THOMAS
Brake Clutch & Tyres

Tyres are something that many drivers don't really pay very much attention to and yet their importance should not be under estimated. Complacency with tyres can kill.

We are not just talking about tread depth here; that would be far too obvious. No, there are other issues with tyres that are far more serious and yet they are perhaps not so obvious. So, what checks do you make before you take to the road in your car? What are the types of things you should be looking for with your tyres?

The tyre manufacturer, in association with the vehicle manufacturer, will:

- Design a tyre that is the most appropriate size in relation to the wheel rim.
- Design a tyre that is capable of being easily inflated and should remain so.
- Design a tyre that is will be appropriate in its ability to cope with the speed capable of being achieved by the vehicle to which it is fitted, and remain inflated.
- Have a design and construction that will be appropriate in respect of the type of work the vehicle is expected to carry out.
- Has the ability to efficiently disperse surface water and therefore reduce the chance of aquaplaning.
- Be able to withstand a certain degree of abuse without any adverse effect.
- Provide details of a recommended pressure that is appropriate to the vehicle weight in order that the contact area of the tyre is sufficient to provide an acceptable amount of grip.
- Give the most comfortable ride for the vehicle occupants as possible without any drop in performance.
- Have as great an amount of mileage life as will be possible without loss of quality or performance.

Tread Carefully

Well, we've brushed upon tread depth. That is important because it is the tread pattern in the tyre that disperses the water when we drive in wet conditions. If there is no tread pattern then the water cannot be dispersed and the tyre will then develop a cushion of water between its contact surface and the road. This phenomenon is known as 'Aquaplaning' and if there is anyone out there that has experienced that first hand they will know that is it extremely frightening.

Basically, legal aspects aside, *if the tyre looks iffy then it is iffy(!)* and should be replaced as even at the legal 1.6mm limit their ability to disperse water is seriously reduced and quite ineffective. Other obvious signs are tears, lumps, bumps, splits and cuts. If you have any of these scrap the tyre and get another.

Slip Angle

So what else is there to know? What about pressure? Not the kind of pressure you get from your spouse or partner because you haven't done something that you were supposed to do. What we mean here is the air pressure in the tyre. Ask yourself how often you give this a thought. For those who do give it a thought, how many actually make a physical check?

Tyre pressures are vital in the Ride Drive guide to survival and the importance should not be underestimated. Air pressure within the tyre is what keeps it at the right shape and what makes it do the job it was designed to perform. If you have a difference of pressure in the two tyres fitted to the rear of your car this will, under the wrong circumstances, cause severe vehicle instability, even if that pressure difference is just a couple of pounds per square inch! That is because different pressures within tyres will produce a different rate in what is called, 'Slip Angle.'

Without getting into rocket science here, a slip angle basically is the rate of creep of a tyre across the road surface when the vehicle it is fitted to is cornering, and when you have a difference across an axle you are in deep trouble.

Whilst pottering around the town in traffic you would never notice and you may not even notice on the slightly more free flowing suburban routes, but get out on the open road and begin to build up speed and the next corner you come to could be your last. A car can actually be quite stable even on the wrong tyre pressures, providing that those pressures are the same across a particular axle and those pressures do not differ by any great amount to those recommended. However, the difference from one tyre to the opposite on one axle has only to be a small amount to cause loss of control.

Blow Outs

You will often here of people discussing tyre 'blow-outs'. A tyre blow-out, to give it a definition, is the sudden and total deflation of a tyre due to the collapse of its structure. There is a tremendous amount of rubbish talked of when it comes to blowouts and it is something that is severely misunderstood amongst the motoring population. Blowouts do not just happen, they are caused and that cause 99.9% of the time is negligence coupled with a lack of awareness.

As mentioned earlier, the air pressure within a tyre is put there to maintain the integrity of that tyre. That means it is there to maintain the shape and profile of the tyre, and therefore its structure. If you steadily reduce the pressure of a tyre you will reach a point, long before it is flat, where the tyre walls begin to bulge outward. The reason for this distortion is that there is insufficient air pressure within the tyre to maintain the integrity of its shape.

If that car is then driven with the soft tyre the bulging tyre wall, now less rigid due to lost pressure, will begin to distort even more and begin to ripple as it rotates. This rippling effect causes friction and, as you know, friction causes heat. All the time a car is being driven along the road with a tyre in this condition, that tyre is generating heat within itself and the level of heat will be rising all the time. Eventually there will come a point when the tyre will say to itself, “I’ve had just about enough of this!” and will suddenly let go with a bang. They have even been known to ignite!

Why?

Let us not get carried away here but instead ask ourselves why has the tyre gone soft in the first place. After all that is the cause of the problem at the beginning of this chain of events. The answer here is that either it has picked up a nail, or similar, and has a slow puncture, or the pressures have not been checked for so long that it has gradually deflated more and more through age and neglect. It could be that you have been running around for weeks like it, but because you have been the only occupant of the car you have got away with it. Now, when you have got three other people and a boot full of luggage in the car, things are very different.

Age

Another contributory factor is the age of tyre. Have a look at the walls of your car tyres. Now have a really close look. Do you see any signs of a small crazed pattern in the rubber – like a mini crazy paving pattern? If you can then the walls of the tyre are perished and therefore weakened.

Sunshine and salt spray are the biggest culprits when it comes to perishing rubber and is most common on those vehicles that are used infrequently and which stand outside. Caravans and trailers are the biggest offenders in this category as they are often stood in some outside storage place for eleven months of the year before spending a couple of weeks on the road.

Another aspect of tyre perishing you may wish to consider concerns your spare wheel. Where is it carried on the vehicle? Most 4x4’s have them mounted upon the rear-loading door, which is fine providing it is covered over. But if it isn’t then it will deteriorate and perish very quickly. Those that are mounted beneath the vehicle will not last long either as they receive all the salt spray and muck that is flung around under the car from the road wheels, so check them on a regular basis.

Kerbing

When did you last hit a kerb, or bump up the kerb whilst trying to park? What damage has there been done to the tyre? Sure, you have maybe looked at it to see what sort of condition it is in, but that will only be through the worry of having to fork out for a new one. But what damage has the tyre suffered that could affect your safety?

If you have just banged your car up a kerb the damage to your tyre may not be apparent on the outside, but may have caused havoc on the inside. Broken ply-cords and layer separation of the rubber banding is common and you will never see it unless the tyre is taken off the rim. Don't assume anything or you could pay dearly.

Your Call

Given the expense of tyres - particularly on performance cars - it's all too tempting to put off replacing them, particularly if you need to replace a pair. Hopefully the information we've provided here will make that decision a no-brainer in future. There are few components on a car that can have such a dramatic and devastating effect on the handling of your car - look after them and they'll look after you

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