

Making The Most Of Your Tires

How many components make up your bike? Think about it. Now, which part is the most important? Unless you're very biased, you'll have to admit that most parts, no matter how small, are important to the overall operation. So let's look at just one item – your tires.

Unlike many other components, tires are very responsive to the environment. The internal pressure increases with use (friction) or warm weather. Likewise, it decreases in the opposite situation. But at only one pressure will you get optimal performance. This means checking and adjusting often.

High Quality Tire Gauges are Inexpensive: Get One!

This is not a high-end purchase, but it's an important investment. As you well know, in moto you need every edge you can get and you also know that all these edges are cumulative. So go big! Buy a quality tire gauge.

But aren't they all the same? No, and 2 PSI, or even less, can make a huge difference. So forget about the toy ones that you pick up now and then as promotional items. Those are to get you attention, not to help you win races. Stay away from plastic, go for metal cases.

Temperature = Pressure

Pressure is indexed to temperature. If the temperature your tires is subjected to goes up, so does the pressure inside (this is why it's always a bad idea to throw aerosol cans in a camp fire), and when it goes back down, so does the pressure.

Check and adjust your tire pressure when you get to the track in the morning, and then check it again after a few laps. You might be surprised.

Keep the Funk Out

If you've ever touched the valve pin in your Schrader valve stems, you know how sensitive the little buggers are. So what might you expect to happen if some dirt or other debris got lodged in there during a race or practice run? Psssst! Don't take a chance; Use valve caps with rubbers seals.

A Caveat on Tire Pressure (Hard Surface)

Yes, we've mentioned that you should check your tire pressure often and keep it at the tire manufacturer's recommended PSI. Well, that's true in general, for generic track conditions, but in special cases you do have a bit of leeway to fudge with.

One such case is when the surface is very hard packed dirt. In this case you don't need to bite in so deep as you do in, say, loamy soil, for instance. In this case you'll want to max out the pressure for hard tires.

The exception to this rule is for those of you who ride Pee-Wee's. Your tires should always be kept at high pressure. There's just not enough engine muscle to run soft tires.

Another Caveat on Tire Pressure (Soft Surface)

If you're riding in mud or soft loam, you'll need to run your pressure a little lower than recommended. The under-inflated tires will bite better and be more stable. Keep an eye

Making The Most Of Your Tires

on it though. If too much mud embeds itself between your knobs, you'll feel like you're playing on a slip 'n slide. Add some more air until the mud slings off.

Suspension and Tire Pressure Work Hand in Hand

Your suspension is one more factor to consider. Generally speaking, it follows the logic that we've been talking about. Pressure has a big effect on how your handling feels. And so, that has a domino effect right into your performance.

For example, low air in the front end will make you compensate by over steering and the back end will feel sloppy. You know the feeling; like when you're going flat? On the other hand, a full inventory of air will make the front end very sensitive to steering and the rear end will respond quite sharply.

The Bead Must Break

No matter how good your tires are, you're going to have a flat sometime. Or, there comes a time when you need to replace the old with the new. Either way, you're going to have to break the bead to get the old tire off. Some are easy, some are stubborn. Follow this advice to make the job a bit easier.

The first thing you'll need is two tire irons. Make sure to get as much air out of the tire as you can. Mash the bead down with the tip of the first iron. If the bead won't break, try standing on the tire's sidewall. Ease the second one between the rim and the bead. Now pry the bead up over the lip of the rim and move down a couple of inches and repeat.

Try Spoon Tire Irons

For best results, use spoon-type tire irons. They'll give you a lot more control than the old-fashioned kind and you stand less chance of pinching a tube. What a hassle that is when time is of the essence.

To make your work easier, use longer irons, 10 inches long or more. Remember that lesson in Newtonian physics from eighth grade in school? Leverage is key.

Turn up the Heat!

You can make heat your ally when changing a tire. A warm tire is much more pliable and expands. Both factors will make your job easier. In cooler weather, set the wheel in your vehicle and run the heater. On a nice warm day, lay it in the sun for twenty minutes or so.

Work in an Upright Position

When you have to change a tire it's important to keep everything as free from debris as you can. That doesn't mean like a hospital room; you just don't want anything between the tube and tire or under the bead.

Seek elevation. Get that wheel off the ground. Work on the tailgate of your truck, on a bike stand, or even a lid-less trash can. Bonus: our back will thank you, too.

Lube Job

Making The Most Of Your Tires

Almost any kind of lube will make working with the bead easier – going on or going off. You can buy special tire lube compounds, use soap and water (50:50 ratio), or even spray it with silicone.

Examine Your Rim Lock

Your rim lock must be in good condition. Before replacing the tire is your best opportunity for giving it the once over. Check it for any bare edges that might make for a poor fit. Then be sure that it fits the way it was designed after you tighten it down. If it's not right, change it out.

And Speaking of the Rim Lock

Don't tighten that sucker down too tight. Its purpose isn't to put a death grip on the tire's bead, just keep it snug against the wheel rim.

Don't Install a Deflated Tube in the Tire

It seems like this should be common sense, but how often have you seen riders assemble the tire and wheel with a flat tube inside. Then they give it some air and bounce it on the ground to "even it out". Then, more air, more bounce. Wrong! You can't be sure all the creases are out.

Before putting the tube in the tire, give it enough air to give it a dough feeling, and then proceed. Now you're cookin'.

Take a Powder

Before putting it all together, sprinkle some baby powder inside the tire and on the outside of the partially inflated tube. This will make for a smooth operation and keep the tube from chafing.

Easy Does It

Don't change tires the morning of the race and then just go out flying. Give it a practice run. One thing to pay attention to is that the tire hasn't slipped on the rim. Before you hop on, mark the tire with chalk opposite the valve stem. Later, look to make sure the mark hasn't moved. If it has, tighten up the rim lock and repeat.

Rotate Your Tires and Save Money

Your tires won't last forever, but you can get more mileage out of them if you flip them over when the wear starts to show. Due to the rotation in the forward direction, the knobs tend to wear unevenly (front VS back of the knob). If you flip the tire over, you'll not only get better traction, you'll get a full 25% more wear out of a set of tires.

Give Those Old Tires New Life

This is just another way to get more bang for your buck. When your tires start wearing, extend the life by trimming the edges using a tire groove or a sharp razor blade. Sure, you'll void your warranty, but if you're at this point, it's gone already!

Making The Most Of Your Tires

Don't be a Concrete Show-Off

Don't bother laying rubber on cement starting pads. Think you're impressing anyone? Not likely. If the pad hasn't been swept or you've got debris between the knobs, you might give it a spin or two, but keep it to a minimum. No sense in wasting money.

Suspension Setup

As you know, there's a lot more customization that goes on with a dirt bike than a pocket rocket. Why? The riding conditions are different and if you want to be competitive, your bike has to fit you like a glove. One of the first things to tweak is the suspension. Right out of the box your bike's compression clickers and the rebound setting might be set anywhere.

The best place to start is to set these two settings in whatever the manufacturer recommends as "standard". This is a good starting point. If no setting is recommended, just choose a middle setting. This is what an average might employ.

The rear spring may or may not be right for you. Did you buy your bike second hand? In that case, it might not be standard for your model; the former owner might have customized it. Take it for a test ride. Does it feel right for you? If so, you're on the right track. Otherwise, before you start tuning the suspension to your liking you might want to consider installing the standard spring.

You'll want to set your rear shock's static sag. Follow these steps to configure the preload.

1. Locate the locking ring and loosen it.
2. Adjust the main ring to adjust the shock's preload.
3. With the bike elevated so that the back wheel is not in contact with the ground, take a measurement from your axle nut to a reference point on the bike somewhere above it.
4. Now set the bike back on the ground.
5. Measure the distance between the axle nut and the reference point.
6. Subtract one measurement from the other.
7. Adjust the ring until the difference is about 25mm of sag.

Now it's time to set what's called the laden sag or racing sag.

1. Stand the bike in an upright position and write down the vertical height.
2. Put on all your race battle gear and assume your best attack position on the bike.
3. Have a friend take the measurement now on the fully loaded bike.
4. Do the math again as before. Now adjust the preload again to get it between 90mm and 110mm.

Going through these set-up routines might seem to be a hassle but they are worth the effort. No factory setting is going to satisfy every motocross racer. If you've been in the game for any time at all, you know that the devil is in the details. Who can afford to throw away even the tiniest of advantages?

Motorcycle Gearing

When the factory engineers develop a new bike, one of the most important things they have to do is optimize the gearing. They use their own test moto track with their own test riders. They use average riders and the track is an average, generic track so what do they end up with?

Average gearing. But when you think about it, it's all about mass marketing. That's a good thing though. If they manufactured a myriad of choices, delivery time would slump and manufacturing costs would be passed along to us. A large number of riders will be content with this set-up, but more aggressive racers want a custom gearing configuration. Let's look at some factors to consider.

To Gear Down or to Gear Up; That is the Question

This is really a personal preference but part of it depends on the tracks you ride on. Does it have a lot of long straight legs where you can get up a head of steam? Lots of tight coffee-cup turns at the base of steep jumps?

- Gearing up: this is achieved by either using a smaller rear sprocket or a larger countershaft. The net effect is to add more speed while lowering the final drive ratio.
- Gearing down: achieved by using a larger rear sprocket or a smaller front sprocket. Net effect? It raises the final drive ratio, while lowering speed. Great for climbing.

But What is the Final Drive Ratio?

Alright, it's time to apply that schoolhouse math. To arrive at the final drive ratio, divide the number of teeth you've got on your rear sprocket by the number you have on your countershaft.

But what does the number tell you? It's the number of times your countershaft will turn during one complete rear wheel rotation. A smaller number tells you that you'll experience higher RPMs for a certain speed and a higher number is the opposite. Now it all makes sense, right?

Riding at Altitude?

If you're planning to ride at a high altitude, not only should you get there a day or so early to acclimate and avoid light-headedness, but your ride needs modification too. Higher altitudes mean less engine power, so gear down to compensate.

Clutch Implications

An interesting side effect is that the lower your gearing, the less you'll have to use your clutch. Why? Because your engine will be more responsive and run freer.

What About the Power band at Higher Gearing?

Basically, it's the opposite of what we just discussed – you'll put a bit more wear on your clutch; but on the other hand, your engine will be easier to control.

Motorcycle Gearing

And Lower Gearing Power band?

In a low gearing configuration you'll find yourself shifting much more often to stay in the sweet spot. It's just the opposite of taller gearing.

Be Your Own Pit Crew

Be ready to fine-tune your gearing configuration on the fly without having to change the chain. Put together a starter pack to haul along with you to the track. Include a spare rear sprocket that's two teeth larger than the current one and a countershaft that's one tooth less. The tooth ratio of rear sprocket to countershaft is $\frac{1}{2}:3$.

***NOTE: As a rule of thumb, one tooth change at a time in gearing is the max.**

Wear and Tear: Your Sprocket Should Match Your Chain

If your existing chain is worn and you use it with a new sprocket, you'll be throwing your sprocket money away because the sloppy chain links will wreak havoc with the new teeth.

Of Rear Sprockets and Countershafts

The smaller your countershaft is, the faster your chain is going to wear. It's a friction thing. Say you decide to ride with countershaft that's one tooth smaller. Your best bet is to use your standard counter coupled with a new chain with an extra link and a rear sprocket that's three to four teeth larger. But avoid the temptation to lengthen the chain with an extra master link; that's asking for trouble!

Bike Fitting For Shorter Rider

Face it – some of us are, as they say, vertically challenged. But we still love to ride and race even though the factories build for the masses. They have to, or the bikes would be too expensive for anyone but the very elite to afford. They try to suit us as best as they can with tech innovations like shorter shocks, linkage mods, and sub frame variations, but they can't afford to meet everyone's needs.

As an example, look at running shoes. As high tech as they are, all the companies except for New Balance only offer one width. But what if you have an extra wide forefoot? All the cushioning in the world won't help you. So what can you do?

As Jason Thomas has said, you might try running the forks high in the clamps or sagging the rear shocks to try to compensate, but those things compromise other things, like the bike's geometry and how it handles on the corners. Is it worth it? That's a personal call.

There are other things to try, too. But which ones work for you just depend on you. For instance, try adjusting your bars a bit further back. Have you tried to run your mounts lower? It's a no-brainer that the height of the foot pegs can make a difference.

But here are some other things to try. First, try lowering your seat. You should have some flexibility in this adjustment and it'll make a world of difference. Most riders like the compromise between the lowest and the highest setting.

Lowering your sub frame works well too. The trick is to cut it accurately and then re-weld it. Be accurate though, any misalignments might not be noticed but will play hell with your body alignment and performance. Lowering it by about eight millimetres is about the max you want to go.

Taller foot pegs are a good solution as well. There are some factory replacements on the market now which fit the bill. In the long run, the best approach is to use a combination of all these moods rather than to go to extremes on just one.

Bike Fitting For Taller Rider

Just head on out to the local track and look around. Pay attention to all the motocross riders. The common factor is the difference between them. They all come in different sizes and shapes. But bike builders have to design and build for the masses, just as car companies do. For a high performance, custom ride, you'll have to make your own changes to shave seconds off your lap times.

Taller than average riders are a typical case where mods are required to maximize performance and rider comfort. Never forget that the goal is to achieve a bike/human unit. Travis Preston belongs to the "tall guy" club. What does he do to mod his Sobe No Fear/Samsung Mobile/Honda CRF450R?

The most obvious thing to do is raise the seat. It's the easiest thing to do and sets the stage for all other mods.

Think about the bar height next. Also an easy fix, just a few millimetres higher on the bars and/or mounts make things equal with the seat mod.

Some taller riders just can't get it right without cutting down the sub frame. Is this ok? Sure, but keep it to a minimum and accurate – don't risk throwing things out of whack; never let an amateur with a torch close to your ride.

How big are your hands? If you are a much taller rider than the manufacturer counts on, you're hands will be bigger too. Bigger levers are in order because you never want to sacrifice flexibility, comfort, and access. The weight gain is negligible, trust me.

Finally, think about your bike's suspension. If you're taller, chances are you're bigger (I know, it's all lean muscle mass; ahem!). Anyway, in this case consider adding stiffer suspension. It will pay off in the long run.

10 Tips For A Bullet Proof Clutch

Your motocross clutch is the key to your bike's performance, and by extension, yours. You might have more tricks up your sleeve than anyone else hitting the dirt but if your clutch isn't up to par, you and your engine are going to be on totally different wavelengths and no translator out there can help. Let's talk about how to put the clinch on your clutch.

First, Get Rid of those Factory Clutch Springs!

Bike factories take a minimalist view when they assemble the clutch assembly. One of the reasons they do this is to not turn off weaker riders in the showroom. They want all prospective buyers to say, "Ahhh," and not, "Arrgh!"

So if you're not comfortable with wimpy clutch action (and really, who is?), go ahead and swap them out the springs for stiffer ones. For instance, you can substitute 250-rated springs if you're a 125 jockey.

For fine-tuning, keep in mind that you don't have to change them all out; in most cases two or three will do – just experiment and see what works for you.

Secondly, Don't Neglect Your Tranny Oil

No, this isn't like your car or truck, where you only change it every year, or in some cases, hardly ever. Ideally, replace your tranny oil every two or three races. Sound excessive? Maybe, but it's cheaper than a tranny overhaul, and the crud you pick up on the track will place early stress on your clutch plates.

Third, Carry Shims for a Quick Fix

Suppose you're out at the moto and halfway through the day, your clutch starts feeling spongy and you're fresh out of springs. What to do? If you packed a mess of assorted washers, you can simply insert the right ones under the bolt and viola! The added thickness will preload your springs and you're back on your game.

Forth, Remember that in a Pinch You can Run Automatic Transmission Fluid

Although you might not have known it, you can top off your tranny to the proper level with automatic tranny fluid. If you have to though, be sure to use ATF (GM compatible), but don't use Ford type fluid. (The container will tell you which it is.)

What's the difference? GM fluid grips better than Ford fluid, which is slick as molasses. Which you don't want in a moto.

Fifth, Don't Use Factory-Installed Aluminium Clutch Plates

Sure, they're bright and shiny, and work just fine for road touring bikes, but they're not tough enough for extended motocross use. For one thing, they don't hold up as well as steel plates, which are heavier, but more durable.

The drawbacks of aluminium are two-fold: first, since they wear more quickly than steel, they leave metallic deposits in the oil, which hastens mechanical wear. Secondly, aluminium warps easily when subjected to the high heat generated during a moto.

Sixth, Resurface Ageing Clutch Plates

There's no sense in buying new plates before you have to. As the plates begin to age, they build up a glaze layer on the surface which makes them slip more noticeably.

When you begin to notice this slippage, bring the plates back to life by taking out your fiber clutch plates and use a sanding block to remove the slippery glaze. Once you notice the glaze gone, clean them well and reinstall them.

Seventh, Don't Set your Clutch Lever too Tight

10 Tips For A Bullet Proof Clutch

Don't make the common mistake of adjusting your clutch lever too snug. If you do this, you're just asking for trouble. It should have a wee bit of play in it. How much? No need to get too technical. Just set it so that a quarter will slide between the lever perch and the lever without the clutch cable being taught. If you're a bit low on funds and don't have a quarter on hand, just use your house key!

Eighth, How to Care for Your Clutch Basket

Have you ever wondered how your clutch plates operate when the case is sealed and you can't see the action? There's an aluminium basket in there with just short of a dozen tangs. These tangs are what your clutch plates slide up and down on. As you can imagine, there's quite a bit of wear and tear going on there in the heat of moto battle.

In particular, it wears notches in the tongs. The end result of this is that the notches get in the way of clutch plate movement. To maximize the lifetime of both the basket and the plates, use a file to take the notches out. Of course, by doing this, you're contributing to the wear and tear because the plate movement gets sloppier, but extending the life of the basket and plate is worth it.

Ninth, Sooner or Later You'll Need new Plates

Clutch plate life, like all good things, eventually comes to an end. How can you tell when it's time to retire them? Measure the thickness. You can ask your dealer or consult your user's manual for the proper specs. If they're too thin, change 'em out!

And Tenth, Give Yourself the Gift that Keeps on Giving

Nothing says quality to a moto aficionado like a Hinson clutch basket. It just doesn't get any better. They also make clutch hubs and plates if you want to go for the whole enchilada.

But what makes the Hinson basket so good? Engineering, in a nutshell. Hinson takes the next step in extending clutch plate life while dissipating friction heat by providing windows through which the oil is forced. Read more about Hinson at <http://www.hinsonracing.com/main.html>.

Inspect Your Bike before You Ride

Motocross is a very serious business and so is your pre-ride checklist. Failure to take this step seriously may end in a serious injury, having to wait for help, or expensive repairs. Check all bolts and connections for proper tightness and settings. Is your tire air pressure set properly for the terrain? Oil level check out? An ounce of prevention is worth a pound of cure – Benjamin Franklin.

You say you need a short cut to make your pre-ride inspection a little quicker? Expedite the process by taking a page out of the book that tire dealer changers use. Have you ever seen them mark the wheel rim and corresponding lug bolt so they won't have to re-balance? Do the same thing with your nuts and bolts, but use a Sharpie or other permanent marker. Your bike may come with these marks from the factory. If so, make sure they are accurate, especially in cases where your owner's manual or repair guide calls for a torque wrench.