STREET TIRES

by Phillip Floria with help from Dunlop Tires

One of the things we all have to remember is the only thing between the road and us is the two rubber tires we sit on. The modern motorcycle tire is designed to do more than the tires on your car. The sidewalls and tread faces are specially made to provide the stiffness and traction a modern motorcycle needs. After all motorcycling is all about traction control.

Today we have more choices to mount on our bikes some will be better, others may not work under the conditions, which we ride. Bias ply tires will not work on sportbikes well they will, but the loss of handling and high-speed control would be too much to give up. Using radials on a large cruiser bike, which will never see the upper end of the speedo, would be a waste of money

Like a lot of things in motorcycling, once you understand the basics of what looks either baffling or plainly impossible, everything becomes clear, or at the very least slightly clearer. Tires are a good example of this. When was the last time you looked at the small print on the shoulder of a motorcycle tire? In fact when was the last time you even looked at a tire? Probably when it was flat.

You have two choices: (1) decide to know nothing about tires at all and simply go to the bike shop when you find bits of carcass poking through the rubber, or (2) know a bit about it and work out for yourself what you want fitted and why. Changing tires yourself is a bit of a major task these days because tubeless tires (as fitted to most modern bikes) have a very strong bead (the wires that seat the tire onto the rim) and need a special tool, known amazingly enough, as a bead-breaker, to free them.

There are ways to tell if a tire needs to be replaced. One of the most obvious is the nail sticking out of the tire or some other object, which will let the precious air captured inside escape. Any holes, dry rotting or tread height are good reasons to replace a tire. Most manufacturers have a minimum of tread that needs to be left in order for the tire to be safe. You can tell this by the tread wear indicator arrow on the sidewall. Follow this arrow onto the tread and look for the raised portion in between the tread. If this raised portion becomes flush with the tread, it is time for a new tire.

Excessively worn tires are more susceptible to penetrations. Always remove tires from service before they reach the tread wear indicator bars (1/32 of an inch tread pattern depth remaining). Worn/unworn tire combinations and worn tires used in wet conditions can result in deteriorated handling.

Two more important aspects of a tire are sizing and pressure. Look at your tires as you walk up on your bike, this should be a habit, you may see a low tire or a tire, which is cupping. A cheap tire pressure gauge is better than none. Check your tire air pressure often, if you ride once a-week do it before you start out. Always check the tire pressure while the tires are cool and follow the tire manufacturer

specifications. Try not to add air to an already hot tire. The air in the tire expands as the tire heats up. Adding air to an already hot tire will over-inflate it. And cause excessive wear in the center of the tire.

Running on tires low on air will cause the outside edges to wear. Tires are not cheap, keeping them properly inflated will make them work better, handle safely and last their intended life.

Tires don't last forever. Front tires seem to never wear out tread wise. But, exposure to ultra violet light attacks the rubber compound. Heat, cold and use harden the rubber compounds too. The tire may look good but if it is over three years old it may need to be replaced.

For sizing a tire, all tires will have the size on the sidewall. This info is not coded; you just need to know how to read the numbers. Tires are sized according to diameter and what's known as aspect ratio. Diameter is simple; if you've got a 17-inch wheel, it requires a 17-inch tire. Aspect ratio is the relationship between the width and the height of the sidewalls. Say a tire is sized at 160/70; it means the sidewalls are 70% of the width of the tire. The width is 160mm, so the sidewalls are 112mm high. Tires for sports bikes typically have a low aspect ratio, some as low as 50%, i.e. a 190/50. This gives less sidewall movement and effectively makes for a tire that deflects very little, or keeps its shape under high cornering forces.

As well as the obvious, like diameter, tires must also match the width of the wheel rim. Tire sizes are matched to rim sizes for optimum profile that is the shape the tire takes when fitted to that rim. If you've heard people talking about preferring the behavior of a smaller tire (like a 180/55) compared to a 190/50, it's because of its profile on, say, a 6-inch rim. The smaller tire assumes a rounder cross section, offering better turn-in and a bigger contact patch while leaned over.

There will always be an optimum recommended tire for any given rim, and fitting a bigger tire because you reckon you'll have more rubber on the road can often mean a trade-off in handling, so unless it's a highly recommended change that improves the handling and road holding, don't do it.

Remember, correct matching of front and rear tires is important to obtain optimum performance and handling. Follow the Tire Selection guidelines.

- Mount only tires marked "front wheel" on front positions and only tires marked "rear wheel" on rear positions.
- A new front tire with a worn rear tire can cause instability

Mixing radials, or mixing radials with bias or belted bias tires may adversely affect handling and stability. Always fit Dunlop Sportmax, Sportmax II D204, Sportmax touring D205 and Dunlop D207 high-performance radials in pairs. It should be noted that many factors other than tire incompatibility can affect the handling of a motorcycle, including the weight and height of the rider, mixing worn with unworn tires, and the addition of luggage or fairings. Consult the motorcycle manufacturer before making modifications from stock.

Correct rim width may be crucial to handling and stability. A tire that is installed on a rim wider than recommended will have a flattened profile, and a rider may easily reach the edge of the

tread during cornering. A narrow rim will alter the tire profile, concentrating tire wear in a very small area during cornering, with a smaller contact patch during braking. Remember: Tire clearances are important.

Mounting to Harley-Davidson 18-inch and 19-inch CM contour rims may result in slippage or air loss. Harley-Davidson 18-inch and 19-inch CM contour rims are not compatible with Dunlop tires. Consult Dunlop if in doubt and before fitting tires to pre-1980 Harley-Davidson motorcycles.

Tires offering different load-carrying capacities are available. Consider carefully the weight of the motorcycle, the weight of any optional equipment and whether it will carry passengers. Remember, the load- carrying capability of the tires is also reduced by under-inflation. It is possible to overload a tire even though it is the size specified by the motorcycle manufacturer. Maximum loads and corresponding pressures are indicated on the sidewall of all street tires.

- Never exceed the accessory restrictions and vehicle load capacity found in the motorcycle owner's manual, or the maximum load molded on the tire sidewall. Before a trip, be sure to determine the total weight of luggage, equipment, and rider(s) to be added to the motorcycle.
- Trailers may contribute to motorcycle instability, grossly exaggerated tire stresses and overload. Such stresses and overload can cause irreversible damage resulting in sudden tire failure and accident. Dunlop does not recommend the use of trailers, nor warrants tires used on motorcycles fitted with trailers
- Sidecars should not be fitted unless approved by the motorcycle manufacturer.

The next things to look at are compounds. A compound is the blend of rubber used for the tread. A soft compound will generally offer more grip, but wear faster than a hard compound. Some tires are now made with a dual compound using a harder band in the center, where acceleration forces can quickly wear a tire out. And a softer compound for the edges where the tire spends less of its time and where a softer compound offers more grip when the bike is banked over.

A tire, which appears to be cupping on the sides, can indicate several things, on front tires, worn wheel bearings may be the cause or some other suspension problem. Most cases it's the tires age. Because the tires are made from different compounds of rubber for the center and the edges, as the harder outer rubber wears away the softer rubber becomes exposed and wears much faster. Have your front end checked, and replace the old tire.

Then there are speed ratings. If a tire is marked 170/60 ZR17, it's a 17-incher, ZR-rated for speeds above 150mph. A 130/70 H17 is H-rated for speeds up to 130mph, V, or VB, are for up to 149mph, S for up to 112mph, and there are others - lots of others.

Tire mounting

Dunlop street tires have yellow balance dots in the bead or sidewall area to indicate the lightest point of the tire. All Dunlop street tires should be installed with these balance dots at

the valve. All Dunlop street tires also have arrows on the sidewall, which indicate the correct direction of rotation.

Positioning of balance marks and inclusion of directional arrows are not universal among motorcycle tire manufacturers

Be sure to align the wheels each time the rear wheel is removed or the chain or belt is adjusted. Each revolution of an incorrectly aligned wheel can scuff off tread rubber, reduce tire mileage, and impair steering and cornering.

It is essential tire/wheel assemblies be balanced before use and rebalanced each time the tire is removed or replaced. Unbalanced tire/wheel assemblies can vibrate at certain speeds, and tire wear will be greatly accelerated.

All Dunlop street tires should be installed with the yellow balance dot at the valve. Wheels may be balanced with spoke nipple weights, lead wire or self-adhesive rim weights. Consult the motorcycle manufacturer for approved wheel weights.

Now you have the new tires mounted, before leaving on a trek to the boonies or to Sturgis make sure you wash them with soap and water use a scrub brush. The tires have a very slick coating on them to protect them until they're mounted. This coating will stick on the tire for over a hundred miles. Replacements for worn, differently patterned or constructed tires will not react the same. When new tires are fitted, they should not be subjected to maximum power, abrupt lean-over or hard cornering until a reasonable run-in distance of approximately 100 miles has been covered. This will permit the rider to become accustomed to the feel of the new tires or tire combination, find the edge, and achieve optimum road grip for a range of speeds, acceleration and handling use. Check and adjust inflation pressure to recommended levels after tire cools for at least three (3) hours following run-in. Remember, new tires will have a very different contact patch and lean-over edge. New tires, mixing a new tire with a worn older tire, and mixing different pattern combinations require careful ride evaluation.

Tire plugging and repair

OK you ride out of the shop take a short hop to a favorite place to eat, only to come out and find your new tire is flat as the pancakes you just finished. What now? Well you really only have two options, replace the tire or plug or patch it. So with some help here is some information to help you make the decision.

Dunlop recommends only permanent repairs performed from the inside of the tire, using a combination patch/plug method. Never attempt a repair from the outside, or inject a sealant, or simply use an inner-tube, a patch or a plug as a substitute for a proper repair.

Only a qualified tire repair shop or motorcycle tire dealer should perform repairs. Inspection of the tire and adequacy of repair becomes the responsibility of the person actually performing the repair and Dunlop does not warrant the results of a repair in any way. Combination patch/plug repair kits for use by the repair shop or dealer are available with accompanying

instructions from companies such as:

1. Remarco Inc. 200 Paris Ave. Northvale, NJ 07647 (201) 768-8100
2. Technical Rubber Co. P.O. Box 486 Johnstown, OH 43031 (740) 967-9015
3. Tip-Top/Moto Combi Kit
4. Tech Uni-Seal® Repair Kit (Also has been marketed by Honda, Kawasaki, and Yamaha with their own part numbers.)

NOTE: There may be suitable repair kits and materials provided by manufacturers other than those listed above.

Before any repair should be attempted, however, a tire must be removed from the wheel and thoroughly inspected. The following are minimum guidelines for the repairer:

Tires should not be repaired if any of the following conditions exist:

1. A tire has been previously injected with a sealant/balancer.
2. The puncture is larger than 6mm (1/4") in diameter.
3. The puncture is not perpendicular to the carcass.
4. The puncture is in the tire sidewall.
5. Separation of plies, tread separation, separation of any other components.
6. Cut or broken ply cords.
7. Broken or damaged bead wires.
8. Cut or damaged chafers (bead area).
9. Deterioration of the carcass inside the tire due to "run flat" or underinflation.
10. Cracks or other damage to the integrity of the inner liner.
11. Excessive wear - tire should have at least 1/32 of an inch of tread depth, excluding tread wear indicators.
12. Cracks in sidewall or tread.
13. Impact breaks, cuts, snags or gouges that penetrate the surface.

NOTE:

A. There should be no more than one repair in any quarter of the tire and no more than two repairs per tire.

B. The wheel itself must be in good condition. Any cracked or bent wheel, however slightly, may allow the loss of air and cause subsequent deflation of the tire.

C. Following repair, the valve assembly should be replaced and the tire/wheel rebalanced.

Speed should not exceed 50 mph for the first 24 hours after tire repair and the repaired tire should never be used at speeds over 80 mph. The repairer is solely responsible for instructing the motorcyclist as to the restrictions to be placed on tire use following repair In summary, NO form of temporary repair should be attempted. Motorcycle tire repairs leave no room for error and any doubt as to inspection or adequacy of repair should be resolved by discarding the tire.

NEVER ATTEMPT TO REPAIR A DAMAGED TIRE WITHOUT THE AIDE OF AN EXPERIENCED TIRE MECHANIC.

Tire Mounting

Danger: Only specially trained persons should mount tires. Improper mounting can cause tire explosion and serious injury.

Follow these mounting precautions:

- · Wear approved eye protection.
- · Clean and lubricate beads and rim.
- · Centralize rim band and tube to prevent pinching if tube-type rim. *Note directional arrows on sidewall where applicable.
- · Lock assembly on mounting machine or place in safety cage before inflating to seat beads.
- · Set air hose relief valve at 40 psi.
- · Use extension gauge and hose with clip-on air chuck. Stand back with no part of your body within the perimeter of the assembled tire and rim.
- · Inflate with core in valve stem.
- · Never inflate above 40 psi to seat beads.*
- · Spin wheel to check bead seating and alignment.

*If the beads do not seat by 40 psi, deflate and repeat above procedures. Never use a volatile substance or rubber "donut" to aid bead seating. If the tire is a tube-type, deflate and reinflate after seating to prevent tube wrinkles.

- For 15-inch motorcycle replacement tires, never mount on a 15-inch diameter passenger car tire rim. Mount only on a 15 M/C motorcycle rim. These passenger car and motorcycle rims actually differ in diameter.
- Never mount passenger car tires on motorcycle rims.

D402 PT bead lock tires may only be mounted on matching Harley-Davidson FXRP, FLHTP or FLHP rims. Consult your owner's manual and see special tread label mounting instructions.