



People for Proper Policing in North Wales

Traffic Officer Jailed After Crash

Story courtesy of the Police Oracle 18-Mar-09

South Wales Sgt Craig Bannister has been jailed for 4 months for dangerous driving after crashing at 113mph...

Bannister, who **qualified as an advanced police driver a month before** the accident – was driving on the M4 near Swansea, south Wales, when his BMW 5 series spun out of control, Cardiff Crown Court heard. Bannister, 30, was stood down from an emergency call shortly before joining the motorway but continued to drive at high speeds, reaching more than 120mph.

Bannister, of Briton Ferry, Neath, south Wales, received minor injuries when the car flew through the air on the night of January 13, 2008, **after hitting water at 113mph.**

A judge told him today the risk to other drivers had been “enormous” and jailed him for four months. Recorder Peter Murphy QC told Bannister: *“You chose to deliberately accelerate, reaching speeds of at least 120mph in the pitch black. You did so for your own ends, and so launched a speeding missile into the unknown, with reckless disregard for other road users.*

“The potential risk to other road users was enormous. What you hit was water. It could so easily have been another vehicle. There is no way you could have reacted so as to avoid collision.”

The PPP comments This incident casts grave doubts on the meaning of an advanced driving qualification and/or the selection process for Police drivers. We asked our professional road safety expert John Lambert to explain the physics of the process of driving in such conditions . We provide only a precis of his comprehensive reply below...

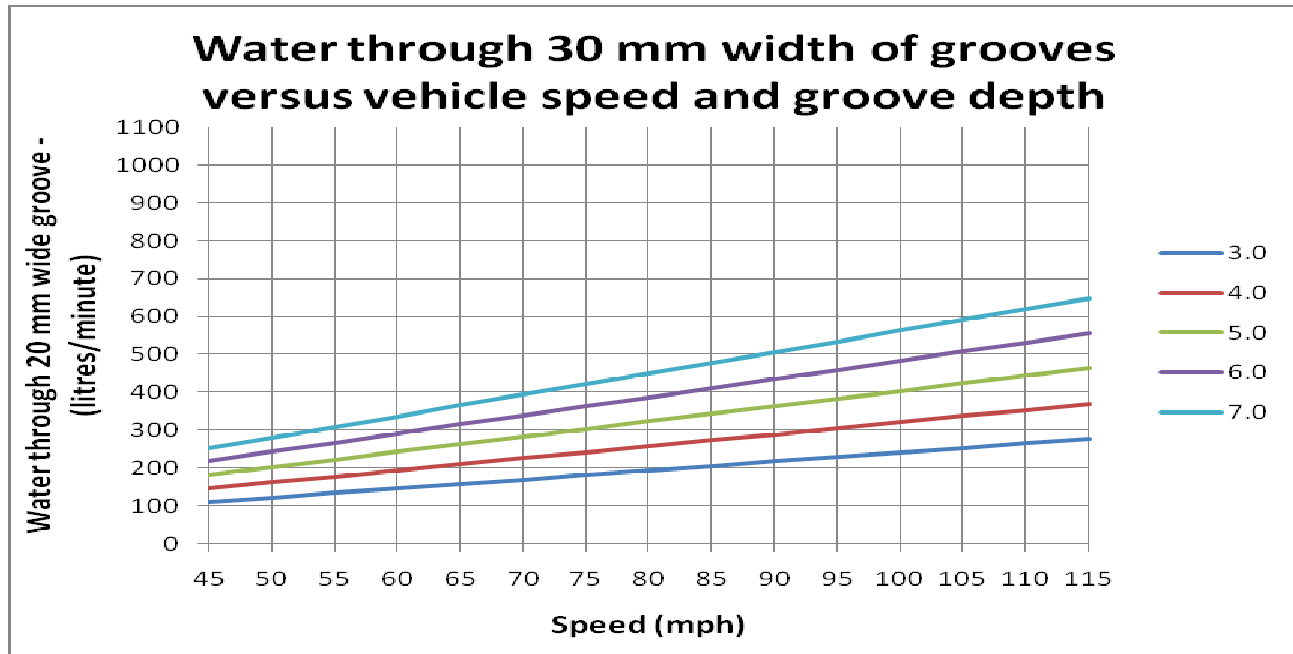
AQUAPLANING – TECHNICAL EXPLANATION

Typically a tap in a house might flow at **10 – 20 litres per minute** if your pipes are in good shape. On a road, once rain has **filled the voids in the pavement surface**, there is a film of water above the pavement that a tyre has to either displace sideways into the tyre grooves, or sideways around the tyre. For a wide tyre the tread width may be 180 mm. The graph below shows the **amount of water that has to be “managed” to avoid aquaplaning** – depth of water on road in mm versus speed in mph.

Even with only a 0.5 mm depth of water, at 115 mph the volume of water to be managed is 280 litres per minute. Note that fire pumps used by farmers to protect their properties typically have maximum flows of around 400 – 500 litres per minute. And a tap in a domestic residence if not fitted with a restrictor will typically flow at up to 10-20 litres per minute.

Note that it is the steer tyres that have to “manage” this water in straight travel – the amount of water the rear tyres have to handle is reduced by the water squirted sideways by the steer, and the water converted to spray by the steer.

In part this water is managed by grooves in the tyres. A wide tyre may have up to 30 mm of grooves 7 mm deep when new. As the tyre wears the depth of the grooves reduces and so does the ability of the tyre to handle water. The graph below shows the volume of water the grooves can theoretically handle versus speed for a range of groove depths.



In fact, as a rule of thumb, in some conditions tyre grip goes down at the same rate as the percentage the tyres are worn. That is, tyres with only 50 per cent of the new tread depth have only half the wet road grip. **Seventy-five percent worn tyres have lost three-quarters of their grip....** It's a statistic which is far worse than previously thought, so it's worthwhile taking a good look at the Society of Automotive Engineers research paper that shows these results. For a story about what can happen go to ...http://autospeed.com/cms/A_110774/article.html

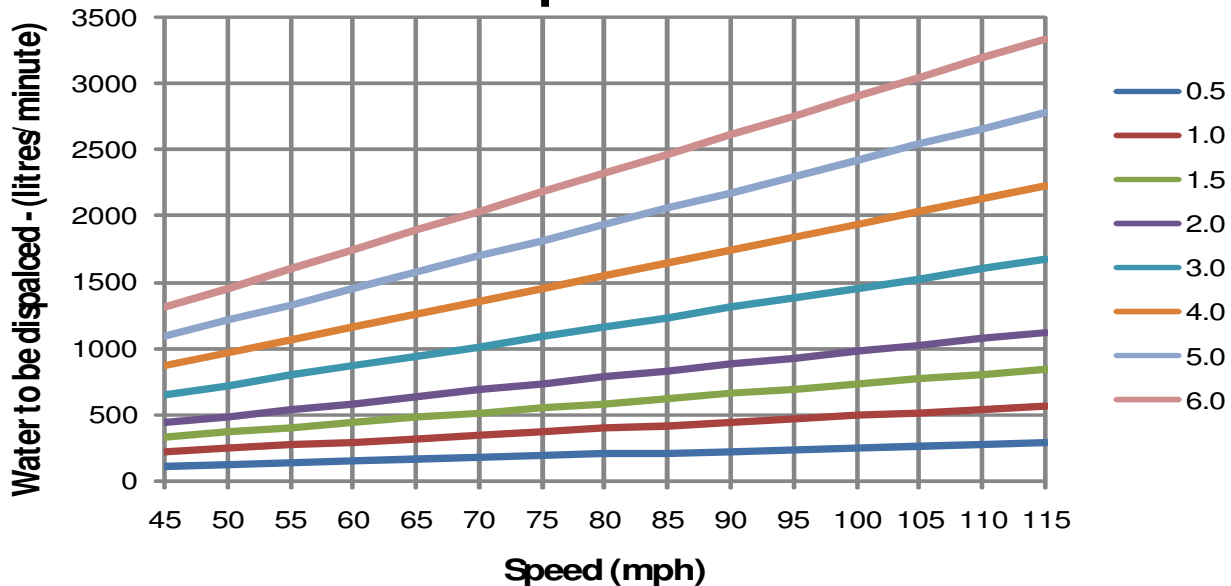
John says "Interestingly, and **I have yet to find proof in the way of technical data**, I'm getting the strong impression that as tyres are getting wider the following is also occurring:

- 1, The tread is getting shallower; and
2. the thickness of the tyre under the tread is reducing and hence the rigidity of the tyre in the tread area is also reducing

I assume this is done to limit rolling resistance

My concern is that because of the shallower tread, and the lack of guts in the tread area, **wet performance has been compromised** in that less water can pass through the grooves in the tyre AND the weaker tread area will mean the tyre may act as though it has lower tyre pressure in the tread area – it will be pushed up more easily by water pressure".

Water to be displaced versus vehicle speed and water depth - 180 mm tread



Interpretation of the two charts for 115 mph shows that a new 180 mm tyre would be unable to cope with more than 0.5 mm of water and that in the conditions described by the other drivers even speeds in excess of 60 mph could have resulted in aquaplaning. Despite this other Police officer witnesses claimed 80 mph was safe on what basis?

We note that John describes how the steering front tyres clear most of the water from the path of the rear tyres (driven in a rear wheel drive BMW). A front wheel driven vehicle must have different handling characteristics in such marginal conditions and we have witnessed such differences in both heavy rain and hailstorms when rear wheel driven vehicles seemed more prone to sudden loss of control.

We note also John's statement "**once rain has filled the voids in the pavement surface**", we had grave concerns about the friction provided by certain types of road surface and lack of top dressing in the UK. We posted articles to that effect several years ago. (enter **surface** into **articles** search).

The Daily post carried out a survey but as far as we know DID not publish the results. Several counties in Wales were using **SLIPPERY ROAD** signs almost permanently and putting drivers at risk. **The A55 has several sections** where significant depths of water flow across the surface during heavy rain. We have reported this situation to North Wales police at the time but nothing has apparently changed. The highways agency response is blanket warnings of **spray** not of **aquaplaning** locally.

We note also that the UK's min. tread depth is only 1.6 mm compared with 4 mm in Germany. Tyres that would be illegal in Germany are exported to and sold as 2nd hand in the UK.

We state yet again..... **The 'Speed Kills' policy hides all the real problems !.**