to go. Apply more pressure on the inside handlebar to lean more.

Exercise 5 - Normal Turns

Practicing this exercise will help you further refine your turning skills.

Directions

Start, facing marker 1 at a distance sufficient enough to increase speed to 15-20 mph. At point "A," reduce speed, using both brakes. As you start your turn at marker 1, look to the exit point and gently roll on the throttle throughout the turn. Roll on past marker 3 and stop beyond marker 4. Practice turning in both directions.

Coaching Tips

1. Slow down before the turn using both brakes. (Before marker 1.)
2. Look through the turn to the exit.
3. Lean with the motorcycle.
4. Gradually increase speed throughout the turn. (Past marker 3.)

Common Problems

1. Swinging wide of the turn.
2. Cutting corner too close or turning too sharply.
3. Slowing and motorcycle tends to straighten up.

Basic Corrections

1. Slow down more before entering the turn, look to the exit point, press more on the inside handlebar.
2. Keep head and eyes up. Do not look down. Look to the exit point. Press less on inside handlebar.
3. Keep a smooth, steady throttle or slightly increase throttle to stabilize motorcycle.

Exercise 6A - Sharp Turns Without Stopping

Practicing this exercise will help you to make sharp turns such as pulling out of parking spaces or driveways, and turning into a driveway or onto a narrow street.

Directions

Begin riding straight across the parking lot, increasing speed to approximately 10 mph. Just before reaching the "Begin Turning" markers, slow down and use both brakes to adjust your speed. Then release the brakes, turn the handlebars, lean the motorcycle slightly in the direction of the turn and turn your head, looking through the intended path of travel. Use controlled clutch release and throttle as you make the sharp turn. Practice finishing your turn inside line "A," without touching it.

Coaching Tips

1. Use both brakes to reduce speed before the turn.
2. Keep head and eyes up; look through the turn.
3. Turn the handlebars and lean the motorcycle in the direction of the turn.
4. Use smooth clutch release and throttle as you exit.

Common Problems

1. Turning too short or too long.
2. Motorcycle stalls.
3. Motorcycle begins to fall into the turn.
4. Traveling too fast to make turn.

Basic Corrections

1. Keep head and eyes up and look through the turn.
2. Use clutch and throttle smoothly to maintain necessary power to rear wheel.

3. Keep eyes up and look through the turn, keep just enough momentum after braking to carry you through the turn.
4. Slow adequately with both brakes before turning.

Exercise 6B - Sharp Turns From a Stop

Practicing this exercise properly will help you make sharp turns from a stop such as exiting a parking lot or turning into a narrow street.

Directions

Start at “Begin Turning” markers with the motorcycle straight. Turn the handlebars, lean the motorcycle slightly in the direction you are turning, and turn your head to look through the intended path of travel. Use controlled clutch release and throttle as you make the sharp turn. Finish your turn as close to line “A” as you can without touching it.

Coaching Tips

1. Keep head and eyes up; look through the turn.
2. Turn the handlebars and lean the motorcycle in the direction of the turn.
3. Use smooth clutch release and throttle as you exit.

Common Problems

1. Turning too short or too long.
2. Motorcycle stalls or begins to fall into the turn.

Basic Corrections

1. Keep head and eyes up and look through the turn.
2. Concentrate on maintaining steady speed or slight acceleration and smooth clutch release. Look through the turn.

Exercise 7 - Obstacle Swerve

Practicing this exercise will help you swerve to avoid a potential hazard.

Directions

With about 100-foot lead-in, approach the first pair of markers. As you reach the markers you should be going 10-15 mph. As your front tire passes the first pair of markers, make a swerve (right or left) avoiding the imaginary barrier or obstacle. Make sure you’ve decided on which direction you intend to go before starting the exercise. Do not stop or apply brakes while performing the swerve.

Coaching Tips

1. To swerve right, press right until you have cleared the markers, then press left to resume straight ahead.
2. Keep head and eyes up and knees in against the tank.
3. Press on the handlebar in the direction you want to go. (Press right to go right; press left to left.)
4. Do not brake and swerve at the same time.

Common Problem

1. Unable to properly complete the swerve.

Basic Correction

1. Keep a steady speed. Maintain pressure on the handlebar until you have cleared the marker, then press on opposite handgrip to straighten into the new path.

Exercise 8 - Normal Stop on a Curve

Practicing this exercise will help you stop smoothly in a curve.

Directions
Ride to the outside of line "A," upshifting to second gear. As you reach marker 1, turn in the curved path indicated by markers 2, 3, and 4. Once you enter the curved path, gradually apply both brakes and downshift. Do not release the clutch. Try to come to a smooth stop with your front tire next to marker 3. Practice this at 10 mph, then at 15 mph.

Coaching Tips
1. Keep head and eyes up; focus on where you want to go.
2. Straighten up the motorcycle and square the handlebars before you stop completely.
3. Use both brakes smoothly to stop.
4. Keep feet on pegs until almost stopped.
5. When stopped, the left foot should touch the ground first, and you should be in first gear.
6. Do not grab the front brake or skid either tire.

Common Problems
1. Overshooting the final marker.
2. Motorcycle nearly falls over.
3. Rear wheel skids.

Basic Corrections
1. Gradually apply more pressure to the brakes as motorcycle straightens more.
2. Just before stopping, be sure the handlebars are square with the motorcycle. Keep eyes up. Don't grab front brake.
3. Apply less pressure on the rear brake and make sure the motorcycle is straight up as you stop.

Exercise 9 - Quick Stop on a Curve
Practicing this exercise will help you stop quickly when something suddenly appears in your path on a curve.

Directions
Ride to the outside of line "A." Start, facing marker 1 at a distance sufficient enough to increase speed to 10-15 mph in first gear. As you reach marker 1, turn in the curved path indicated by markers 2, 3, and 4. When your front tire passes marker 2, first straighten the motorcycle, then begin braking. You should be stopped before marker 3. Practice this at 10 mph, then 15 mph. Do not exceed 15 mph.

Coaching Tips
1. Keep head and eyes up; focus on where you want to go.
2. Straighten motorcycle, then apply both brakes, stopping as quickly as possible.
3. Keep feet on pegs until almost stopped.
4. When stopped, the left foot should touch the ground first.
5. Do not grab the front brake or skid either tire.

Common Problems
1. Overshooting the final marker.
2. Motorcycle nearly falls over.
3. Rear wheel skids.

Basic Corrections
1. Apply maximum pressure to the brakes once motorcycle is straightened from the lean angle.
2. Straighten up the motorcycle first, then apply the brakes. Be sure the handlebars are square with the motorcycle. Keep eyes up. Don't grab front brake.
3. Apply less pressure on the rear brake and make sure the motorcycle is straight up as you stop.

Acknowledgements
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FAMILIARIZATION – MAJOR COMPONENTS

KNOW YOUR MOTORCYCLE

Make sure you are familiar with your motorcycle before riding it on the street. Find out where everything is, particularly the turn signals, horn, headlight switch, gasoline supply valve and engine stop switch. Make sure you can find and operate them without having to look at them. Check all of the controls. Know the gear pattern. Work the throttle, clutch and brakes a few times before you take off. All controls react a little differently. Ride very cautiously until you are used to the way the motorcycle handles. Take turns slowly and give yourself extra stopping distance. To better familiarize yourself with the controls and components of your motorcycle, review the information and diagrams on the following pages.

CAUTION: A SAFE MOTORCYCLE CAN BE QUICKLY TURNED INTO A MENACE. IF YOU ADD THE WRONG ACCESSORIES OR MAKE CHANGES TO THE MOTORCYCLE, IT CAN MAKE THE MOTORCYCLE MUCH HARDER TO HANDLE. SOME RIDERS LIKE TO MAKE MODIFICATIONS TO THEIR MOTORCYCLES, SUCH AS EXTENDING THE FRONT FORK. THE WRONG MODIFICATIONS CAN MAKE THE MOTORCYCLE HARDER TO HANDLE. THEY CAN ALSO PUT EXCESS STRAIN ON PARTS. DO NOT MAKE ANY CHANGES UNLESS YOU KNOW HOW THEY AFFECT THE MOTORCYCLE.

VEHICLE IDENTIFICATION NUMBER

The full 17 digit serial, or Vehicle Identification Number (V.I.N.) is located on the VIN label, mounted on the down-tube. Always give the full 17 digit number when ordering parts or making any inquiry about your motorcycle.

FRAME DESIGN AND CONSTRUCTION

The frame is one of the most important components on a motorcycle. The frame must be designed strong enough and built rigid enough to:

- Manage the power and torque created by the power train and maintain its alignment during the full range of acceleration/deceleration.
- Maintain wheel alignment during extreme braking and hard cornering, as well as while riding over rough surfaces.
- Provide a solid mounting surface and pivot points for the front and rear suspension.
- Effectively support the weight of the motorcycle itself as well as the rider, a passenger, and travel gear.

Your motorcycle frame utilizes one of the strongest frame designs in the motorcycle industry and is specifically designed and built with all these requirements in mind.

The “cradle frame” surrounds the engine and is reinforced at critical stress points by the frame's tubing, forming triangular shapes. The frame is made from high-strength seamless steel tubing and utilizes a high tensile strength welding process to extremely tight tolerances. This frame is designed to provide exceptional strength and performance.

WARNING

THE FRAME GEOMETRY, STRETCH, AND RAKE ANGLE FOR EACH AMERICAN HOTROD MANUFACTURING, LLC FRAME WAS ENGINEERED, DEVELOPED, AND MANUFACTURED TO HANDLE AND PERFORM SAFELY. DO NOT ATTEMPT TO MODIFY OR CHANGE ANY ASPECT OF THE FRAME. ALTERING THE FRAME BY CUTTING, BENDING, WELDING, ETC. CHANGES THE ORIGINAL DESIGN CONFIGURATION AND MAY EXPOSE IT TO LOAD AND DIRECTIONAL STRESS UNDER WHICH IT WAS NOT INTENDED TO OPERATE. SUCH ACTION WILL VOID THE MANUFACTURER WARRANTY, BUT MORE IMPORTANTLY, MAY RESULT IN AN UNSAFE OPERATING CONDITION.

SUSPENSION SYSTEM

The suspension system (both front and rear) is the fundamental ingredient in determining the handling capability of a motorcycle. The suspension system is responsible for keeping the wheels on the ground and absorbing the shock as the motorcycle passes over uneven surfaces in the road. Both the front suspension (telescoping front forks) and the rear suspension (rear swing arm and shock absorbers) operate by compressing and extending as the motorcycle passes over a bump, absorbing the shock of the bump to keep the motorcycle stable. The front and rear suspension utilize springs for the up and down compression and extension, and suspension dampers to stabilize the up and down movement. Without the suspension dampers, the springs in the suspension system would continue to bounce up and down after each bump creating a "rocking horse" or “pogo” effect.

Our motorcycles use telescopic front fork assemblies. Each assembly consists of two fork tubes which contain springs, spring dampers and oil. The fork legs slide on the fork tubes, and the tube or leg extends and compresses within itself as a shock absorber. The triple trees and fork stem hold the front fork tubes to the frame and keep the tubes aligned. The fork stem is an integral part of the triple tree and fits through the steering head allowing the forks to be turned to the right and left, and limited by internal stops.

Our rear suspension system is configured with hidden shock absorbers (on solid-mounted powertrain models) or external shocks (on rubber-mounted powertrain models). The hidden shock absorbers are located underneath the powertrain and are constructed of a spring mechanism in a container with a shaft at one end and a frame mounting collar at the other. These shock absorbers are set at the factory and should be replaced with new components when worn. External shock absorbers can be adjusted for dampening and rebound settings by a qualified technician.

WARNING

SHOCK ABSORBERS CONTAIN HIGH PRESSURE NITROGEN GAS. DISPOSAL AND ADJUSTMENT SHOULD BE PERFORMED ONLY BY A QUALIFIED TECHNICIAN. DO NOT OPEN. DO NOT INCINERATE. INCINERATION, PUNCTURE OR DISASSEMLY MAY CAUSE UNIT(S) TO EXPLODE. SEE YOUR AUTHORIZED DEALER OR SERVICE CENTER FOR PROPER HANDLING, DISPOSAL, AND/OR ADJUSTMENT.

Our motorcycles are designed to operate with one driver and in some cases, when properly equipped, with one passenger riding directly behind the driver. The addition of accessories, additional weight loads, etc. has not been taken into consideration in the vehicle design and must be strictly avoided.

WARNING

NEVER ADD WEIGHT LOADS AND/OR ACCESSORIES BEYOND RIDER AND PASSENGER. SUCH ADDITIONAL WEIGHT AND POTENTIAL DYNAMIC WIND LOADS MAY CAUSE VEHICLE INSTABILITY AND RESULT IN PERSONAL INJURY.

POWERTRAIN

The powertrain of your motorcycle consists of four components:

- V-Twin, air-cooled, four-stroke Engine
- Belt or Chain driven Primary Drive
- 5-speed or 6-Speed transmission
- Belt or Chain driven Final Drive

The engine is powered by two large cylinders and combustion chambers that are capable of developing incredible power for a V-Twin four-stroke engine. “Four-stroke” means that each piston moves four times (strokes) for the engine to complete one full cycle.

1. Intake Stroke: the piston moves down while the intake valve is open, pulling the air/fuel mixture into the cylinder.
2. Compression Stroke: the piston moves upward pressurizing the air/fuel mixture.
3. Power Stroke: as the spark plug ignites the compressed air/fuel mixture, the combustion pushes the piston back down.
4. Exhaust Stroke: with the exhaust valve open the piston moves upward again, pushing the burned gases out of the cylinder.

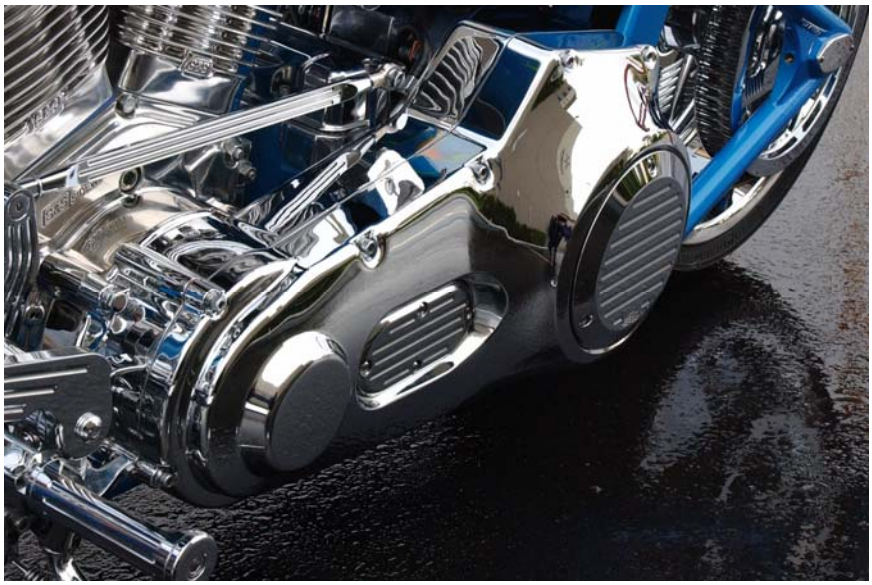
At normal operating speeds, the pistons cycle at 3,000 to 5,000 revolutions per minute while the spark plugs fire at just the right time to maintain the speed and performance demanded by the rider. Your engine's performance is determined by compression (its ability to seal itself). Breaking in your engine properly is critical in order for the valves, rings, pistons, and all the other moving components within the engine to "seat' or "wear-in," enabling the combustion chamber to seal and allow for maximum compression.

NOTE: REFER TO THE “ENGINE BREAK-IN PERIOD” SECTION IN THIS MANUAL FOR SPECIFIC ON PROPERLY BREAKING IN YOUR ENGINE.

The power generated by the engine is transmitted to the rear tire through a combination of belts, gears and sprockets shared by the primary drive, transmission, clutch, and final drive.

The primary drive delivers power from the engine to the transmission and is composed of a primary drive belt which runs from the engine crankshaft to the clutch in the transmission.

Various size gears in the transmission provide a wide range of rear wheel speeds, while permitting the engine to operate within its range of normal operating speeds. Smaller gears provide more torque while larger gears provide more speed. This pairing of different size gears is called "gear ratio" (refer to “model specifications” for actual ratios). The power from the engine to the transmission is engaged and disengaged by the clutch.



The clutch assembly is positioned between the primary drive belt and the transmission, and provides a mechanism to connect and disconnect the primary drive and the transmission. The clutch assembly is disengaged by pulling the clutch hand lever in against the handlebar grip and is engaged by releasing the lever. When the engine is running, the primary drive is spinning. As the clutch is engaged (the hand lever released) the power from the engine is transferred to the transmission and subsequently to the rear wheel. When the clutch is disengaged (the hand lever pulled closed) engine power is not sent to the transmission.

CAUTION: MAINTAINING PROPER TENSION ON THE CLUTCH CONTROL CABLE IS CRITICAL TO THE LIFE OF YOUR CLUTCH. IF THE CLUTCH CABLE IS TOO TIGHT, THE CLUTCH ASSEMBLY WILL NOT FULLY ENGAGE WHEN THE HAND LEVER IS RELEASED, WHICH CAUSES THE CLUTCH DISCS TO SLIP AND WEAR UNDER RAPID ACCELERATION OR HEAVY LOADS. IF THE CLUTCH CABLE IS TOO LOOSE, THE CLUTCH WILL ONLY PARTIALLY ENGAGE, CAUSING UNNECESSARY CLUTCH WEAR. REFER TO “CLUTCH ADJUSTMENT” OR YOUR AUTHORIZED DEALER OR SERVICE CENTER.

The final drive is the last link in the powertrain and connects the transmission to the rear wheel using a highly durable synthetic belt similar to that used in the primary drive. Both the primary and final drive belts are quieter, more durable, and require less maintenance than conventional drive chains.

NOTE: THE POWERTRAIN AND ITS COMPONENTS HAVE BEEN DESIGNED AND ENGINEERED TO MEET SPECIFIC PERFORMANCE, DURABILITY, SAFETY, AND EMISSIONS OBJECTIVES. TO ENSURE PEAK PERFORMANCE AND LONGEVITY FROM YOUR POWERTRAIN, USE ONLY APPROVED REPLACEMENT COMPONENTS.

BRAKING SYSTEM

The brake system is a hydraulic disc type. The front brakes are controlled by the driver's right-side hand lever and the rear brake is controlled by the driver's right-side foot pedal. The front and rear braking systems run independent of one another and each has its own master cylinder and fluid reservoir. For maximum safety and durability, your motorcycle uses D.O.T. approved brake lines throughout both front and rear systems.

Since the front braking system is the primary brake and supplies as much as 70% or more of the braking power, a dual four-piston caliper, front braking system has been engineered for maximum power. The rear brake system is a single, four-piston caliper design.

NOTE: FOR NORMAL BRAKING, APPLY BOTH THE FRONT AND REAR BRAKES WHILE DOWN-SHIFTING TO MATCH YOUR ROAD SPEEDS. FOR MAXIMUM BRAKING, CLOSE THE THROTTLE AND FIRMLY APPLY BOTH FRONT AND REAR BRAKES; THEN PULL IN THE CLUTCH LEVER BEFORE COMING TO A COMPLETE STOP TO PREVENT ENGINE STALL.

WARNING

BRAKES ARE MOST EFFICIENT WHEN EQUALLY BALANCED BETWEEEN BOTH FRONT AND REAR BRAKES FOR BRAKING AND STOPPING. NEVER APPLY BRAKES SO STRONGLY THAT FRONT OR REAR WHEELS LOCK UP. THIS WILL CAUSE LOSS OF DRIVER CONTROL AND MAY RESULT IN PERSONAL INJURY. ALWAYS APPLY BRAKES SMOOTHLY AND BALANCE BETWEEN FRONT AND REAR WHEELS. WET OR OILY SURFACES GREATLY INCREASE THE CHANCE OF REAR WHEEL LOCK WHEN APPLYING THE BRAKES. LOOSE SURFACES SUCH AS GRAVEL MAKE IT VERY DIFFICULT TO PREVENT FRONT WHEEL LOCK AND LOSS OF STEERING.

CAUTION: INSPECT AND MAINTAIN THE FLUID LEVEL IN BOTH FRONT AND REAR MASTER CYCLINDERS AND ASSURE THAT ALL BRAKE PADS HAVE ADEQUATE THICKNESS TO KEEP YOUR BRAKING SYSTEM PERFORMING PROPERLY.

WARNING

BRAKE PERFORMANCE IS A CRITICAL SAFETY ISSUE. THIS IS NOT A SYSTEM YOU CAN AFFORD TO IGNORE. ANY WORK DONE ON YOUR BRAKE SYSTEM IS A SERIOUS MATTER AND MUST BE PERFORMED ACCURATELY BY AN AUTHORIZED AMERICAN HOTROD MANUFACTURING, LLC MOTORYCLES SERVICE CENTER.

ELECTRICAL SYSTEM

Your motorcycle was designed and built according to all applicable Federal Motor Vehicle Safety Standards. Modification of the motorcycle's electrical system will result in termination of your motorcycle's warranty.

WARNING
REMOVING OR ALTERING FACTORY INSTALLED STANDARD PARTS MAY AFFECT PERFORMANCE AND CAUSE INJURY. THE USE OF ANY NON-STANDARD PARTS MAY VOID YOUR WARRANTY.

The electrical system is powered by a long-life, 12-volt battery which interfaces with five subsystems:

- **Starting**: Electrical current flows to the starter relay when the engine "Start" switch is pushed. This closes the circuit from the battery to the starter and produces a large current flow to the starter motor which turns the engine for starting.
- **Charging:** Once the engine is running, the alternator then provides continuous electrical power to meet the vehicle's needs and to recharge the battery. Alternator output is controlled and changed to direct current (DC) by the voltage regulator. The voltage regulator matches the charge rate to the needs of the battery and the other components in the electrical system and increases the charging rate when the battery is low or decreases the charging rate when the battery is recharged.
- **Ignition:** The ignition coil receives the 12 volts of electrical power supplied by the alternator through the battery and steps it up to approximately 16,000 volts. During the compression stroke the Electronic Control Unit (ECU) triggers the coil which creates a high voltage spark at the proper time. The ignition timing constantly changes (advances or retards) as the engine speed increases or decreases. The ignition system is designed to provide an optimal balance between fuel economy, engine performance, and exhaust-emissions.

WARNING
IGNITION TIMING ADJUSTMENT REQUIRES SPECIAL DIAGNOSTIC AND CALIBRATION EQUIPMENT. IF IGNITION TIMING IS NOT CORRECT, CONTACT AN AUTHORIZED AMERICAN HOTROD MOTORCYCLES DEALER OR SERVICE CENTER.

- **Accessories**: The accessory system consists of all the electrical components and related wiring, all of which are powered by the battery. The alternator keeps the battery supplied with an electrical charge.
- **Circuit Breakers**: Circuit breakers protect the wiring, are self-resetting, and will automatically return steady power to the circuit once the electrical fault that caused the failure is corrected. If not corrected, the breaker will cycle on and off, resulting in erratic operation and possible battery failure.

CAUTION: ELECTRICAL SYSTREM PROBLEMS ARE BEST DIAGNOSED AND REPAIRED BY AN AUTHORIZED DEALER OR SERVICE CENTER.

FUEL SYSTEM

The fuel system is a gravity flow system and does not require a fuel pump. Although it is a simple system, it must perform the complicated task of blending (or mixing) the fuel and air together in the right proportions and supply this mixture to the engine.

The system consists of:

- **Fuel Tank**: The gas cap is located in the center. Remove cap by rotating counter clock wise.
- **Fuel Supply Valve**: (Petcock) On-Off-Reserve settings for fuel flow.
- **Carburetor**: Precisely atomizes, mixes, and meters the air/fuel mixture to the combustion chambers
- **Throttle**: The throttle grip is connected to the throttle plate through the throttle cable.
- **Air Filter**: Keeps airborne particles form entering the carburetor and entering the intake system.

NOTE: The carburetor is a precise metering device and should only be serviced by a qualified technician. See your Authorized Dealer or Service Center for assistance.

CONTROLS AND OPERATIONS

IGNITION - LIGHT KEY SWITCH

The ignition switch is located below seat, left-hand side of motorcycle and has two operative positions as wired from the factory. The "off/lock" mode is approximately at the 12 o'clock position. The switch mechanism is activated by inserting the key into the ignition key slot and turning the switch mechanism straight up and down and parallel with the bike frame.

With the key in the center position the electrical system is off but the key cannot be removed.

To reach the "ON" position, rotate the ignition switch to approximately the 2 o'clock position. The headlight will come on when the switch has been positioned in the "ON" position.

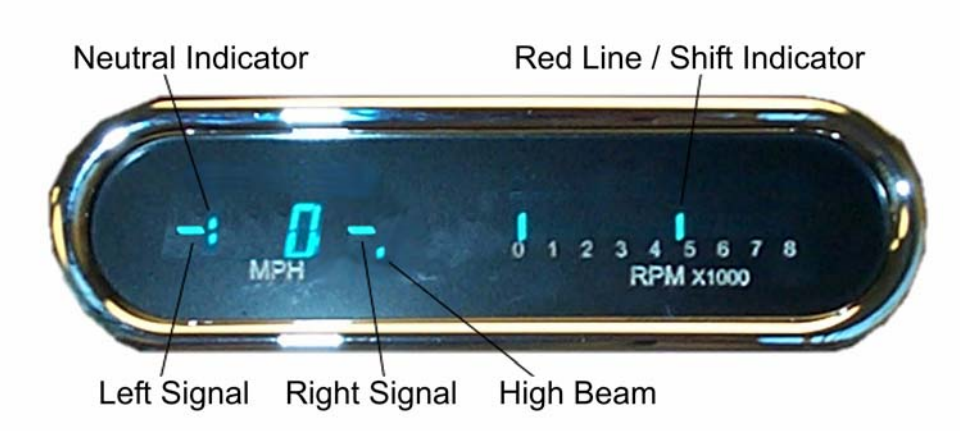
WARNING

DO NOT MODIFY THE IGNITION/LIGHT SWITCH WIRING TO CIRCUMVENT THE AUTOMATIC-ON HEADLIGHT FEATURE. HIGH VISIBILITY IS AN IMPORTANT SAFETY CONSIDERATION FOR MOTORCYCLE RIDERS.

CAUTION: ALWAYS REMOVE THE KEY WHEN THE MOTORCYCLE IS LEFT UNATTENDED. TO DETER THEFT OF YOUR MOTORCYCLE AN ANTI-THEFT DEVICE, SUCH AS A CABLE, CHAIN OR ROTOR LOCK, IS ADVISABLE.

DIGITAL INSTRUMENT CLUSTER

Various indicator lights are provided on the instrument control panel centered on the motorcycle's handlebars:



- The neutral gear indicator light means that the vehicle's transmission is in the neutral position.
- The Red Line / Shift Indicator is a function of the Tachometer and indicates the maximum suggested shift point for the engine.
- Turn signal indicators indicate which turn signal is flashing, right or left.
- Headlamp high beam indicator indicates that the front headlight is lit and in the high beam position.

- The low oil pressure indicator will flash "LO" "OIL" in the place where the speed (MPH) is displayed. This indicates that the engine is experiencing low oil pressure. When initially starting the vehicle, this indicator should momentarily go on for one or two seconds before the engine is experiencing adequate oil lubrication. This condition should last only one or two seconds. Sometimes, especially when a vehicle's idle speed is set very low, this may flash on as the vehicle idles.

WARNING

IF THE LOW OIL PRESSURE INDICATOR REMAINS ON AS ENGINE SPEED INCREASES ABOVE IDLE, IMMEDIATELY TURN OFF THE ENGINE. OPERATING THE ENGINE WITH LOW OR NO OIL PRESSURE CAN SERIOUSLY DAMAGE THE ENGINE. OPERATING AN ENGINE WITH LOW OR NO OIL PRESSURE MAY SEIZE THE ENGINE CAUSING SEVERE DAMAGE AND RESULT IN POSSIBLE PERSONAL INJURY TO THE DRIVER. SEEK IMMEDIATE PROFESIONAL TECHNICAL ATTENTION TO THE SITUATION BEFORE RESTARTING OR REUSING THE VEHICLE.

SPEEDOMETER

The speedometer provides a continuous digital reading of the motorcycle's forward speed. The odometer indicates total miles traveled by the motorcycle since leaving the factory.

WARNING

NEVER TRAVEL AT A SPEED FASTER THAN THE LEGAL SPEED LIMIT. EXCESSIVE SPEED IS NOT ONLY ILLEGAL, BUT IS UNSAFE AND COULD CAUSE POSSIBLE LOSS OF CONTROL AND SERIOUS INJURY.

CALIBRATION

Your speedometer is calibrated at the factory. If for some reason your speedometer is not functioning properly or is not indicating the proper speeds you can recalibrate your speedometer in the field. Failure to properly calibrate the speedometer may cause your odometer mileage to increase very rapidly.

SPEEDOMETER CALIBRATION

The speedometer calibration is done using the function (trip) switch. The speedometer can be calibrated two different ways.

1. The first method is to place the unit in auto-cal mode and drive exactly one mile (one km for metric).
2. The second method is to place the unit in adjust mode and the speed reading can be moved up or down while driving.

WARNING:

NEVER ALTER OR TAMPER WITH VEHICLE'S ODOMETER READING. THIS IS ILLEGAL AND MAY ALSO PERMANENTLY DAMAGE THE VEHICLE.

METHOD 1, AUTOCAL

1. Make sure the key is off so the gauge is not powered.
2. Press and hold the function switch.
3. Turn the key on. With the switch still held, start the bike. The display will show " -- ".
4. Release the function switch. The display will switch between "AUtO" (auto cal), "AdJ" (adjust), "CYL"(cylinder select), and "SEt" (shift bar).
5. When "AUtO" is displayed press the function switch. This will place the unit in auto calibration mode.
6. Release the function switch. The speedometer will show "–00.0".
7. Drive exactly one mile (or 1km). The speedometer display will increase as signal pulses are received from the speed sensor.
8. Press and release the function switch. The calibration value will be calculated and stored. The gauge will now restart in normal mode with the new speed calibration.

METHOD 2, ADJUST SPEED

1. Make sure the key is off so the gauge is not powered.
2. Press and hold the function switch.
3. Turn the key on. With the switch still held, start the bike. The display will show " -- ".
4. Release the function switch. The display will switch between "AUtO" (auto cal), "AdJ" (adjust), "CYL"(cylinder select), and "SEt" (shift bar).
5. When "AdJ" is displayed press the function switch. This will place the unit in calibration adjustment mode.
6. Release the function switch. The speed display will flash to indicate that it is in the adjust mode. The tachometer will operate normally.
7. Drive at a known speed. Following another vehicle that is driving at a constant, known speed can do this.
8. Press the function switch. The speed reading will begin increasing until the function switch is released. The next time the function switch is pressed, the speed reading will begin decreasing until it is released.

9. Once the speedometer is reading correct release the function switch. The new calibration will be saved if no adjustments are made for 7-10 seconds

Function Switch

The function switch is used for calibration and to read out the odometer mileage. Pressing and holding the function switch while the gauge is running will display the odometer mileage as follows:

> "odo" > thousands > hundreds > tenths
>
> 65,432.1 would be displayed as follows: "odo" > " 65" > "432" > " .1"

Pressing and releasing the function switch while the gauge is running will display the trip mileage as follows:

> "trP" > hundreds > tenths
>
> 123.4 would be displayed as follows: "trP" > "123" > " .4"

The trip mileage will continue to be displayed until the functions switch is momentarily pressed again. Pressing and holding the function switch while the trip mileage is being displayed will reset it to zero.

ANALOG INSTRUMENT SPEEDOMETER

The analog speedometer uses a needle gauge to indicate speed in both MPH and KPH. Bikes equipped with the analog speedometer also include an indicator cluster that shows left and right turn signals, high beam indicator, neutral indicator and oil pressure indicator lights.

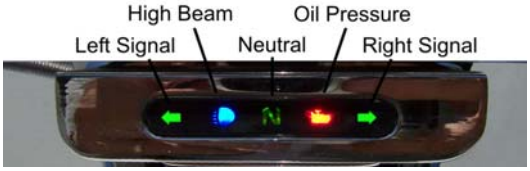
How to use the Trip Meter:

Press the trip/reset button on the face of the speedometer to toggle between the odometer and trip meter. Pressing and holding the trip/reset button for more than two (2) seconds while in the trip mode will reset the trip meter.

How to Calibrate the Speedometer:

1. Turn the key switch off, press and hold the trip/reset button on the face of the speedometer.
2. While holding the button, turn the key switch on the bike to the on position.
3. Continue to hold the trip/reset button until the pointer moves to full scale.
4. Release the trip/reset button.
5. Turn the key switch on the bike to the off position.
6. Press and hold the trip/reset button and start the engine while continuing to hold down the trip/reset button.
7. Continue to hold the trip/reset button until the pointer moves to full scale and release the trip/reset button.
8. Go to the beginning of a known two (2) mile distance and stop.
9. Press the trip/reset button. (The pointer will move to the half scale position.)
10. Drive the two (2) mile distance and stop.
11. Press and release the trip/reset button. (The pointer will move to the 0 position.)

Note: With the power off the needle will not always return to the 0 position, this is normal. When power is applied, the needle will move to the mid-scale position and then return to the 0 position.



TURN SIGNAL INDICATORS

Your motorcycle is equipped with front and rear, left and right side, D.O.T.–approved, self-canceling turn signals. These turn signals are operated by turn signal switches located on the handlebar controls. The left side turn signal switch operates both the front and rear left side turn signal lights. The right side turn signal switch operates both the front and rear right side turn signal lights.

Depressing either turn signal switch will begin the corresponding side turn indicator lights blinking on and off. Always ensure that turn signal lamps are operating. Replace burned-out lamps only with approved replacements.

WARNING

NEVER REMOVE FACTORY INSTALLED TURN SIGNALS OR REPLACE WITH NON-D.O.T. APPROVED UNITS. NON-D.O.T.-APPROVED REPLACEMENT UNITS MAY BE MORE DIFFICULT TO BE SEEN BY OTHER VEHICLE OPERATORS

HEADLAMP HI/LO SWITCH

The headlight switch is located on the left handlebar and controls the headlight high and low beams. The high beam indicator light on the instrument panel remains lit when the high beam is activated. To activate the low beam, make sure you press the hi/lo switch in the downward position. To activate the high beam, press the hi/lo switch in the upward position.

CAUTION: DO NOT ACTIVATE THE HIGH BEAM AT ONCOMING TRAFFIC.

ELECTRIC STARTER

The starter switch is located on the right handlebar control. With the IGNITION ON, the engine stop switch in the RUN position and transmission in NEUTRAL, push the button only once to operate the starting motor.

CAUTION: HOLDING THE SWITCH IN THE DEPRESSED POSITION FOR LONGER THAN 5 SECONDS CAN CAUSE DAMAGE TO THE ELECTRICAL AND STARTER SYSTEMS.

If the engine fails to start the first time, repeat this procedure. The starter will deactivate when the switch is released. Check that the green light is on.

ENGINE STOP SWITCH

The engine OFF/ RUN switch is located on the right handlebar. Placing the switch in the RUN position allows the engine to start and run. Placing the switch in the OFF position stops the engine. This switch should be used to stop the engine when you do not have time or are unable to reach for the ignition switch. Once the engine is stopped, the ignition switch must also be turned off. You must turn the OFF/RUN switch to RUN, in order to restart the engine.

HORN

The horn is operated by the horn button on the left handlebar. To activate the horn, push the button. The horn on a motorcycle is not much of an attention getter, but is better than nothing. Put your thumb on it and be ready to use it whenever you are passing a vehicle. It is a good idea to give a quick toot before you pass anyone you think may move into your lane. Here are some situations that may warrant the use of the horn:

- A car is in the lane next to you and coming up behind a vehicle ahead. A parked car that has a person in the driver's seat.
- Someone is walking or riding a bicycle in the street.
- Do not be afraid to give a blast on the horn if you have any doubts about what others might do.
- In an emergency, press the horn loud and long. Be ready to stop or swerve away from danger.

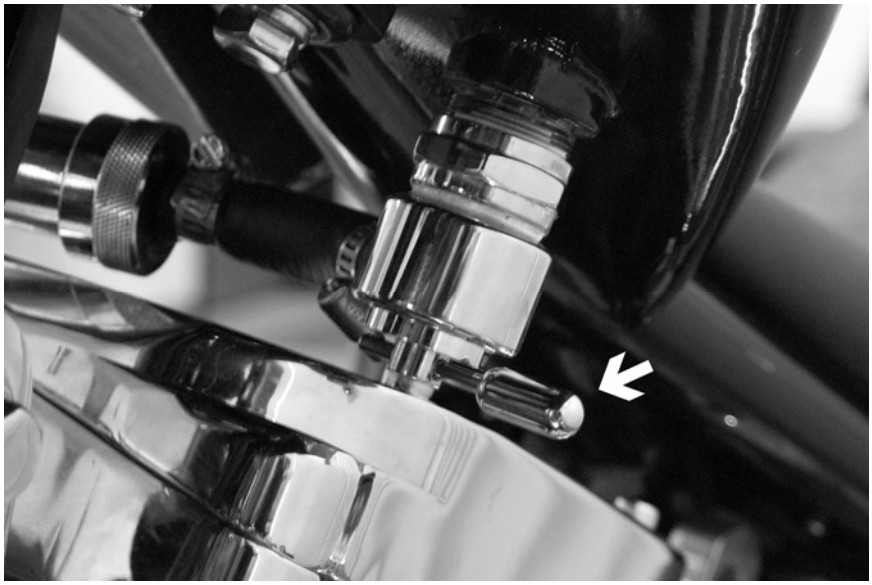
THROTTLE CONTROL GRIP

The throttle control grip is on the right handlebar control. Turn the engine throttle control grip counterclockwise (towards the driver) to increase engine speed. Turn the engine throttle control grip clockwise (away from driver) to reduce engine speed.

FUEL SUPPLY VALVE

The fuel supply valve is a high performance, high flow petcock located under the fuel tank on the left side of the engine. The lever on the fuel supply valve has three positions. The position indicator is located at the base of the fuel valve, just above the adjustment lever. There are three fuel supply valve positions:

- **Fuel On**: Turn the lever counter clockwise until it stops.
- **Fuel Off**: Turn the lever clockwise until it stops.
- **Fuel Reserve**: Turn the lever to the center position.



NOTE: IN THE "FUEL ON" POSITION, FUEL ENTERS THE VALVE FROM APPROXIMATELY ONE INCH ABOVE THE BOTTOM OF THE TANK. THE RESERVE POSITION ALLOWS THE FUEL REMAINS IN THE BOTTOM OF THE TANK TO ENTER THE FUEL VALVE.

WARNING

IF YOU USE YOUR FUEL RESERVE, REMEMBER TO TURN THE VALVE FROM THE RESERVE TO THE ON POSITION AFTER REFUEL ING IN ORDER TO SAVE YOUR RESERVE FUEL. ALWAYS CLOSE THE FUEL SUPPLY VALVE WHEN THE ENGINE IS NOT RUNNING. FAILURE TO DO SO CAN RESULT IN FLOODING THE ENGINE WITH FUEL, MAKING THE MOTORCYCLE DIFFICULT TO START.

CAUTION: MAKE SURE THE GASOLINE SUPPLY VALVE IS TURNED OFF WHEN THE ENGINE IS NOT RUNNING. IF THE VALVE IS LEFT IN ANY OTHER POSITIONS, IT MAY ALLOW FUEL TO OVERFILL THE CARBURETOR AND LEAK INTO THE ENGINE, CAUSING ENGINE DAMAGE.

FUEL ENRICHENER CONTROLS

For S&S Motors the fuel enrichener lever is located on the air cleaner backing plate, which is located underneath the right side of the fuel tank. For TP motors the fuel enrichener knob is located just above the coil.

Pull up/out on the fuel enrichener lever to place it in the ON position for cold engine starts. After the engine has warmed up, press down/in on the fuel enrichener lever to place it in the OFF position.

Do not leave the fuel enrichener lever in the ON position after the engine has warmed up or when starting a warm engine. Please refer to the section on hot and cold starting your motorcycle.

CAUTION: NEVER ALLOW ENGINE TO IDLE, WHILE MOTORCYCLE IS STANDING STILL FOR MORE THAN A FEW MINUTES BECAUSE OVERHEATING AND ENGINE DAMAGE MAY OCCUR.

FUEL CAPS

The fuel tank is fitted with its own gas cap. Take care not to cross gas cap threads during reattachment. To remove the gas cap, turn the cap counterclockwise. To secure the cap, turn it clockwise.

WARNING

USE CAUTION WHEN REMOVING FUEL CAPS. TO MINIMIZE THE CHANCE OF FUEL SPILLS, KEEP THE MOTORCYCLE LEVEL AND REMOVE THE FUEL CAP SLOWLY, ALLOWING ANY BUILT UP PRESSURE TO ESCAPE. CLEAN UP ANY FUEL THAT MAY HAVE SPILLED IMMEDIATELY. IF GASOLINE IS NOT CLEANED UP IMMEDIATELY, IT MAY DAMAGE THE PAINT FINISH ON YOUR MOTORCYCLE.

CAUTION: GASOLINE WITH FUEL ADDITIVES MAY CAUSE DAMAGE TO VEHICLE PARTS. GASOLINE SPILLS CAN DISCOLOR VEHICLE PAINT AND FINISHES. CLEAN ALL AFFECTED SURFACES IMMEDIATELY.

BRAKE SYSTEM

The front brake lever is on the right handlebar, in front of the throttle grip. To activate the front brake, pull the front brake lever toward the throttle grip with the fingers of your right hand. The rear brake foot pedal on the right hand side operates the rear wheel brake. Using your foot to press down on the rear brake foot pedal activates the rear brakes. Brakes should be applied uniformly and gradually without locking wheels.

WARNING

DO NOT APPLY EITHER BRAKE STRONGLY ENOUGH TO LOCK THE WHEEL BECAUSE THIS MAY CAUSE THE WHEEL TO SKID WITH POSSIBLE LOSS OF CONTROL OF THE MOTORCYCLE. FOR THIS REASON, EXERCISE CAUTION, ESPECIALLY WHEN APPLYING THE FRONT DISC BRAKES.

BRAKE LIGHT

The motorcycle's brake light is not usually as noticeable as the brake lights on a car, particularly if the taillight is also on (it goes on with the headlight). You can help others notice you by tapping the brake pedal to flash the brake light before slowing down. It is important to do this when you are:

- Being closely followed. The tailgater may be watching you and not see something ahead that will make you slow down.
- Making a tight turn off a high-speed highway.
- Slowing or turning in the middle of a block, at an alley, or at some place where others do not expect it.

CLUTCH HAND LEVER

The clutch hand lever is located on the left handlebar where it may be easily operated with the fingers of the left hand. Pull the lever in against handlebar grip to disengage the clutch; release the lever slowly to its outward position to engage the clutch.

GEAR SHIFT LEVER

The gear shift lever is located on the left side where it may be conveniently operated by the left foot. Moving the foot lever all the way down (full stroke) shifts the transmission into the next lower gear. Moving the foot lever all the way up (full stroke) shifts the transmission into the next higher gear.

The gear pattern is 1 down, 4 up for the 5-speed and 1 down, 5 up for the 6-speed. The operator must release the foot lever after each gear change to allow it to return to its central position before another gear change can be made. Neutral position is between First (low) and second gears, and is indicated by the GREEN indicator light on the instrument panel when the ignition-light switch is turned on. To shift from first gear to neutral, move the foot lever one-half of its full stroke up from low or down from second gear. With the motorcycle standing still and the engine off, it usually will be necessary to move the motorcycle backward or forward with the clutch fully disengaged while maintaining a slight pressure on the foot shift lever before a shift from one gear to another can be made. Even with the engine running, clutch disengaged and the motorcycle standing still, it may be difficult to shift gears because the transmission gears are not rotating and shifting parts are not lined up to permit engagement.

CAUTION: DO NOT UNDER ANY CIRCUMSTANCES FORCE THE SHIFT LEVER BY "ROUGHING" THE FOOT LEVER; THE RESULTS OF SUCH ABUSE WILL BE A DAMAGED OR BROKEN SHIFT MECHANISM. EITHER ROLL THE MOTORCYCLE AS INDICATED ABOVE OR IF THE ENGINE IS STILL RUNNING, ENGAGE THE CLUTCH VERY SLIGHTLY AND AT THE SAME TIME APPLY LIGHT PRESSURE TO THE FOOT LEVER TO MAKE THE SHIFT. BOTH THESE PROCEDURES SET THE TRANSMISSION GEARS IN MOTION AND PERMIT THE SHIFT TO BE MADE EASILY.

MIRRORS

The left and right handlebar mounted D.O.T. approved side mirrors have a curved, convex viewing surface in order to provide the operator with a wider span of visibility to the rear. The convex nature of the mirror gives the illusion that items viewed in the rear view mirror are smaller and thus farther away from you than they really are. Therefore, great care must be exercised when making judgments as to how far back items actually are in your rear view mirror.

CAUTION: MIRRORS CAN BECOME MISALIGNED THROUGH VEHICLE USE, BUMPING, VIBRATION, ETC. ALWAYS ENSURE THAT YOUR MIRRORS ARE FIRMLY ATTACHED TO THE VEHICLE AND ARE ADJUSTED ACCORDING TO THE OPERATOR'S REQUIREMENTS PRIOR TO EACH RIDE.

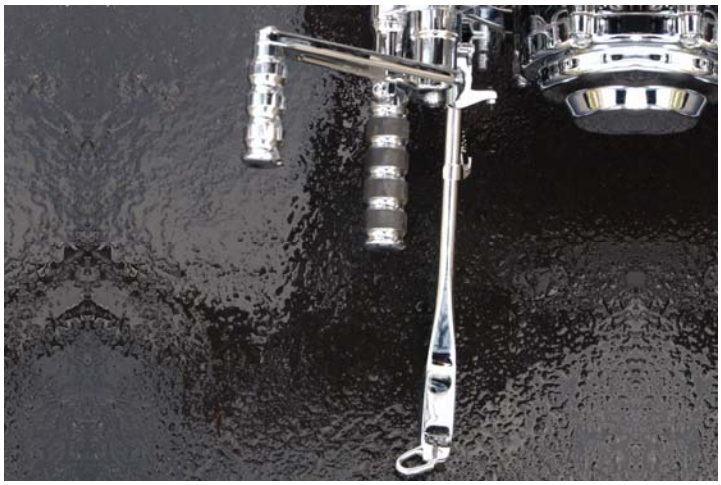
Using rear viewing mirrors is an excellent habit to develop. Always check the positioning of your mirrors before starting off on a ride. Always use the "Over the Shoulder" check method to check blind spots not visible through mirrors. Checking your mirrors is not enough. Motorcycles have blind spots just as other vehicles do. When changing lanes, make sure to turn your head and look over your shoulder at traffic behind you. That is the only sure way to see a vehicle behind you in the next lane. It is particularly important when making rapid lane changes, as many riders do.

On a roadway with several lanes, check the far lanes as well as the one next to you. Another driver may be headed for the same space.

WARNING
DO NOT RELY SOLELY ON THE USE OF YOUR MIRRORS WHEN MAKING LANE CHANGES. LOOKING BEHIND YOU WHEN IT IS SAFE AND APPROPRIATE, IS STRONGLY RECOMMENDED.

KICKSTAND

The kickstand is located on the bottom of the motorcycle on the middle of the left side. Move the kickstand to its extended position, perpendicular to the motorcycle, to park the motorcycle. Retract the kickstand fully before riding the motorcycle. Make sure that the kickstand is in a locked position when the motorcycle is parked.



CAUTION: ALWAYS PARK THE MOTORCYCLE ON A LEVEL, FIRM SURFACE; OTHERWISE, THE MOTORCYCLE'S WEIGHT COULD CAUSE THE MOTORCYCLE TO FALL OVER, DAMAGING BOTH THE TANKS AND THE FINISH. A KICKSTAND CAN "SINK" INTO SOFT GROUND, MUD OR HOT ASPHALT.

WARNING
YOUR MOTOTRCYCLE IS EQUIPPED WITH A KICKSTAND THAT LOCKS WHEN PLACED IN THE FULL FORWARD (DOWNWARD) POSITION AND THE MOTORCYCLE WEIGHT IS RESTED ON IT. WITHOUT VEHICLE WEIGHT RESTING ON THE KICKSTAND, ANY MOVEMENT OF THE MOTORCYLE COULD CAUSE THE KICKSTAND TO RETRACT SLIGHTLY FROM THE FULL FORWARD POSITION. FAILING TO TURN THE HANDLEBAR TO THE LEFT WHEN USING KICKSTAND COULD CAUSE THE MOTORCYCLE TO FALL TO THE RIGHT, CAUSING DAMAGE TO THE MOTORCYCLE OR SERIOUS PHYSICAL INJURY. IF THE KICKSTAND IS NOT IN THE FULL FORWARD LOCKED POSITION WHEN THE MOTORYCLE WEIGHT IS RESTED ON IT, THE MOTORCYCLE COULD FALL OVER, POSSIBLY CAUSING INJURY OR DAMAGE. FAILURE TO RETRACT THE KICKSTAND FULLY CAN RESULT IN THE KICKSTAND COMING INTO CONTACT WITH THE ROAD WHILE RIDING, CREATING AN UNSTABLE CONDITION, POSSIBLY RESULTING IN THE LOSS OF CONTROL OR INJURY.

STARTING YOUR MOTORCYCLE

The following starting procedures are general guidelines for starting your motorcycle.

COLD STARTING

Cold starts occur when the engine has not been running for a significant period of time and the engine temperature is approximately the same as the ambient (outside) temperature. Follow the instructions below to start a cold engine:

1. Place the transmission in Neutral.
2. Pull up/out all the way on the fuel enrichener lever/knob.
3. Turn the fuel valve to the “on” position (main fuel) and wait 30 seconds for the carburetor bowl to fill with fuel.
4. Twist the throttle grip once or twice only ("pumping" the throttle).
5. Turn the ignition key to the Start position. (The green indicator on the instrument panel assembly should come on to verify that the transmission is in Neutral)
6. Pull in the clutch lever to disengage the clutch.
7. Press the OFF/RUN switch in the RUN Position.
8. Push the starter switch only once to engage the electric starter for no more than a few seconds.
9. If the engine does not start, repeat the above procedure.
10. After the engine starts, wait until it is warm before pushing the fuel enrichener lever back down/in to the OFF position (pushed downward toward the air cleaner).

This process will take approximately one minute.

CAUTION: DO NOT ATTEMPT TO START YOUR MOTORCYCLE IN EXTREMELY COLD TEMPERATURES. FOR EASIER STARTS IN TEMPERATURES BELOW 50 DEGREES, USE 10W40 OIL FOR AIR COOLED V-TWIN MOTORCYCLES. DOING SO MAY DAMAGE THE ENGINE. IN EXTREME WEATHER CONDITIONS, THE PISTON RINGS MAY SEIZE TO THE CYLINDER WALLS, RESULTING IN ENGINE FAILURE.

HOT STARTING

When the engine has recently been run and is still warm, or when it is very warm outside, the engine will not require much fuel to start. It is not necessary to use the fuel enrichener lever or to "pump" the throttle when the engine is warm; doing so will flood the engine and cause extreme difficulty in starting your motorcycle. To start a hot engine, follow the instructions below:

1. Turn the fuel valve ("petcock") to the ON position and wait 30 seconds for the carburetor bowl to fill with fuel.
2. Turn the ignition key to the START position (the GREEN indicator on the instrument panel assembly should come on, indicating that the transmission is in NEUTRAL).
3. Place the OFF/RUN switch in the RUN position.
4. Pull in clutch lever to disengage the clutch.
5. Push the starter switch only once to engage the electric starter.

If the engine floods, hold the throttle wide open (twisted fully counter-clockwise) and repeat the above procedure. The engine will eventually clear the flooded condition and begin to run.

CAUTION: DO NOT RUN THE STARTER MOTOR FOR MORE THAN THREE TO FIVE SECONDS AT A TIME. ALLOW 30 SECONDS BETWEEN STARTING ATTEMPTS TO ALLOW THE STARTER MOTOR TIME TO COOL DOWN.

Engine Break-in Period

Qualified factory technicians prepare your motorcycle to be ridden upon delivery. Besides initiating the critical engine break-in period, a check of proper systems operations has been performed and any observed deficiencies corrected. However, to prolong the life of the engine and other components, it is required that you complete the critical engine break-in period and follow the break-in guidelines below. These procedures are required to maintain the factory warranty and improper break-in may void your Limited Warranty.

CAUTION: SYNTHETIC MOTOR OIL SHOULD NOT BE USED IN YOUR ENGINE. DO NOT MIX PETROLEUM-BASED, MINERAL AND SYNTHETIC MOTOR OILS.

THE FIRST 50 MILES

The first 50 miles are the most critical for new rings and piston break-in. Most engine damage will initially occur during this period.

1. Keep the heat down by not exceeding 2500 RPM.
2. Vary the engine speed; do not operate the motorcycle at a constant speed for sustained periods.
3. Pay close attention to gearshift speeds, do not lug or over-rev the engine and never rev the engine in neutral gear.

CAUTION: LUGGING, OVER-REVVING OR OPERATING THE ENGINE AT HIGH RPM'S DURING THE BREAK-IN PERIOD MAY RESULT IN DAMAGE TO THE PISTONS AND/OR OTHER ENGINE COMPONENTS. IF THE ENGINE IS NOT PROPERLY BROKEN IN, YOUR WARRANTY WILL BECOME VOID. IT IS YOUR RESPONSIBILITY TO CONTINUE TO BREAK IN YOUR ENGINE PROPERLY AFTER PURCHASE.

THE NEXT 500 MILES

For the next 500 miles, you must do the following to ensure proper break-in:

1. Do not exceed 3500 RPM or 50-55 mph during this period.
2. As above, continue to vary the speed, especially during long rides.
3. Pay close attention to gearshift speeds, do not lug or over-rev the engine and never rev the engine in neutral gear.
4. Avoid running the engine in 4^{th} or 5^{th} gear at very low rpm.
5. Avoid aggressive starts or racing from a stop with the engine throttle wide open.
6. Change the engine oil and filter at an Authorized Dealer or Service Center.

CAUTION: YOU MUST HAVE THE COMPLETE 500-MILE SERVICE PERFORMED. FAILURE TO DO SO WILL VOID YOUR WARRANTY.

THE FIRST 1,000 MILES

For the balance of the first 1,000 miles, observe the following guidelines:

1. Operate the engine at varying speeds below 2500 RPM making sure not to exceed 70 mph.
2. Vary the engine speeds, do not take long highway rides at one constant RPM range.
3. Avoid engine overheating.
4. Change engine oil and filter.

THE NEXT 1,000 MILES

When the break-in period is between 1,000-2,500 miles, continue to follow the same procedures as before.

1. The RPM range can be slightly higher than 3500 RPM, if needed.
2. Avoid over-revving and continue to observe the gear shift speeds.
3. Avoid overheating the engine or putting any hard strain on it (such as drag racing, trailer towing, etc.).

2,500 + MILES

After following the above procedures, when you reach the 2,500 mile mark, you have properly broken in your motorcycle. Complete the 2,500 mile service at an authorized Dealer or Service Center.

OPERATION

SHIFTING GEARS

There is more to shifting gears than simply getting the motorcycle to accelerate smoothly. Accidents can occur if the gears are used incorrectly when you downshift, turn or start on hills.

With the motorcycle standing (engine off), proceed as follows to get underway:

1. Determine that the transmission is in neutral and clutch is fully disengaged.
2. Start the engine
3. Fully depress the clutch
4. Shift into first gear and slowly engage the clutch
5. After desired speed is attained in first gear, fully disengage the clutch and shift into second gear.
6. Shift in like manner for third, fourth and fifth gears.

DO NOT SHIFT GEARS WITHOUT FULLY DISENGAGING THE CLUTCH.

CAUTION:

- **DO NOT RUN THE ENGINE AT EXTREMELY HIGH RPM WITH THE CLUTCH DISENGAGED OR THE TRANSMISSION IN NEUTRAL.**
- **DO NOT EXCEED MAXIMUM SAFE RPM SPECIFIED PREVIOUSLY UNDER ANY CONDITIONS.**
- **DO NOT EXCEED MAXIMUM RECOMMENDED SAFE ENGINE SPEED.**
- **DO NOT IDLE THE ENGINE UNNECESSARILY FOR MORE THAN A FEW MINUTES WITH THE MOTORCYCLE STANDING STILL.**

As speed increases, it will be necessary to up-shift to higher gears; as speed decreases, it will be necessary to down-shift to lower gears. To shift to a higher gear, simultaneously reduce the throttle (reduce engine speed) and pull the clutch lever in toward the left handlebar. Move the gearshift lever upward with the toe of the left foot. Release clutch lever smoothly and apply the correct amount of throttle after each gearshift.

DOWNSHIFTING

Make sure you are going slowly enough when shifting into a lower gear. If you are going too fast, the motorcycle will lurch and the rear wheel may skid. This is more likely to happen under the following conditions.

- Going downhill - the motorcycle tends to pick up speed on a downgrade.
- Shifting into first gear - on many motorcycles, the speed range for first gear is very low.

Under these conditions, you may need to use the brakes in order to slow down enough to shift safely. To shift to a lower gear, simultaneously reduce the throttle (reduce engine speed) and pull the clutch lever in toward the left handlebar. Move the gearshift lever downward with the toe of the left foot. Release the clutch lever smoothly and apply the correct amount of throttle after each gearshift. It is important to shift down through all the gears as you slow down or stop. Remain in first gear while you are stopped so that you can move out quickly, if needed.

CAUTION: WHEN THE MOTORCYCLE IS IN MOTION AND IT IS DESIRED TO SHIFT TO LOWER GEARS, DO NOT SHIFT FROM "THIRD" TO "SECOND" UNTIL SPEED IS REDUCED TO 20 MPH OR LESS; DO NOT SHIFT FROM SECOND TO FIRST UNTIL SPEED IS REDUCED BELOW 10 MPH. SHIFTING TO LOWER GEARS WHEN SPEEDS ARE TOO HIGH MAY RESULT IN DAMAGE TO THE TRANSMISSION. DISENGAGE THE CLUTCH WHEN STOPPING THE MOTORCYCLE TO PREVENT STALLING THE ENGINE.

SHIFTING IN A TURN

Do not upshift or downshift in a turn unless it can be done very smoothly. A sudden change in power to the rear wheel can cause it to lock or spin, resulting in a skid. It is best to change gears before entering a turn.

BRAKING AND STOPPING

Proper braking technique is a critical skill when riding a motorcycle. Motorcycles have two braking systems and both of them are needed to stop effectively. The front brake is the more powerful of the two. It provides about three-quarters of your stopping power. If too much force is applied to the brakes, depending on the road and weather conditions, it could possibly result in a loss of control or personal injury. It is recommended to evenly distribute the braking force intermittently to avoid any loss of control or rear wheel skid. Below are some important things to remember about braking:

- Use both brakes every time you slow down or stop. If only the rear brake is used for "normal" stops, you may not have enough skill to use the front brake properly when needed.
- Squeeze the front brake and press down on the rear. Grabbing at the front brake or jamming down on the rear can cause the brakes to lock, which will result in control problems.
- Apply both brakes at the same time. Some people believe that the rear brake should be applied first. That is not true. The sooner you apply the front brake, the sooner it will start slowing you down.

The front brake can be used in a turn. Some people think this is dangerous. However, it is dangerous if the road is very slippery and the brake is not used properly. When leaning the motorcycle, some of the traction is used for cornering. Less traction is available for stopping. A skid can occur if you apply too much brake. Also, using the front brake incorrectly on a slippery surface may be hazardous. Use caution and squeeze the brake lever. Never use the front brake alone on dirt or gravel.

WARNING

DO NOT ATTEMPT TO STOP THE MOTORCYCLE USING ONLY ONE BRAKE. ALWAYS USE BOTH THE FRONT AND REAR BRAKES TO STOP THE MOTORCYCLE. DO NOT ALLOW THE WHEEL TO SKID. A SKIDDING WHEEL CAN CAUSE LOSS OF CONTROL. IF THE REAR WHEEL LOCKS UP UNDER HARD BRAKING, DO NOT RELEASE THE PRESSURE ON THE REAR BRAKE PEDAL UNTIL THE MOTORCYCLE COMES TO A COMPLETE STOP. RELEASING THE REAR BRAKE DURING A LOCK-UP BEFORE A FULL STOP IS ACHIEVED COULD CAUSE SEVERE INJURY OR DEATH.

STOPPING THE ENGINE

When stopping or shutting down the engine, follow these steps:

1. Stop the engine by turning off the ignition key switch or engine (emergency) stop switch on the right handlebar control.
2. Place the fuel valve (“petcock”) in the (OFF) position.
3. Make sure that the fuel enrichener lever is in the OPEN or down position.
4. If the engine should be stalled or stopped in any other way than with the switch, turn off the switch at once to prevent battery discharge.

FUEL REQUIREMENTS

It is recommended that only premium unleaded fuel be used in your motorcycle. Use a good quality premium unleaded gasoline (at least 91 octane). Octane rating is required to be posted at the fuel dispenser ("pump"). The following guidelines should be followed for all fueling stops.

1. Stop your engine.
2. When refueling your motorcycle, place the kickstand in the extended position and lean the motorcycle onto the kickstand.
3. Slowly remove fuel cap allowing any built up pressure to release.
4. Fill tank just below the fuel cap neck in the tank.
5. Replace the fuel cap and tighten snugly.
6. Do not allow any sparks or open flame in the vicinity when refueling.
7. Do not smoke near your motorcycle.

CAUTION: USING GASOLINE THAT HAS AN ALCHOHOL ADDITIVE, SUCH AS METHANOL, MAY CAUSE FUEL SYSTEM RUBBER COMPONENTS TO FAIL AND/OR DAMAGE THE ENGINE. USING OCTANE LOWER THAN 91 MAY CAUSE ENGINE DAMAGE WITH SUSTAINED USE.

WARNING

REMOVE FILLER CAP SLOWLY. FILL FUEL TANK SLOWLY TO PREVENT SPILLAGE. DO NOT OVERFILL. DO NOT FILL ABOVE BOTTOM OF THE FILLER NECK INSERT. LEAVE AIR SPACE TO ALLOW FOR FUEL EXPANSION. EXPANSION CAN CAUSE AN OVERFILLED TANK TO OVERFLOW GASOLINE THROUGH THE FILLER CAP ONTO SURROUNDING AREAS. AFTER REFUELING, BE SURE FUEL CAP IS SECURELY TIGHTENED. SPILLED GASOLINE SHOULD BE WIPED UP IMMEDIATELY. GASOLINE SPILLS CAN STAIN OR DAMAGE THE PAINT ON YOUR MOTORCYCLE.

SERVICE AND MAINTENANCE

You have purchased a high performance, heavyweight V-Twin motorcycle. Like any other high performance vehicle, your motorcycle requires more frequent care, attention, adjustment, service, and maintenance than a typical passenger vehicle. With a passenger vehicle, you can usually wait until something goes wrong and then fix it. When something goes wrong with the motorcycle, it may cause an accident.

Like all mechanical devices, constant wear and tear on motorcycle parts and assemblies is a normal result of use. Recommended periodic inspection, topping off or changing of fluids, and replacement of worn parts and assemblies is the only way to ensure continuous, safe operation of your high performance motorcycle.

WARNING

TO MAINTAIN A SAFE OPERATING MOTORCYCLE, IT IS CRITICAL THAT THE RECOMMENDED INSPECTION, MAINTENANCE, AND SERVICE PROCEDURES DESCRIBED IN THIS MANUAL ARE STRICTLY ADHERED TO AND DOCUMENTATION BE MAINTAINED. FAILURE TO FOLLOW THESE PROCEDURES COULD RESULT IN SERIOUS INJURY TO THE DRIVER, DAMAGE TO THE VEHICLE, AND/OR LOSS OF THE LIMITED WARRANTY.

GENERAL MAINTENANCE PROCEDURES

Maintaining you motorcycle in a continuously safe operating condition and assuring optimal performance and longevity, requires a coordinated effort between the owner and a professional, knowledgeable service staff. Service and Maintenance is a strategic mix of owner pre-ride inspections, recommended service procedures, and authorized "technician-performed" maintenance inspections, tests, and processes.

RIDER PRE-RIDE INSPECTION

1. Check engine oil, transmission, and both brake reservoir fluid levels.
2. Inspect brake components, brake hydraulic lines and fittings for leaks or damage, and brake pads and rotors for excessive and/or uneven wear.
3. Test operation of brake lever, pedal, and calipers.
4. Check tires for proper inflation and general inspection of tire surfaces for uneven wear, excessive tread wear, cuts or abrasions.
5. Check final drive belt for proper tension and condition.
6. Check headlight, taillight, brake light, and front and rear directional lights for proper operation.
7. Test throttle controls and steering for proper movement. Ensure all operating cables are in good condition and free from interference.
8. Once the engine is started, verify proper engine idle speed and that throttle and choke controls are correct.

WARNING

STOP THE ENGINE AND SUPPORT THE MOTORCYCLE SECURELY BEFORE PERFORMING ALL SERVICE PROCEDURES. SERVICE SHOULD BE PERFORMED USING PROPER TOOLS, IN AN ADEQUATELY LIT AND VENTILATED WORK AREA. WHEN WORKING ON THE MOTORCYCLE, DO NOT SUPPORT THE MOTORCYCLE BY PLACING SUPPORTS UNDER THE BRAKE PEDAL. DAMAGE TO THE BRAKE SYSTEM COULD OCCUR, CAUSING POSSIBLE MALFUNCTION AND PERSONAL INJURY.

WARNING

FOR YOUR PERSONAL SAFETY, ALL THE LISTED SERVICE AND MAINTENANCE RECOMMENDATIONS SHOULD BE FOLLOWED BECAUSE THEY MAY AFFECT THE SAFE OPERATION OF YOUR MOTORCYCLE.

TRANSMISSION OIL CHECK

Inspect the transmission oil level at the interval listed in the Maintenance Checklists. If the bike has just been run, allow it to cool down, then check the transmission oil. When checking the transmission oil level, do not allow any dirt or foreign matter to enter the case opening.

1. Park the bike on a level surface and support it so that it is standing straight up. Do not support it with the kickstand.
2. Wipe the area around the transmission filler cap. Unscrew and remove the transmission filler cap and O-ring.
3. Wipe the dipstick off and reinsert dipstick back into transmission housing and rotate one complete turn, then withdraw it and check level. The oil level should be in the "F" (Full) portion of the dipstick. If the oil level is in the "A" (add) portion of the dipstick, add the necessary amount.
4. If the oil level is low, add the recommended type of oil listed in the Specification Sheet. Do not overfill.
5. Inspect the O-ring on the filler cap. Replace if worn or damaged.
6. Install the O-ring and the oil filler cap.
7. Wipe off any spilled oil from the transmission case.

TRANSMISSION OIL CHANGE

Change the transmission oil at the intervals specified in the Maintenance Checklists. You will need the following to change the transmission oil:

- Drain pan
- Funnel
- Box-end or Allen wrench for drain plug
- Gear oil

1. Ride the motorcycle until the transmission oil reaches normal operating temperature. Usually 10-15 minutes of stop and go riding is sufficient.
2. Shut the engine off.

NOTE: THERE ARE 2 IMPORTANT REASONS FOR DRAINING THE TRANSMISSION OIL WHILE IT IS HOT. FIRST, HOT OIL WILL DRAIN MORE QUICKLY AND COMPLETELY. SECOND, THE CONTAMINANTS IN THE OIL WILL DRAIN WITH IT, INSTEAD OF SETTLING IN THE BOTTOM OF THE TRANSMISSION CASE, READY TO MIX WITH THE NEW OIL.

3. Park the bike on a level surface and support it so that it is standing straight up. Do not support it with the kickstand.
4. Wipe the area around the filler cap clean and unscrew the filler cap and Q-ring.
5. Place the drain pan underneath the transmission drain plug.
6. Remove the drain plug from the transmission located underneath the transmission side cover Allow the oil to drain for 10 minutes.

WARNING
DO NOT ALLOW THE OIL TO SPILL ONTO THE GROUND WHERE THE REAR TIRE MAY CONTACT IT LATER. WIPE UP ALL OIL SPILLS IMMEDIATELY.

7. If your drain plug is magnetic, check the plug for metal debris that may indicate transmission wear, and then wipe the plug off. Replace the plug if the head and/or threads are damaged. Carefully screw the drain plug back into the transmission case, paying close attention to the threads on the drain plug.

8. Refill the transmission through the side cover hole with the recommended quantity and type of transmission oil.
9. Install the filler cap and o-ring and tighten securely.

10. Remove the oil drain pan from underneath the transmission and properly dispose of the oil.
11. Ride the motorcycle until the transmission oil reaches normal operating temperature, and then shut the engine off.
12. Check the transmission oil level as described in this section and readjust the level, if necessary.

ENGINE OIL CHECK

Inspect the engine oil every time you get ready to ride your motorcycle using the following procedures:

1. Park the bike on a level surface and support it so that it is standing up. Do not support it with the kickstand.
2. Wipe the area around the oil filler cap and remove the oil filler cap from the oil tank. (This is located under the seat.)
3. Identify the vent tube which runs horizontally across the oil bag approximately 1-1/4" inches below the top of the oil bag. Your oil level should be just below the vent tube.
4. If the oil level is below this level, add the recommended oil listed in the Specification Sheet. After adding oil, recheck the oil level and repeat this step until the desired level is achieved. Do not overfill the oil tank.

ENGINE OIL AND FILTER CHANGE

Recommended oil and filter change intervals are specified in the Maintenance Checklists. We recommend the use of high-quality S.A.E. 20W50 motorcycle oil, designed specifically for V-twin, air-cooled engines.

CAUTION: FAILURE TO USE OIL SPECIFICALLY DESIGNED FOR V-TWIN, AIR-COOLED MOTORCYCLES MAY RESULT IN DAMAGE TO YOUR ENGINE AND THE VOIDING OF YOUR WARRANTY.

The previous oil recommendation assumes that the motorcycle is operated in both moderate climates and conditions. In extreme climates or conditions, oil should be changed more often. The time interval is more important than the mileage interval because combustion acids, formed by gasoline vapor and weather, will contaminate the oil, even if the motorcycle is not run for several months. If a motorcycle is operated under dusty conditions, the oil will get dirty more quickly and should be changed more frequently than recommended.

Oil for motorcycle and automotive engines is graded by the American Petroleum Institute (API) and the Society of Automotive Engineers (SAE) in several categories. Oil containers display these ratings on the top of the oil can or on the label. Use only an oil intended for air-cooled V-twin motorcycles use. If such oil cannot be found, then you may use diesel engine oil with an API rating of CF-2 or CG-4, in 20W50. Thereafter, you should change your oil and filter as soon as possible and use appropriate motorcycle oil. Try to use the same brand of oil at each change.

To change the engine oil and filter, you will need the following:

- Drain pan
- 4 quarts of oil
- Funnel
- Oil filter element
- Can opener or pour spout (can-type only)
- Oil filter wrench (3 inch size)
- Wrench (for drain plug models)

There are various ways to discard the used oil safely. The easiest method is to pour it from the drain pan into an empty gallon, container for disposal. Some service stations and oil retailers will accept used oil for recycling. There may be a recycling center in your area that accepts oil. Do not discard the oil in your household trash or pour it onto the ground.

1. At the first 500 miles (new motorcycle), and at every second oil change thereafter, flush the oil tank as described in this section.
2. Start and run the engine for approximately 10 minutes or until the engine has reached normal operating temperature. Then turn the engine off. Support the bike so that the oil can drain completely.

NOTE: BEFORE REMOVING THE OIL TANK CAP, THOROUGHLY CLEAN OFF AL/ DIRT AND OIL AROUND IT.

3. Place a drain pan beside the bike, then remove the oil tank drain plug, if so equipped, or disconnect drain hose. Use funnel and drain the oil into the pan.
4. Service the oil filter as follows:
   - Remove the filter with a filter wrench.
   - Discard the oil filter properly.
   - Wipe the crankcase gasket surface with a clean, lint- free cloth.
   - Coat the neoprene gasket on the new filter with clean oil.
   - Screw the filter onto the oil filter mount by hand until the filter gasket just touches the base, i.e. until you feel the slightest resistance when turning the filter. Then tighten the filter by hand 1/2 - 3/4 turn more.
   - We recommend that you have your authorized Dealer or Service Center check and clean the hydraulic tappet oil screen at every oil and filter change interval.

CAUTION: DO NOT OVERTIGHTEN OR USE A FILTER WRENCH OR ELSE THE FILTER MAY LEAK.

5. Reinstall the oil tank drain plug and gasket, if so equipped, or reconnect drain hose.
6. Fill the oil tank with the correct viscosity and quantity of oil, stated in the Specification Sheet.
7. Insert the filler cap into the oil tank.
8. For more assistance, contact your local Authorized dealer or Service Center

CLUTCH CONTROL CABLE

Lubricate and adjust the clutch control cable every 5000 miles to compensate for lining wear. Excessive wear will be indicated by the clutch slipping under load, or dragging when released. In this situation, the control cable adjustment should be the first thing to be checked. Refer to your Authorized Dealer or Service Center for proper service.

BRAKES

Brake system pads and discs should be checked at recommended inspections and maintenance intervals and at least every 2,500 miles. Under severe driving conditions more frequent inspections such as every 1,000 miles should be performed. At the same intervals, brake system fluid level should be checked to ensure appropriate levels are maintained.

Visual inspection of brake pads can be done without removing any parts. If the thickness of the brake pad friction material (not including the brake pad metal backing plate) is not at least 1/16 of an inch minimum, immediately have the brake pads replaced. Always replace brake pads in pairs.

WARNING
OPERATING BRAKE SYSTEMS WHEN THE BRAKE PAD FRICTION MATERIAL THICKNESS (NOT INCLUDING THE BRAKE PAD METAL BACKING PLATE) IS LESS THAN 1/16" IS EXTREMELY DANGEROUS AND CAN LEAD TO BRAKING FAILURE, COMPONENT DAMAGE, OR INADEQUATE BRAKING PERFORMANCE RESULTING IN SERIOUS PERSONAL INJURY.

WARNING
BRAKE PERFORMANCE IS A CRITICAL SAFETY ITEM, BRAKE SYSTEM SERVICING REQUIRES SPECIAL TOOLS, CORRECT REPLACEMENT PARTS AND PROCEDURES. DO NOT ATTEMPT TO SERVICE THE BRAKE SYSTEM. REPAIR OR SERVICING OF BRAKE SYSTEMS SHOULD ONLY PERFORMED BY QUALIFIED PROFESSIONAL TECHNICIANS. IMPROPERLY INSTALLED, ADJUSTED OR SERVICED BRAKE COMPONENTS CAN LEAD TO SERIOUS PERSONAL INJURY.

Front Brakes

The brake fluid level in the front brake reservoir may be checked by parking the motorcycle on the kickstand and turning the handlebars to the left until the brake fluid reservoir is level. Follow the instructions below for filling the brake fluid:

1. Clean the top of the reservoir and remove the cover retaining screws. Remove the reservoir cover.
2. The brake fluid should be filled to within 1/4 inch of the top of the reservoir.
3. If the fluid level is low, fill the reservoir to the correct level with D.O.T. 5 brake fluid.
4. Replace the cover and the cover screws and clean up any brake fluid spills.

Rear Brakes

The brake fluid level in the rear brake reservoir should be checked with the motorcycle straight up and level. Follow the instructions below for proper filling of brake fluid:

1. Clean the top of the reservoir and remove the cover retaining screws. Remove the reservoir cover.
2. The brake fluid should be filed within 1/4 inch of the top of the reservoir.
3. If the fluid level is low, fill the reservoir to the correct level with D.O. T. 5 brake fluid.
4. Replace the cover and the cover screws and clean up any brake fluid spills.

WARNING

DO NOT USE ANY FLUID OTHER THAN THE APPROVED D.O. T. 5 BRAKE FLUID. D.O.T. 5 BRAKE FLUID IS NOT COMPATIBLE WITH D.O.T. 3 OR D.O.T. 4 BRAKE FLUIDS. USE OF ANY OTHER TYPE OF FLUID IN THE BRAKE SYSTEM WILL CAUSE BRAKE FAILURE, POSSIBLY RESULTING IN SERIOUS INJURY AND WILL VOID WARRANTY.

TIRES

With only 1 front and 1 rear tire to safely maintain the vehicle in contact with the road, proper care and maintenance is critical. To maintain them in good condition check for the following:

- **Inflation** - The motorcycle will not handle properly if the air pressure is too low or too high. See Tire Specifications for more information.
- Check before riding when tires are cold.
- Do not over-inflate tires.
- Tread - Worn or uneven tread can make the motorcycle hard to handle, particularly on wet pavement. Riding with excessively worn, unbalanced, or improperly inflated tires is hazardous and will adversely affect traction, steering and handling.

WARNING

IMPROPER TIRE INFLATION CAN CAUSE UNEVEN OR ABNORMAL TIRE TREAD WEAR AND COULD RESULT IN UNSTABLE VEHICLE OPERATION. UNDER-INFLATION COULD RESULT IN TIRE SLIPPAGE OR TIRE FAILURE. CHECK INFLATION PRESSURE AND INSPECT TREAD FOR PUNCTURES, CUTS, BREAKS, ETC. AT LEAST WEEKLY IF IN DAILY USE; OR BEFORE EACH TRIP, IF USED OCCASIONALLY. ONLY USE ORIGINAL EQUIPMENT TIRES ON YOUR MOTORCYCLE. OTHER TIRES MAY NOT FIT CORRECTLY, COULD CAUSE UNSTABLE HANDLING, AND MAY BE HAZARDOUS TO USE. THESE AND OTHER RESULTS OF IMPROPER TIRE INFLATION OR CARE CAN RESULT IN SERIOUS PERSONAL INJURY. BECAUSE TIRES, TUBES AND WHEELS ARE CRITICAL SAFETY ITEMS, AND SERVICING THESE ITEMS REQUIRES SPECIAL TOOLS AND SKILLS, WE RECOMMEND YOU SEE YOUR AUTHORIZED AMERICAN HOTROD MOTORCYCLES DEALER OR SERVICE CENTER FOR THESE SERVICES.

Tire Inflation Pressure

Original equipment tires should be maintained at the following pressures (measured when the tire is cold, not immediately following road use):

Solo	Front: 32 p.s.i.	Rear: 35 p.s.i.
Solo plus one passenger*	Front: 32 p.s.i.	Rear: 40 p.s.i.

*on properly equipped models

Tire Condition

In addition to tire inflation pressure, the general condition of your motorcycle's tires is very important to continuously monitor and maintain:

- NEVER USE DAMAGED OR REPAIRED TIRES. Once your motorcycle's tire(s) has been compromised, it is unsafe, should never be reused, and must be replaced with a new tire(s).
- NEVER INDISCRIMINATELY REPLACE A WORN TIRE WITH JUST ANY NEW TIRE. Replacement new tires should be the same as original equipment tires. Selection of an improper replacement tire could cause unstable vehicle operation.
- Always have a qualified professional replace your motorcycle's tires. Special procedures and tools are required to properly and safely install, maintain and replace tires, tubes and wheels.
- Operating your motorcycle with excessively or unevenly worn, improperly inflated or unbalanced tires can affect motorcycle stability and may result in serious injury.
- Avoid objects such as curbs, potholes, etc. It is possible for a tire to experience severe internal damage in such situations without exhibiting any outward signs. Always have such tires removed and inspected, inside and out for possible damage before re-operating your vehicle with such tires. If ever in doubt of a tire's stability for safe operation, replace it with a new tire. Never take chances on a questionable tire.

WHEELS

Check both wheels for cracks or dents. If possible, lift the wheel off the ground and spin it, otherwise walk the motorcycle around. Watch its motion and listen for noise. Also, move it from side to side to check for looseness.

WHEEL BEARINGS

Wheel bearings and neck bearings should be inspected at each recommended inspection and maintenance interval. Unless deemed necessary to repack these bearings at more frequent intervals, all bearings should be repacked at 10,000 mile intervals or once annually whichever comes first.

Rough operation or excessive play in bearings should be immediately inspected and either replaced or repacked. Repacking procedures should always include use of the proper lubricant and installation of new seals.

FASTENERS

Check for loose or missing nuts, bolts or cotter pins. If you keep the motorcycle clean, it is easier to spot missing parts. Refer to Specification for recommended fastener torque (tightness).

WARNING

YOUR NEW HIGH PERFORMANCE MOTORCYCLE IS SUBJECT TO VIBRATION DURING USE UNDER ALL OPERATING CONDITIONS. BOLTS, FASTENERS, CABLES AND FIXTURES SUCH AS LIGHTS ETC. SHOULD BE INSPECTED FREQUENTLY AND TIGHTENED OR REPLACED, IF NECESSARY, TO ENSURE THE SAFE AND DEPENDABLE OPERATION OF THE VEHICLE. CERTAIN MODELS, SUCH AS THOSE BUILT ON RIGID FRAMES, ARE SUBJECT TO GREATER VIBRATION, AND FASTENERS AND FIXTURES MUST BE CHECKED EVEN MORE FREQUENTLY TO ENSURE SAFETY AND PROPER OPERATION.

SPARK PLUGS / IGNITION SYSTEM

Spark plugs should be inspected and the gap measured (and adjusted if required) at every recommended inspection and maintenance interval. Spark plugs should be replaced at a minimum of every 12,000 miles (more frequently for optimal performance.)

When replacing your motorcycle's spark plugs:

- Always replace with same as original equipment plugs.
- Never remove spark plug wires from plugs by pulling on wires. Always grasp the molded rubber spark plug cap for removal of wires.

Your motorcycle is equipped with a sophisticated electronic ignition system. Only a professionally trained mechanic should address its sophisticated electronic operation. As set at the factory, your ignition system optimizes fuel consumption, engine horsepower and exhaust emissions. It should not be adjusted except by a professional motorcycle mechanic familiar with its operation and functions utilizing the appropriate equipment.

SUSPENSION

Adjustment: Although the spring pre-load or ride height of the motorcycle can be adjusted to compensate for variations in weight, it is not recommended as an owner process.

CAUTION: ALTHOUGH THE SUSPENSION HEIGHT CAN BE ADJUSTED, IT IS SET FOR NORMAL OPERATION AND LOAD FROM THE FACTORY. ANY VARIANCE FROM THIS SETTING SHOULD BE CONFIRMED PRIOR TO PERFORMING THE PROCESS. IT IS RECOMMENDED THAT ANY ADJUSTMENTS MADE TO YOUR SUSPENSION BE PERFORMED BY AN AUTHORIZED DEALER OR SERVICE CENTER.

WARNING

LOWERED MOTORCYCLES HAVE REDUCED CORNERING CLEARANCE AND REDUCED REAR WHEEL TRAVEL. EXTRA CARE MUST BE TAKEN WHEN CORNERING ON A LOWER MOTORCYCLE. ALSO, ALTERING RIDE HEIGHT AFFECTS THE STEERING GEOMETRY AND CAN LEAD TO A POTENTIALLY HAZARDOUS CONDITION.

BATTERY

The battery is located underneath the seat of your motorcycle. The care given to a battery, rather than the time and miles of service is most important in determining its life.

The maintenance-free, sealed battery, does not require the addition of distilled water. If there is a problem with your battery, contact the battery manufacturer for assistance.

Clean the connections and check tightness every 2500 miles or on a monthly basis.

CAUTION: BECAUSE OF THE HIGH VOLTAGE AND AMPERAGE REQUIRED TO START THE BIG 113 C.I. ENGINE, THE BATTERY MUST BE MAINTAINED AT A FULL STATE OF CHARGE FOR THE STARTER AND IGNITION MODULE TO FUNCTION PROPERLY. IF THIS IS NOT DONE, THE IGNITION WILL CAUSE THE ENGINE TO MISFIRE WHEN BATTERY VOLTAGE FALLS BELOW A CERTAIN LEVEL. THIS MISFIRING WILL CAUSE STARTER CLUTCH FAILURE OVER TIME.

If you intend to store your motorcycle for an extended period of time, you should place the battery on a trickle charge and fully charge the battery prior to starting after the storage period.

CAUTION: ALL WARRANTY CLAIMS FOR DAMAGED STARTERS, RESULTING FROM UNDERCHARGED BATTERIES, WILL BE DENIED.

Battery Inspection and Replacement

To remove the battery, it is necessary to disconnect the ground cable denoted by the negative sign ("-"} located on the top of the battery. After disconnecting the ground cable, disconnect the power cable denoted by a positive sign ("+").

To replace the battery, first reconnect the power cable to the terminal on the battery. Connecting the ground cable first, followed by the power cable, could short the battery. Next, connect the ground cable to the negative terminal.

WARNING

BATTERY GASES OR FUMES ARE COMBUSTIBLE. DO NOT SMOKE OR EXPOSE YOUR BAT- TERY TO SPARKS OR OPEN FLAMES WHILE CHECKING OR SERVICING IT. BATTERY ACID IS CORROSIVE AND CAN BURN SKIN OR DAMAGE CLOTHING, PAINT AND METAL SURFACES. WHEN SERVICING YOUR BATTERY, WEAR PROPER EYE PROTECTION AND CLOTHING (SUCH AS GLOVES) TO AVOID INJURY. IF BATTERY ACID SHOULD SPLATTER OR COME INTO CONTACT WITH YOUR SKIN, CLOTHING OR OTHER SURFACE, THEN THOROUGHLY FLUSH THE AREA WITH WATER TO PREVENT OR MINIMIZE INJURY OR DAMAGES.

PAINT FINISHES, CHROME, AND BILLET

To ensure a long life of the paint finish, chrome, and polished aluminum (billet) surfaces, always use the appropriate, high quality products recommended for each surface. Proper care and maintenance will not only maintain its beautiful appearance, but will keep your motorcycle's value at its peak.

WARRANTY AND REGULATIONS INFORMATION

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board and American Hotrod Manufacturing, LLC are pleased to explain the emission control system warranty on your motorcycle.

In California new motor vehicles must be designed, built, and equipped to meet the State's stringent anti-smog standards. American Hotrod Manufacturing, LLC must warrant the emission control system on your motorcycle for periods of time listed below provided there has been no abuse, neglect or improper maintenance of the motorcycle.

Your emission control system may include parts such as the carburetor or fuel-injection system, the ignition sys- tem, catalytic converter and engine computer. Also included may be hoses, belts, connectors and other emission- related assemblies.

Where a warrantable condition exists, American Hotrod Manufacturing, LLC will repair your motorcycle at no cost to you, including diagnosis, parts and labor.

MANUFACTURER'S WARRANTY COVERAGE

- Class 1 motorcycles (50 to 169 cc): for a period of use of five (5) years or 12,000 kilometers (7,456 miles), whichever first occurs.
- Class 2 motorcycles (170 to 279 cc): for a period of use of five (5) years or 18,000 kilometers (11,185 miles), whichever first occurs.
- Class 3 motorcycles (280cc and larger): for a period of use of five (5) years or 30,000 kilometers (18,641 miles), whichever first occurs.

If an emission-related part on your motorcycle is defective, the part will be repaired or replaced by American Hotrod Manufacturing, LLC. This is your emission control system DEFECTS WARRANTY.

OWNER'S WARRANTY RESPONSIBILITIES

- As the motorcycle owner, you are responsible for the performance of the required maintenance listed in your owner's manual. American Hotrod Manufacturing, LLC recommends that you retain all receipts covering maintenance on your motorcycle, but American Hotrod Manufacturing, LLC cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

- You are responsible for presenting your motorcycle to a American Hotrod Manufacturing, LLC dealer as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

- As the motorcycle owner, you should be aware that American Hotrod Manufacturing, LLC may deny your warranty cover age if your motorcycle or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.

If you have any questions regarding your warranty rights and responsibilities, you should contact American Hotrod Manufacturing, LLC or the California Air Resources Board, P.O. Box 8001,9528 Telsar Avenue, EI Monte, CA 91734-8001.

AMERICAN HOTROD MANUFACTURING, LLC
LIMITED WARRANTY ON EMISSION CONTROL SYSTEM

American Hotrod Manufacturing, LLC warrants that each motorcycle it manufactures includes as standard equipment a headlight, taillight and stoplight and is street legal:

A. is designed, built and equipped so as to conform at the time of initial retail purchase with all applicable regulations of the Untied States Environmental Protection Agency, and the California Air Resources Board; and
B. is free from defects in material and workmanship which cause such motorcycle to fail to conform with applicable regulations of the United States Environmental Protection Agency or the California Air Resources Board for a period of use, depending on the engine displacement, of 12,000 kilometers (7,456 miles), if the motorcycle's engine displacement is less than 170 cubic centimeters; of 18,000 kilometers (11,185 miles), if the motorcycle's engine displacement is equal to or greater than 170 cubic centimeters but less than 280 cubic centimeters; or of 30,000 kilometers (18,641 miles), if the motorcycle's engine displacement is 280 cubic centimeters or greater; or 5 (five) years from the date of initial retail delivery, whichever first occurs.

1. **COVERAGE.** Warranty defects shall be remedied during customary business hours at any authorized dealer located within the United States of America in compliance with the Clean Air Act and applicable regulations of the United States Environmental Protection Agency and the California Air Resources Board. Any part or parts replaced under this warranty shall become the property of American Hotrod Manufacturing, LLC.

   In the State of California only, emission related warranted parts are specifically defined by the state's Emission Warranty Parts List. These warranted parts are: carburetor and internal parts; intake manifold; fuel tank; fuel injection system; spark advance mechanism; crankcase breather; air cutoff valves; fuel tank cap for evaporative emission controlled vehicles; oil filler cap; pressure control valve; fuel/vapor separator; canister; igniters; breaker governors; ignition coils; ignition wires; ignition points; condensers, and spark plugs if failure occurs prior to the first scheduled replacement; and hoses, clamps, fittings and tubing used directly in these parts. Since emission related parts might vary from model to model, certain models may not contain all of these parts and certain models may contain functionally equivalent parts.

   In the State of California only, Emission Control System emergency repairs, as provided for in the California Administrative Code, may be performed by other than an authorized American Hotrod Manufacturing, LLC dealer. An Emergency situation occurs when an authorized American Hotrod Manufacturing, LLC dealer is not reasonably available, a part is not available within 30 days, or a repair is not complete within 30 days. Any replacement part can be used in an emergency repair. American Hotrod Manufacturing, LLC will reimburse the owner for the expenses, including diagnosis, not to exceed American Hotrod Manufacturing, LLC's suggested retail price for all warranted parts replaced and labor charges based on American Hotrod Manufacturing, LLC's recommended time allowance for the warranty repair and the geographically appropriate hourly labor rate. The owner may be required to keep receipts and failed parts in order to receive compensation.

2. **LIMITATIONS**. This Emission Control System warranty shall not cover any of the following:
   a. Repair or replacement required as a result of:
      1) Accident
      2) Misuse
      3) Repairs improperly performed or replacements improperly installed
      4) Use of replacement parts or accessories not conforming to specifications which adversely affect performance
      5) Use in competitive racing or related events
   b. Inspections, replacement of parts and other services and adjustments for required maintenance.

c. Any motorcycle on which the odometer mileage has been changed so that actual mileage cannot be readily determined.

3. **LIMITED LIABILITY**

The liability of American Hotrod Manufacturing, LLC under this Emission Control System Warranty is limited solely to the remedying of defects in material or workmanship by an authorized dealer at its place of business during customary business hours. This warranty does not cover inconvenience or loss of use of the motorcycle or transportation of the motorcycle to or from the American Hotrod Manufacturing, LLC dealer. AMERICAN HOTROD MANUFACTURING, LLC SHALL NOT BE LIABLE FOR ANY OTHER EXPENSES, LOSS OR DAMAGE, WHETHER DIRECT, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY ARISING IN CONNECTION WITH THE SALE OR USE OF OR INABILITYTO USE THE MOTORCYCLE FOR ANY PURPOSE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONOF ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

a. NO EXPRESS EMISSION CONTROL SYSTEM WARRANTY IS GIVEN BY AMERICAN HOTROD MANUFACTURING, LLC EXCEPT AS SPECIFICALLY SET FORTH HEREIN. ANY EMISSION CONTROL SYSTEM WARRANTY IMPLIED BY LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS LIMITED TO THE EXPRESS EMISSION CONTROL SYSTEM WARRANTY TERMS STATED IN THIS WARRANTY. THE FOREGOING STATEMENTS OF WARRANTY ARE EXCLUSIVE AND IN LIEU OF ALL OTHER REMEDIES. SOME STATES DO NOT ALLOW LIMITIATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

b. NO DEALER IS AUTHORIZED TO MODIFY THIS LIMITED EMISSION CONTROL SYSTEM WARRANTY.

4. **LEGAL RIGHTS**. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY STATE TO STATE.

5. **ADDITION**. THIS WARRANTY IS IN ADDITION TO THE AMERICAN HOTROD MANUFACTURING, LLC LIMITED MOTORCYCLE WARRANTY.

6. **ADDITIONAL INFORMATION**. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs. However, American Hotrod Manufacturing, LLC is not liable for these parts. The owner is responsible for the performance of all required maintenance. Such maintenance may be performed at a service establishment or by any individual. The warranty period begins on the date the motorcycle is delivered to an ultimate purchaser.

NOISE CONTROL SYSTEM WARRANTY

The following Warranty applies to the noise control system and is in addition to the LIMITED WARRANTY, and EMMISSIONS CONTROL SYSTEM WARRANTY.

American Hotrod Manufacturing, LLC warrants to the first owner and each subsequent owner that this motorcycle is designed and built so as to conform at the time of sale with applicable regulations of the U.S. Environmental Protection Agency at the time of manufacture and that it is free from defects in materials and workmanship which cause this motorcycle not to meet U.S. Environmental Protection Agency standards within (1) year or 6,000 kilometers (3,730 miles) whichever occurs first.

The Warranty period shall begin on the date the motorcycle is delivered to the first retail purchaser or, if the motorcycle is placed in service as a demonstrator or company vehicle prior to sale at retail, on the date it is first placed in service.

THE FOLLOWING ITEMS ARE NOT COVERED BY THE NOISE CONTROL SYSTEM WARRANTY

1) Failures, which arise s a result of, misuse, alterations, or accident as specified in the owner's manual.
2) Replacing, removing or modifying any portion of the NOISE CONTROL SYSTEM (consisting of the exhaust system and air intake/cleaner assembly) with parts not certified to be noise legal for street use.
3) Loss of time, inconvenience, loss of motorcycle use or other consequential damages.
4) Any motorcycle on which the odometer mileage has been changed or tampered with so that the mileage cannot be readily or accurately determined.

   It is recommended that an authorized dealer using genuine replacement parts perform any noise system maintenance. Any other qualified service outlet or individual may perform the maintenance, replacement or repair of the noise control system. Non-genuine parts may be used only if such parts are certified to comply with U.S. Environmental Protection Agency Standards.

WARNING
THIS PRODUCT SHOULD BE CHECKED FOR REPAIR OR REPLACEMENT IF THE MOTORCYCLE NOISE HAS INCREASED SIGNIFICANTLY THROUGH USE. OTHERWISE, THE OWNER MAY BECOME SUBJECT TO PENALTIES UNDER STATE AND LOCAL ORDINANCES.

REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying American Hotrod Manufacturing, LLC.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in an individual problems between you, your dealer or American Hotrod Manufacturing, LLC.

To contact NHTSA, you ay either call the Auto Safety Hotline toll-free at 1-800-424-9393 (366-0123 in Washington, D.C. area) or write to:

NHTSA
U.S. DEPARTMENT OF TRANSPORTATION
400 7TH STREET SW, (NSA-11)
Washington, D.C. 20590.

You can also obtain other information about motor vehicle safety from the Hotline.

American Hotrod Manufacturing, LLC
LIMITED WARRANTY

This Manufacturer's limited Warranty is between American Hotrod Manufacturing, LLC and the motorcycle purchaser (herein Owner). The term of this Manufacturer's Limited Warranty is effective from the original date of retail purchase.

Your motorcycle carries a 90-day unlimited mileage mechanical, paint and chrome warranty.

Warranty Extension:

Upon receipt of the **American Hotrod Manufacturing, LLC Owners Registration** form along with a copy of the customers **purchase receipt** from an authorized American Hotrod Manufacturing, LLC Dealer within **21 days** of the purchase, American Hotrod Manufacturing, LLC will register the motorcycle for a 1-year ESA warranty. The ESA is administrated by Xynamix of Peoria, AZ and underwritten by Marathon Insurance Company.

Warranty Restrictions:

1. Vengeance motorcycles are sold to you as-is cosmetically. Customers are required to visually inspect the finish of their motorcycle at the time of purchase. Road-hazard damage, environmental damage (sun fading, rust, oxidation etc.), scratches, wear and tear, chrome bluing or other visual defects are not warranted.

2. **Modification of the drive train, engine, intake, air cleaner, oil breather, electrical, suspension or other systems will result in voiding the warranty**. Installation of after-market accessories such as air cleaners, accessory lighting, exhaust and suspension modifications if improperly installed will result in voiding the warranty.

AMERICAN HOTROD MANUFACTURING, LLC WARRANTIES YOUR NEW MOTORCYCLE TO BE FREE FROM DEFECTS FOR THE WARRANTY PERIOD IN EFFECT ON THE DATE OF THE ORIGINAL RETAIL SALE, PROVIDED YOU SUBMIT YOUR WARRANTY CARD WITHIN 21 DAYS OF PURCHASE. REFER TO THE WARRANTY POLICY PROVIDED TO YOU BY THE DEALER IN EFFECT AT THE DATE OF PURCHASE. PROOF OF THE 500-MILE SERVICE, PROPER BREAK-IN AND PERFORMANCE OF SCHEDULED OR RECOMMENDED MAINTENANCE AND SERVICE IS REQUIRED TO KEEP THE WARRANTY IN EFFECT, AND MUST BE SUBMITTED TO AMERICAN HOTROD MANUFACTURING, LLC. THE WARRANTY BEGINS THE DAY THE ORIGINAL RETAIL PURCHASER TAKES DELIVERY OF THE MOTORCYLE. AMERICAN HOTROD MANUFACTURING, LLC RESERVES THE RIGHT TO REPAIR OR REPLACE ANY PART OR COMPONENT THAT MAY BE CONSIDERED DEFECTIVE. SOME COMPONENTS ON THE MOTORCYCLE ARE COVERED BY THE MANFUACTURER THEREOF AND NOT AMERICAN HOTROD MANUFACTURING, LLC. AMERICAN HOTROD MANUFACTURING, LLC IS NOT RESPONSIBLE FOR LOSS OF USE, TEMPORARY RENTAL, OR TRANSPORTATION OF MOTORCYCLES.

NOTE: BATTERIES, BRAKE PADS, BELTS, FORK SEALS, CLUTCH, FRICTION PLATES, LIGHT BULBS AND TIRES ARE NOT PART OF THIS WARRANTY, BUT ARE NORMAL WEAR AND TEAR ITEMS. ANY PARTS OR COMPONENTS THAT ARE FOUND TO BE MISUSED WILL NOT BE COVERED. ALL WARRANTY CLAIMS FOR DAMAGED STARTERS RESULTING FROM UNDERCHARGING BATTERIES WILL NOT BE HONORED. MODIYFING THE MOTORCYCLE'S ELECTRICAL SYSTEM OR POWERTRAIN WILL RESULT IN THE TERMINATION OF WARRANTY COVERAGE. IN ORDER TO ACTIVATE THE WARRANTY, THE WARRANTY CARD MUST BE COMPLETED AND SENT TO THE MANUFACTURER WITHIN 21 DAYS OF THE PURCHASE DATE. YOUR WARRANTY MAY BE VOIDED SHOULD YOU FAIL TO COMPLETE AND SUBMIT THE WARRANTY CARD WITHIN THIS TIME FRAME.

CAUTION: YOUR NEW MOTORCYCLE IS A HIGH PERFORMANCE VEHICLE AND IS SUBJECT TO VIBRATION DURING USE UNDER ALL OPERATING CONDITIONS. BOLTS, FASTENERS, CABLES AND FIXTURES SUCH AS LIGHTS, ETC. SHOULD BE INSPECTED FREQUENTLY AND TIGHTENED, IF NECESSARY, TO ENSURE THE SAFE AND DEPENDABLE OPERATION OF THE VEHICLE.

COVERED COMPONENTS

Your motorcycle is warranted against defects in materials and workmanship as described below. A defect is defined as the failure of an original part, or of a replacement part of the same quality, to work or wear as it was designed, in normal use, when properly operated and maintained. Warranty services will be performed within a reasonable time after notification of claim, subject to inspection, and factory authorization. This Manufacturer's limited Warranty covers ONLY the components listed below.

- **ENGINE** - The following internal, lubricated parts: camshaft and bearings; connecting rods and bearings; crankshaft and pinion bearings; oil pump, pushrods and lifters, pistons, piston rings and rocker arms, boxes, shafts and bushings/followers; timing gears; valves, valve springs, guides and seats. Engine mounts; valve covers. Engine heads, engine block and cylinder barrels are covered if damaged by the failure of an internally-lubricated part. Seals and gaskets damaged by the failure of a covered part.

- **TRANSMISSION** - The following internal, lubricated parts contained within the transmission case: all gears; bearings; cams, springs, main shaft, counter shaft, drive gears; and selector switch. Transmission mounts. Transmission case is covered if damaged by the failure of internally-lubricated parts. Seals and gaskets if damaged by the failure of a covered part.

- **PRIMARY DRIVE** - The following internal, lubricated parts contained within the primary case: all gears and bearings. Primary case is covered if damaged by the failure of an internal part. Seals and gaskets if damaged by failure of a covered part.

- **SUSPENSION** - All internal, lubricated parts contained with the front fork tubes. Front and rear wheel bearings; swing arm shaft, bearings; front and rear wheel hubs. The front fork tubes, front fork trees and frame are covered only if damaged by the failure of an internal, lubricated part. Seals and gaskets if damaged by failure of a covered part.

- **CARBURETOR** - Malfunction of part as a result of materials or workmanship.

- **STEERING** - Upper and lower steering stem bearings; bushings; steering stem; handlebars; dust covers; dampers; seals and gaskets.

- **BRAKES** - Hydraulic brake calipers; master cylinders; hydraulic lines, rotors.

- **ELECTRICAL** - Coils; manually operated switches; rectifiers; rotors; starter; solenoids; stators; voltage regulator, relays; wiring harness; electronic ignition module.

- **FUEL DELIVERY** - Fuel tank; petcock; fuel lines and fittings.

- **GAUGES** - Speedometer

- **PAINT** - Any manufacturing defects found in paint such as peeling or lifting. Road hazard or environmental damage is not covered.

- **ACCESSORIES** - Only those accessories that have been installed by the factory.

PARTS AND LABOR NOT COVERED

Only the Covered Components detailed above are warranted. Among items not covered are the following:

- Battery; cables; primary and final drive belts; brake friction material; bulbs, exhaust system;
- Exhaust and muffler cosmetics. There is no warranty on exhaust pipes and mufflers with regard to any discoloration. Discoloration ("bluing") is caused by tuning characteristics, cam timing, carburetor jetting and overheating and is not caused by defective manufacturing.
- Fastening devices (bolts, clips, nuts, pins and screws);
- Filters; fluids; bulbs; lamps; lenses; rubber materials (grommets, floor boards grips, hand grips, brake and shifter lever grips, covers);
- Seat upholstery; spark plugs; tires; tune-up parts;
- Any accessory if altered, tampered with, or not manufacturer installed;
- Damage caused by exceeding manufacturer's recommended weight and/or recommended rider limits;
- Any regular maintenance services;
- Damage resulting from inadequate fluid levels or use of improper fluids;
- Any Covered Component that has no defect;
- Any mechanical adjustments, tune-ups, alignments, storage, or taxes.
- Any component that has failed due to abuse, misuse, racing, neglect or negligence.
- Other than defects identified during the first 6 months, chrome does not carry a warranty. Rust and scratches are not caused by defective manufacturing.

In cases of disputes or questions arising over the interpretation of warranty applicability or procedures to correct a warranted item or system, American Hotrod Manufacturing, LLC reserves the right to inspect and diagnose the motorcycle at a location of its choice, including return to the factory.

LIMITED LIABILITY – LEGAL RIGHTS

- Claims resulting from external causes such as vandalism; theft or attempted theft; collision; rust; corrosion; deterioration; punctures; acts of God such as fire, smoke, water, snow, flood, freezing, hail, windstorm, earthquake, explosion, lightning, falling objects; delay or failures in authorized repair and/or replacement services from the aforementioned causes, or other causes beyond American Hotrod Manufacturing, LLC's control, are not covered.

- Engine repairs, other than those authorized by American Hotrod Manufacturing, LLC for corrective purposes, are not covered.

- Damage to paint from any cause, other than factory defect, is not covered. Damage to chrome from any cause, other than factory defect is not covered.

- This Manufacturer's Limited Warranty is in lieu of all other warranties, whether oral, written, expressed, or implied. There are no warranties of merchantability or fitness for a particular use or purpose. American Hotrod Manufacturing, LLC's obligations and Owner's remedies hereunder are solely and exclusively as stated. American Hotrod Manufacturing, LLC's liability for incidental and consequential damages including but not limited to, personal injury, physical damage, property damage, loss of use of the motorcycle, loss of time, inconvenience, and commercial loss resulting from the operation, maintenance, or use of the motorcycle is expressly excluded. Some states do not allow limitations on how long an implied warranty lasts, or allow the exclusion or limitation of incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

- To obtain performance under this Manufacturer's limited Warranty, OWNER must either return the motorcycle at OWNER'S expense to an authorized dealer or service center.

TORQUE SPECIFICATIONS

AXLE NUTS.(FRONT)	50-55 ft. lbs.
AXLE NUTS (REAR)	60-65 ft. lbs.
BRAKE CALIPER BOLTS (FRONT AND REAR)	5-18 ft. lbs.
CLUTCH CABLE LOCKNUT	*see below
DERBY COVER SCREWS	5-7 ft. lbs.
INSPECTION COVER SCREWS	5-7 ft. lbs.
EXHAUST MANIFOLD NUTS	60-80 in. lbs.
MIRROR MOUNTING BOLTS	15-18 ft. lbs.
OIL FILTER BRACKET SCREWS	20 ft. lbs.
PRIMARY COVER SCREWS	10-12 ft. lbs.
SHOCK ABSORBER MOUNTING NUTS	75 ft. lbs.
SPARK PLUGS	20 ft. lbs.
TRANSMISSION DRAIN PLUG	*see below
HANDLE BAR RISER CLAMP	(5/16") 18-20 ft. lbs.
HANDLE BAR BOLTS	(1/2") 45 ft. lbs.

*TIGHTEN "SNUG" ONLY – NO SPECIFIC TORQUE VALUE

YOUR MOTORCYCLE WAS BUILT AND ASSEMBLED TO EXACT TORQUE SPECIFICATIONS. ANY HARDWARE THAT HAS WORKED ITS WAY LOOSE SHOULD BE RE-TORQUED TO FACTORY SPECIFICATIONS AS GIVEN IN THIS MANUAL. OVERTORQUEING CAN RESULT IN CRACKED GASKETS, STRIPPED FASTENERS OR OTHER DAMAGE. AN APPROPRIATE TYPE OF "LOCTITE"™ OR OTHER FORM OF THREAD SEALER SHOULD BE USED, WHERE APPLICABLE.

MOTORCYCLES

ENGINE SERVICE INTERVALS AND SPECIFICATIONS

WARNING

RECOMMENDED SERVICE INTERVAL MAINTENANCE AND INSPECTIONS ARE CRITICAL TO OPERATOR SAFETY AND A PROPERLY PERFORMING MOTORCYCLE. ASSURE THAT THE TECHNICIAN PERFORMING THESE SERVICES IS PROFESSIONALLY TRAINED, EXPERIENCED AND QUALIFIED TO PROPERLY PERFORM THESE PROCEDURES. THE FIRST RECOMMENDED COMPLETE, PROFESSIONAL INSPECTION AND MAINTENANCE MUST BE PERFORMED AT 500 MILES. SUBSEQUENT PROFESSIONAL INSPECTION AND MAINTENANCE PROCEDURES MUST BE PERFORMED AT LEAST EVERY 2500 MILES THEREAFTER. CONSEQUENTLY, A COMPLETE, PROFESSIONAL INSPECTION AND MAINTENANCE MUST BE PERFORMED AT THE FOLLOWING ODOMETER INTERVALS: 500 MILES; 2500 MILES; 5000 MILES; 7500 MILES; 10000 MILES; AND SO ON, FOR THE LIFE OF THE MOTORCYCLE.

Engine Oil & Filter: Use an SAE 20W50 motor oil formulated for air-cooled V-twin motorcycles. If unavailable, then you may use diesel engine oil rated CF-2 or CG-4 in 20W50. Use an oil filter that the manufacturer recommends for your motorcycle.

Engine Idle Speed: With the engine at operating temperature adjust the idle speed screw to obtain idle of 950-1050 RPM.

Air Cleaner: Wash the foam air filter in warm soapy water. To dry the filter, use low pressure air & blow it dry from the inside or allow the filter to air dry. Use foam filter oil to oil the filter after cleaning.

Cable Lubricant: Use a moly dry film lubricant on the throttle cables (this will not attract dirt).

Spark Plugs: Use Champion RN12YC, HD5R6A, Autolite 4265 or equivalent. Plug gap with electronic Ignition: .038 - .042.

Ignition Timing: 4" bore engines 28˚ - 30˚ total advance, 3 1/4"-3 3/4" bore 30˚ - 32˚ total advance.

SERVICE INTERVALS:

- **Engine Oil & Filter:** Change at 50, 500, 2,500, and every 2,500 miles thereafter.
- **Air Cleaner**: Inspect at 50 and 500, 2500, and every 2,500 miles thereafter. Replace every 5,000 miles.
    - Replace more frequently if required or if engine is operated in a dusty environment.
- **Tappet Oil Screen**: Inspect/Clean at 50, 500, 2,500, and every 2,500 miles thereafter.
- **Petcock, Lines, & Vacuum Line Fittings:** Inspect at 50, 500, 2,500, and every 2,500 miles thereafter.
- **Fuel Tank Filter Screen & In-Line Fuel Filter** (if used): Every 5,000 miles.
- **Engine Idle Speed**: Adjust as required.
- **Operation of Throttle & Enrichment Device Controls**: Inspect and lubricate throttle cables at 500 miles and every 2,500 miles thereafter.
- **Spark Plugs**: Inspect every 5,000 miles. Replace every 12,000 miles or as needed.
- **Ignition Timing**: Inspect every 5,000 miles.
- **Engine Mounts:** Inspect at 500 miles and every 5,000 miles thereafter.
- **External Fasteners** (Except engine head bolts): Re-torque at 500 miles and every 5,000 miles thereafter.

MOTORCYCLES

500-MILE MAINTENANCE

NOTE: The 500-mile maintenance service is MANDATORY and must be performed by an authorized American Hotrod Motorcycles Dealer or Service Center. Failure to submit this service record within 21 days of the service will limit your warranty to 90 days from the original date of purchase. It is the motorcycle owners responsibility to submit this form.

VEHICLE IDENTIFICATION NUMBER

- ❑ Change engine oil and oil filter and clean tappet screen.
- ❑ Change transmission lubricant and clean magnetic drain plug.
- ❑ Inspect air cleaner and service as required.
- ❑ Check and adjust primary belt.
- ❑ Check and adjust drive belt with motorcycle loaded (rider and any additional normal load).
- ❑ Check and adjust shift rod.
- ❑ Check and adjust clutch.
- ❑ Inspect brake pads and discs for wear.
- ❑ Inspect oil lines and brake system for leaks.
- ❑ Check brake fluid reservoir levels and condition. Add fluid as needed.
- ❑ Check and adjust front brake lever.
- ❑ Check and adjust rear brake pedal.
- ❑ Inspect and lubricate both forward control lever bearings.
- ❑ Lubricate front brake hand lever, throttle control cables, throttle, clutch control cable, & clutch hand lever.
- ❑ Check and adjust fuel enrichener operation.
- ❑ Inspect fuel valve, lines, and fittings for leaks.
- ❑ Check and adjust front and rear tire pressures and inspect tread and sidewall condition.
- ❑ Check rear fork pivot nut, if applicable.
- ❑ Check operation of all electrical equipment and switches.
- ❑ Clean battery connections.
- ❑ Inspect spark plugs and replace as needed (replacement at an additional charge).
- ❑ Check shock absorbers.
- ❑ Check stabilizer links and engine mounts.
- ❑ Check tightness of all fasteners except engine head bolts.
- ❑ Check and adjust engine idle speed.
- ❑ Clean debris from magnetic speed sensor on transmission.
- ❑ Clean debris from neutral sensor switch.
- ❑ Confirm operation and performance with road test

500-MILE MAINTENANCE SERVICE

DATE COMPLETED:_____ DEALER:_____
CUSTOMER:_____
MODEL:_____ YEAR:_____ MILEAGE:_____
TECHNICIAN:_____
TECH COMMENTS:_____
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MOTORCYCLES

2,500-MILE MAINTENANCE

NOTE:
Proof of the 2,500-mile maintenance service is required to keep your warranty in effect

VEHICLE IDENTIFICATION NUMBER

- ❑ Change engine oil and oil filter and clean tappet screen.
- ❑ Inspect transmission lubricant level and condition.
- ❑ Inspect air cleaner and service as required.
- ❑ Check and adjust primary belt as needed.
- ❑ Check and adjust drive belt with motorcycle loaded (rider and any additional normal load).
- ❑ Inspect brake pads and discs for wear.
- ❑ Inspect oil lines and brake system for leaks.
- ❑ Check brake fluid reservoir levels and condition. Add fluid as needed.
- ❑ Check and adjust front brake lever.
- ❑ Check and adjust rear brake pedal.
- ❑ Check and adjust throttle and fuel enrichener operation.
- ❑ Inspect fuel valve, lines, and fittings for leaks.
- ❑ Check and adjust front and rear tire pressures and inspect tread and sidewall condition.
- ❑ Check operation of all electrical equipment and switches.
- ❑ Inspect and clean battery connections.
- ❑ Inspect spark plugs and replace as needed (replacement at an additional charge).
- ❑ Check stabilizer links and engine mounts.
- ❑ Check and adjust engine idle speed.
- ❑ Perform diagnostic test on ignition module, note readings for discussion with customer. (CA Only)
- ❑ Clean debris from magnetic speed sensor on transmission.
- ❑ Clean debris from neutral sensor switch.
- ❑ Confirm operation and performance with road test

2,500-MILE MAINTENANCE SERVICE

DATE COMPLETED:_____ DEALER:_____
CUSTOMER:_____
MODEL:_____ YEAR:_____ MILEAGE:_____
TECHNICIAN:_____
TECH COMMENTS:_____
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MOTORCYCLES

5,000-MILE MAINTENANCE

NOTE:
Retain a copy of this service for your records, or should you need future warranty service.

VEHICLE IDENTIFICATION NUMBER

- Change engine oil and oil filter and clean tappet screen.
- Inspect transmission lubricant level and condition.
- Inspect air cleaner and service as required.
- Check and adjust primary belt as needed.
- Check and adjust drive belt with motorcycle loaded (rider and any additional normal load).
- Inspect brake pads and discs for wear.
- Inspect oil lines and brake system for leaks.
- Check brake fluid reservoir levels and condition. Add fluid as needed.
- Check and adjust front brake lever.
- Check and adjust rear brake pedal.
- Check and adjust throttle and fuel enrichener operation.
- Inspect fuel valve, lines, and fittings for leaks.
- Check and adjust front and rear tire pressures and inspect tread and sidewall condition.
- Check operation of all electrical equipment and switches.
- Inspect and clean battery connections.
- Clean debris from magnetic speed sensor on transmission.
- Clean debris from neutral sensor switch.

5,000-MILE MAINTENANCE SERVICE

DATE COMPLETED:_____ DEALER:_____
CUSTOMER:_____
MODEL:_____ YEAR:_____ MILEAGE:_____
TECHNICIAN:_____
TECH COMMENTS:_____
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Fax to: American Hotrod Manufacturing, LLC - 951-653-9053
(Maintain a copy of this form for your records.)

MOTORCYCLES

7,500-MILE MAINTENANCE

NOTE:
Retain a copy of this service for your records, or should you need future warranty service.

VEHICLE IDENTIFICATION NUMBER

- Change engine oil and oil filter and clean tappet screen.
- Inspect transmission lubricant level and condition.
- Inspect air cleaner and service as required.
- Check and adjust primary belt as needed.
- Check and adjust drive belt with motorcycle loaded (rider and any additional normal load).
- Inspect brake pads and discs for wear.
- Inspect oil lines and brake system for leaks.
- Check brake fluid reservoir levels and condition. Add fluid as needed.
- Check and adjust front brake lever.
- Check and adjust rear brake pedal.
- Check and adjust throttle and fuel enrichener operation.
- Inspect fuel valve, lines, and fittings for leaks.
- Check and adjust front and rear tire pressures and inspect tread and sidewall condition.
- Check operation of all electrical equipment and switches.
- Inspect and clean battery connections.
- Inspect spark plugs and replace as needed (replacement at an additional charge).
- Check stabilizer links and engine mounts.
- Check and adjust engine idle speed.
- Clean debris from magnetic speed sensor on transmission.
- Clean debris from neutral sensor switch.
- Confirm operation and performance with road test

7,500-MILE MAINTENANCE SERVICE

DATE COMPLETED:_____ DEALER:_____
CUSTOMER:_____
MODEL:_____ YEAR:_____ MILEAGE:_____
TECHNICIAN:_____
TECH COMMENTS:_____
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Fax to: American Hotrod Manufacturing, LLC - 951-653-9053
(Maintain a copy of this form for your records.)

MOTORCYCLES

10,000-MILE MAINTENANCE

NOTE:
Retain a copy of this service for your records, or should you need future warranty service.

VEHICLE IDENTIFICATION NUMBER

- Change engine oil and oil filter and clean tappet screen.
- Inspect transmission lubricant level and condition.
- Inspect air cleaner and service as required.
- Check and adjust primary belt as needed.
- Check and adjust drive belt with motorcycle loaded (rider and any additional normal load).
- Inspect brake pads and discs for wear.
- Repack and adjust front and rear wheel bearings.
- Inspect, repack, and adjust steering head bearing.
- Change front fork oil.
- Inspect oil lines and brake system for leaks.
- Check brake fluid reservoir levels and condition. Add fluid as needed.
- Check and adjust front brake lever.
- Check and adjust rear brake pedal.
- Check and adjust throttle and fuel enrichener operation.
- Inspect fuel valve, lines, and fittings for leaks.
- Check and adjust front and rear tire pressures and inspect tread and sidewall condition.
- Check operation of all electrical equipment and switches.
- Inspect and clean battery connections.
- Inspect spark plugs and replace as needed (replacement at an additional charge).
- Check stabilizer links and engine mounts.
- Check and adjust engine idle speed.
- Perform diagnostic test on ignition module, note readings for discussion with customer. (CA Only)
- Clean debris from magnetic speed sensor on transmission.
- Clean debris from neutral sensor switch.
- Confirm operation and performance with road test

10,000-MILE MAINTENANCE SERVICE

DATE COMPLETED:_____ DEALER:_____
CUSTOMER:_____
MODEL:_____ YEAR:_____ MILEAGE:_____
TECHNICIAN:_____
TECH COMMENTS:_____
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