

Gripping Stuff

What the road surface means to
motorcyclists

Who are the British Motorcyclists Federation?

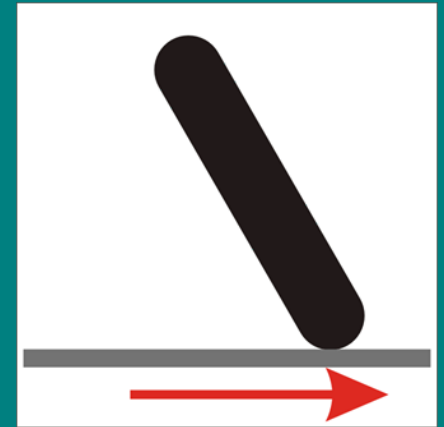
- The BMF has 92,000 members
- We are charged with “promoting, protecting and pursuing motorcycling”
- We have a high level of expertise on a variety of motorcycle issues
- We work internationally through FEMA and the FIM

How do motorcycles go around corners?

- At slow speeds (less than 10mph), a rider twists the front wheel (like a car)
- At medium speeds (over 10mph) a rider leans the motorcycle (like a bicycle)
- At higher speeds (over 30mph) a rider should twist the front wheel the opposite way and lean the motorcycle (counter-steering)
- Motorcycle wheels are gyroscopes – the faster they go, the harder it is to lean them

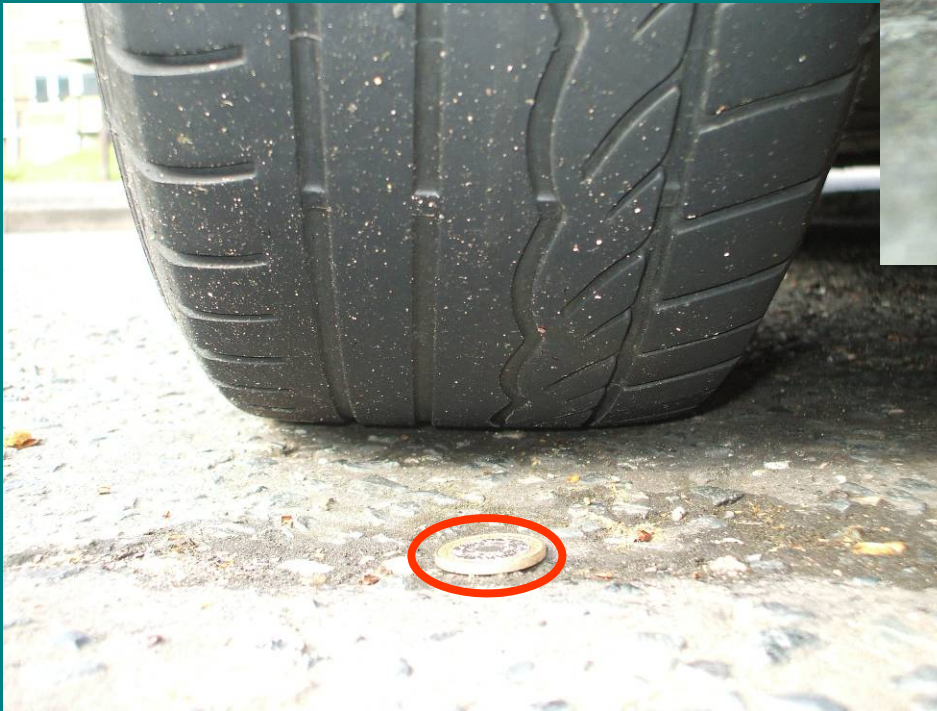
What's that got to do with me?

- Because a motorcycle has to lean to go around corners, the tyre cross-section is semicircular
- This means that a very small part of the tyre is in contact with the ground at any one time
- Also because we lean, the forces are transmitted at an angle, meaning that grip is critical



Motorcycle Grip

The contact patch of a motorcycle tyre is not much bigger than a two pound coin



A car's is much bigger and there are twice as many of them

Motorcycle Tyres

- Modern motorcycle tyres have a very high level of grip
- More grip means less life
- Clever construction means that some tyres have more grip on the shoulders than in the middle
- Racing technology constantly improves road tyres

However...

- Tyres need to grip to something to achieve friction
- Road surface is the other half of the equation
- Poor road surface and good tyres still equals no grip
- Bad road surfaces are one of the biggest causes of complaint from motorcyclists

What is a poor road surface?

- Potholes/Bumps
- New Stone Mastic Asphalt
- Loose chippings
- Slippery paint
- Cobbles/Granite setts/Bricks



What is a good road surface?

- Smooth
- Grippy
- Flat
- Unblemished
- Not too much paint
- No obstacles!



Potholes

- A pothole is a large hole in the road surface
- When travelling in a straight line they are uncomfortable and can deflect a motorcycle tyre
- When cornering, they are a large area of no grip - or worse, they can cause a deflection when cornering



Solution to potholes

- Various technical solutions exist
- First they need to be reported
- Sometimes difficult to remember exactly where a pothole is
- Grip measurement systems such as SCRIM do not take into account anomalies
- Pothole may be in a place that doesn't appear dangerous to a car driver
- Need to speak to local motorcyclists

Loose chippings

- Loose chippings are often used to 'finish' road surfaces
- Left on the road for weeks with only a warning sign
- Serious hazard to motorcyclists as reduce grip and can be thrown into face/visor



Solution to loose chippings

- Preferably, don't use them
- Definitely don't overuse them
- Sweep them up as soon as possible
- Vehicle traffic not an ideal method of finishing a road surface

Stone Mastic Asphalt

- Construction method means that new surfaces can be very slippery
- No obvious sign that road surface could be dangerous
- 'Finishing' method often relies on vehicle use
- Twin-track vehicle uses different part of road to single-track vehicle



Solution to SMA

- Cheap, durable and high quality, so no objection to SMA in principle
- Should use gritting and rolling to finish road, not rely on vehicle use
- Commercial products available

Road markings

- Road markings are slippery when wet
- Road markings are often the same width as a motorcycle tyre (sometimes wider)
- Usually in direction of travel
- Usually exactly where motorcyclists want to be



Solution to road markings

- Road markings better than physical obstacles
- Grippier paint available commercially

Cobbles, Granite Setts and Bricks

- Not much grip in the first place
- Bumpy
- Liable to fall to pieces rapidly under normal use
- Often in places where extra grip is needed



Solutions to Cobbles, Granite Setts and Bricks

- Don't use them in the first place
- If you must, budget for maintenance
- Definitely don't put them in places where vehicles might be braking, accelerating or cornering (e.g. at junctions as part of a raised entry treatment)

Conclusions – How to make road surfaces safer for motorcyclists

- Grip is king, especially in corners
- Don't use materials that require a lot of maintenance
- Don't use materials that require vehicle use to finish them
- Think of the whole road, not just where cars put their wheels



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