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The Bell Performance Guide to Taking Care of Your Motorcycle

There's nothing like riding a motorcycle on the open road. For most of the world, the motorcycle or 2-wheel scooter is the most common form of motorized transportation available. Around 200 million motorcycles are in use worldwide (compared to almost 600 million cars) and almost 60% of these are in Asia and the Far East – China and India both have over 35 million motorcycles and motorized scooters in use. Contrast this to the United States where the car is dominant (about 30% of the world's cars are here in the United States). In fact, the world's largest producer of two-wheel vehicles isn't Harley Davidson or Suzuki, it's Hero Motocorp, based in India. Kind of small indication of how the world is changing, isn't it?

While we're not experts on the place of motorcycles in the culture of these other countries, it's obvious that here in the USA, the motorcycle has a unique niche in our pop culture consciousness. This place was cemented in the 1960s with movies like *Easy Rider* and Hunter S. Thompson's book on the Hells Angels motorcycle gang in the mid-1960s. Harley Davidson's sales are bolstered by their unique marketing appeal to how motorcycles look and feel on the open road. Harley even patented the exact sound of their engine. Beyond Harley Davidson, motorcycle sales in the United States today are around 1 million units a year. So lots of people these days are hitting the open road and feeling the wind in their face.



While motorcycles and scooters are fuel-efficient and a lot of fun to ride, they aren't necessarily cheap. High-end motorcycles like a Harley can easily rival what it costs for a new car. That's a lot of money invested in two wheels. So if you have a motorcycle or scooter, it's important to take care of your investment so it will keep you riding for years to come.

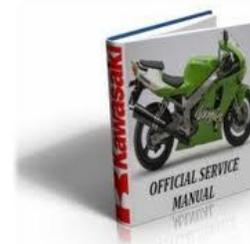
This free Resource from Bell Performance covers advice and tips from professionals to guide you in the steps you need to follow to take care of your bike and keep it working its best for as long as possible. We will talk about areas of the bike that you need to pay regular attention to and why. We'll talk about the right fuels to use and how to store your bike.

YOUR OWNER'S MANUAL – THE ESSENTIAL GUIDE TO SUCCESS

Following the owner's manual is, quite frankly, pretty underrated when it comes to ensuring a long and successful ownership experience of your motorcycle (and your car, too). But they write owner's manuals for a reason. The manual will give you the best advice from the manufacturer on important issues like

- What you need to get fixed, how often, and when you should schedule the service
- The type of oil and essential fluids needed by your bike
- Any special procedures you can undertake yourself to keep your bike running its best

For those of us who are heavy into DIY and more mechanically-inclined, there are "full service" manuals available that basically tells a mechanic everything they need to know to rebuild the entire bike from scratch, down to such esoteric information as how many pounds of force to tighten a bolt on the bike.



Whether you're one of those gearheads or just an average biker who wants to keep your bike in its best shape, you need a copy of your owner's manual and you should check it often. The investment will be worth it.



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PROPER MAINTENANCE SCHEDULES

Manufacturers recommend that motorcycles be serviced at specific mileage or time intervals. The suggested maintenance intervals are listed in the owner's manual to help owners and technicians set up a realistic and appropriate maintenance schedule. Most motorcycles made after 1980 are pretty reliable if maintained properly. To some extent, the high reliability of today's motorcycles has worked to the disadvantage of many riders. Some riders have been lulled into believing that motorcycles are like modern cars and require little maintenance. Modern bikes require less maintenance than they did in the 60's and 70's but they still need a lot more maintenance than a car.



BREAKING YOUR MOTORCYCLE IN FROM NEW

When you lay out the money to buy a new cycle, you certainly want it to start its life out right. This means you have to "break it in" correctly. This will prevent problems with your bike later on. Exactly what you need to do in this respect depends on the manufacturer recommendations for your bike, which will be found in your manual. It could be as light as just being advised to do "light riding" for the first hundred miles of life, to more complex and involved break-in protocols that involve driving the bike at specific speeds and engine RPMs for specific amounts of time, and which may change and morph from doing one thing during the first few hundred miles to doing something else for the next thousand.

Whatever your owner's manual says for this is what you need to do. And you do need to do it. It will save you headaches down the road. You have enough headaches in your life without having one from not following these guidelines.

THE ESSENTIAL OIL CHANGE STEP

If you got a copy of our last free Resource Guide to Healthy Oil (if not, check the Bell Performance web site), you should be well familiar with the concept that changing your oil within the recommended guidelines is the single best thing you can do for any engine on any kind of vehicle. This obviously includes motorcycles.



It's just as important to change your motorcycle oil on a regular basis because those engines tend to work harder – at higher speeds and rpms – than cars and truck engines. Your owner's manual will have the best recommendation for the right oil to use. It will also tell you how often you need to change it. Ignore these recommendations at your peril.

Go too long between changes and your oil won't protect the metal parts from wear as effectively as it should. Remember that oil contains additives such as acid neutralizers which are used to protect the engine surfaces from build-up of damaging contaminants and combustion products (like soot and acid). So if you go too long between changing your oil, these additives will wear out and stop protecting the engine.

On the flip side, change your oil too often and you'll be flushing money down the drain. Sure, you could change your oil every 500 miles "just to be safe", but what would be the point? You'd just be wasting money by being too overly cautious.

AIR FILTER MAINTENANCE

An internal combustion engine requires a constant intake flow of air to provide the oxygen needed to support combustion of the fuel. A clean air filter is important for making sure that the air that goes into your engine doesn't bring in foreign contaminants and substances that may do harm to your engine. Dust and dirt and particles from the environment can get trapped in the oil film or onto metal surfaces where they act as abrasives and damage the valves, cylinder and internal bearings.

Cleaning or changing the air filter will help prevent this. How often you should do so is dictated by your owner's manual (there it is again). It's also always a good idea to increase the frequency with which you change the filter if you ride your motorcycle a lot in dusty environments. Obviously a dusty environment increases the speed at which your filter gets dirty and excessively plugged.



Lastly, a clean air filter will also help your gas mileage. This is a bonus that everyone likes. Now it won't boost your mileage by 20% or anything like that, but you do typically get a small mileage bonus for being conscientious in your maintenance in this area.

RIDE UNDER PRESSURE

Tire pressure can be the difference between wasting gas and money or riding at your best. Tires are the contact points for the road and influence so many things about your riding experience. Your fuel mileage stays high and your bike handling is best when your tires are at the proper pressure. Tire pressure that is too low causes too much of the tire's surface to contact the road at any given time. This creates excessive drag and drops your gas mileage. It also places pressure on the side walls of the tires and speeds the wear of the tire. So make sure you're not riding too low. But don't raise the tire pressure too high, either. It is true that higher tire pressure gives you a mileage boost. But go too far in this direction (some people think if a little of something is good, a lot of it has to be great) and you won't get the best traction in wet weather, which is obviously dangerous. And tires that are overinflated wear more quickly too, but in the middle of the tread, instead of on the sides.



There's no rocket science here – just check your tire pressure once a week with a gauge.

KEEP YOUR BEARINGS (GREASED) AND CHECK YOUR SUSPENSION PARTS

People who own dirt bikes are already familiar with the habit of greasing wheel bearings, since dirt bikes need a lot of grease virtually from the minute they've been purchased. Street bikes don't have as many exposed bearings as dirt bikes do, but they do need a healthy dose of grease in areas like suspension linkages. Checking them and following regular greasing routines will make these exposed parts last longer.

Any good maintenance routine should involve checking the health of important bearings for signs of wear. It's essential to do this because these bearings wear out quickly when they start to go. Steering stem bearings should be checked (raise the front wheels off the ground on a stand and check the feel of the turn). Any unusual feeling or excessive loose play during this check could be a sign that these bearings need to be replaced.

Check your bike's swing arm. The pivot point should be tight and it should not have any side-to-side play in it. Same thing for the front and rear axles. Any play in these





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areas necessitates replacing of these bearings.

In summary, check all your bolts and bearings regularly. Grease them regularly to make them last longer, and put anti-seize coating on them when you reinstall your bolts (swing arm, linkage, motor mount). Paying attention to these critical parts will prevent bigger issues at a later time.

WATCHING YOUR DRIVETRAIN



We've already talked about the importance of clean oil and a clean air filter in your bike's health. But another essential part that works with these components is the chain, belt or shaft that enables your transmission to drive your bike's wheel – the drivetrain. Which one of these you have depends on the model of bike you have.

Keeping your drivetrain healthy is pretty straightforward but important to do. Check your chain and sprockets for wear. Make sure you have no cracks in your belt. Check the shaft housing and add oil to it every so often. Maintenance

to this essential area pretty much involves observation to ensure the lubrication is adequate. Don't ignore this. You can't go anywhere if your drivetrain is out of order.

BATTERY CHARGE

Even if your drivetrain is in good working order, you won't go anywhere if your battery is dead. Batteries drain slowly from new, so it's up to you to maximize the total life you'll get out of it. There are two kinds of batteries you can opt for: a sealed battery and an exposed battery. Exposed batteries require that you check the liquid solution inside every so often. If the solution gets too low, top it off. This keeps the internal plates from getting exposed and wearing the battery out too quickly. If you use a sealed battery, you won't have to worry about this.

RIDING WISELY

Beyond the simple things above that you can do to make your bike last longer, how you operate the bike also goes a long way in this regard. A car driver who squeals his tires, pops his clutch and slams on his brakes isn't going to get very long life out of his clutch or brakes and transmission and is likely to be spending a lot of time with his friendly neighborhood mechanic. The same is true for motorcycle riding. Riding the bike rough, not feathering the clutch while shifting, not backing off the throttle at the right time – these will wear your transmission out pretty quickly. In the same vein, accelerating and braking in controlled manners help out as well and will keep you out of the repair shop for much longer periods of time. You have enough things to spend money on these days without wasting it by wearing essentially bike parts out too quickly.

FUEL SYSTEM MAINTENANCE – ESSENTIAL STEPS

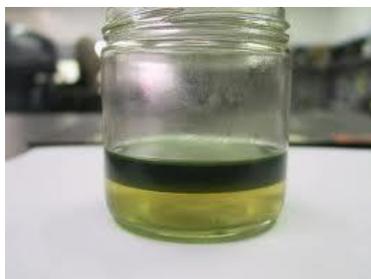
The fuel system is an essential internal system that ensures your motorcycle gets its essential life blood of fuel delivered to the right place in the right amount for the best performance. Like other parts of the bike, the fuel system requires a little bit of looking after, but it doesn't have to be difficult or labor intensive, it's more preventive in nature.



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GETTING THE FUEL RIGHT

Fuel is quite often overlooked as a form of preventive maintenance on a motorcycle. Any time you're talking about fuel and fuel systems, you should always consider the fuel filter. It's wise to check the fuel filter regularly if you have one to make sure it is not clogged, looks clean and is clear. It is recommended that you replace fuel filters every 2 years, or sooner if you have any signs of contaminated fuel. While you're at it, check the bike's fuel lines for weather damage and cracking. Replace these lines immediately if any damage is found.



Typically, untreated gasoline retains its best combustion quality in storage for about six months; much less if the gasoline contains ethanol. Things that cause gasoline fuels to lose their quality are exposure to air and light, and the accumulation of water from the environment. Air and light cause chemical reactions (oxidation) to occur in the fuel, producing discolored gasoline with dark deposits collected on the bottom of the gas can or storage tank. These

reactions happen faster in hot weather.

Ethanol fuels also have the issue of pulling water out of the air and into the fuel. This is due to the chemical nature of the ethanol itself. When enough water is absorbed, the dissolved ethanol may start to drop out of solution in a process known as "phase separation". The free ethanol mixes with the water and sinks to the bottom of the tank (because water and ethanol is heavier than gas). When this happens, you've got some problems that are best avoided, like leftover gasoline that is stripped of its octane rating, or your fuel line sucking up a water/ethanol mix instead of sucking up gasoline.

The best way to prevent these storage problems is to treat the fuel with an additive. But in order to be effective, any fuel additive (like Bell Performance Mix-I-Go) must be added when the gasoline is in good shape. Once the fuel goes bad, there are no products on the market that can restore it to good condition, and the gasoline must be discarded at that point. At best, poor performance and at worst, serious engine damage can result if deteriorated gasoline is burned in your engine. A good fuel additive treatment can double or triple the life of gasoline and will have a positive effect on the performance of your motorcycle.



Furthermore, the ethanol found in most on-road gasoline is highly corrosive and will actually dissolve the aluminum in your carburetor over time. A good fuel additive mixed in with the gasoline should coat and protect the carburetor and fuel system components, protecting them from this process. This is very important when your bike is in storage for a long period of time.

WHEN YOUR BIKE SITS AROUND – BURNING YOUR RESERVE

Also remember that, when parking your motorcycle for any extended length of time, to turn the petcock to the off position. This prevents any fuel potentially leaking or flooding the carburetor. The fuel that is drawn in when you change your petcock setting from "Normal" to "Reserve" comes from a different part of the gas tank, usually from the very bottom. The gas located in this part of the tank is more likely to be phase-separated gasoline containing higher concentrations of water, ethanol and whatever foreign matter and heavy deposits that would have accumulated over time. The potential here is that the very first time you need your reserve fuel, your motorcycle just stops dead because this contaminated fuel would be drawn into the carburetor or fuel injection system. A good preventive solution to this problem is to ride on the reserve setting with a full tank of fuel on occasion. The ratio of contaminated to good fuel will be so small as not to be as much of a problem. You're more likely to burn off whatever bad gas is in the reserve without nearly as many problems. This will also mean that the day you need your reserve, it's going to work like you need it to.



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STORING YOUR MOTORCYCLE

When preparing to store a motorcycle for an extended period of time, you should take certain steps that will reduce the chances of having certain storage-related problems. The following items are some recommendations for steps to take before you put the cycle away for storage. This will ensure that when the next riding season arrives, your motorcycle will be free of problems and ready to go:



- Change the oil and filter.
- If the motorcycle is liquid-cooled, be sure that the cooling system is filled with a 50 percent antifreeze solution to prevent the cooling system components from freezing.
- Fill your fuel tank with gasoline and add a fuel stabilizer like Bell Performance Mix-I-Go. This will prevent corrosion to fuel system components (especially from ethanol) and prevent the fuel from deteriorating during storage.
- Drain the carburetor if possible or turn the fuel petcock to the off position and run the engine until all the fuel in the carburetor is consumed and the engine dies.
- To prevent rusting in the cylinders, pour a teaspoon of clean engine oil into each cylinder by removing the spark plugs. Place a piece of cloth over the spark plug holes and turn the engine over a few times to disperse the oil and coat the cylinder walls. Replace the spark plugs after completing this operation.
- Remove the battery and verify that it is fully charged and store it in an area to protect it from freezing. You should place the battery on a trickle charger once a month while in storage to prevent it from discharging and sulfating.
- If the motorcycle has a drive chain, you should lubricate it to prevent it from rusting.
- Inflate the tires to the factory recommended pressure to prevent sidewall cracks or flat spots.
- Wash and wax all the painted and chrome parts.
- Cover the motorcycle to keep dust and grit from settling on the paint which can result in a scratched finish. It is also recommended using a cloth cover to avoid any moisture collecting on the cover or the painted or chrome surfaces.

Following these procedures will reduce the chances of having problems when taking the motorcycle out of storage and ensuring that your motorcycle will look as good and run as well as it did when you placed it in storage. The result will be an enjoyable riding season when it begins.

IF YOU FOUND THIS HELPFUL

If you found this Resource Guide helpful, you can find more helpful information like this for your car, truck, boat, small equipment or home heating system, at Bell Performance's two web site – www.BellPerformance.com and www.WeFixFuel.com.

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