

PRO RIDER

# TORQUEING IN CORNERS

Words: Mark Jones/Pro Rider



**Why is it that riders of torque machines have a predisposition to running wide on the exit of corners? Mark Jones looks into the way power is produced and how it affects a motorcycle in this most important time.**

**W**e may have initially bought our bike for a daily commute or some equally boring purpose, but at some point, the realisation dawns that the fun to be had is in the twisty bits. Negotiating bends in style – cornering – brings a sense of immense satisfaction, even more so if we can pull this off in a nice series of curves out on some amazing stretch of open road.

In addition to making sure our bike is roadworthy, there are a series of things we can do to pretty much ensure we get around that curve all nice and smoothly without any puckering moment. Simple as it might seem, first decide which way the corner goes using road signs, clues such as trees, power lines and such like. Then, and this is a personal thing, decide what speed you are prepared to take that bend. Next, use the brakes to get down to that speed whilst still going straight, and once you are there, select a gear which matches that speed. This gear needs to take us all the way through the bend using a constant throttle and accelerate out the other side. We are of course going to be looking through the bend with a bit of weight transfer in the direction of lean, having used a touch of countersteer to get the bike tipping in – but these points are for discussion elsewhere as here I want to focus on this point about gearing, speed, and throttle use.

Prompting this piece is an increasing observation of big capacity bikes, generally of the V-twin variety, tending to run wide whilst cornering. To begin with that is, not generally following some discussion and practice. There is a whole load of physical theory going on in the background (the science, not rider shape and size). However, having discussed the issue with pilots of these machines, the whole gear/speed/throttle equation seems to be the main culprit. And this is where the issue of torque comes in.

So, we just need to have a quick deviation into some technical definitions. We have an idea what horsepower is, and despite many complicated definitions available, it is pretty much a measure of the amount of power an engine makes. There is a time factor involved – revs per minute – and we get a sense of the work that engine is doing over that time. Imagine how fast those pistons are bobbing up and down at several thousand RPM, and it's easy to see this is a lot. Those pistons are attached to the crankshaft and their up and down movement transfers to a rotational one eventually spinning the rear wheel. Torque is a measure of how much rotational force is being supplied to that wheel by the engine.

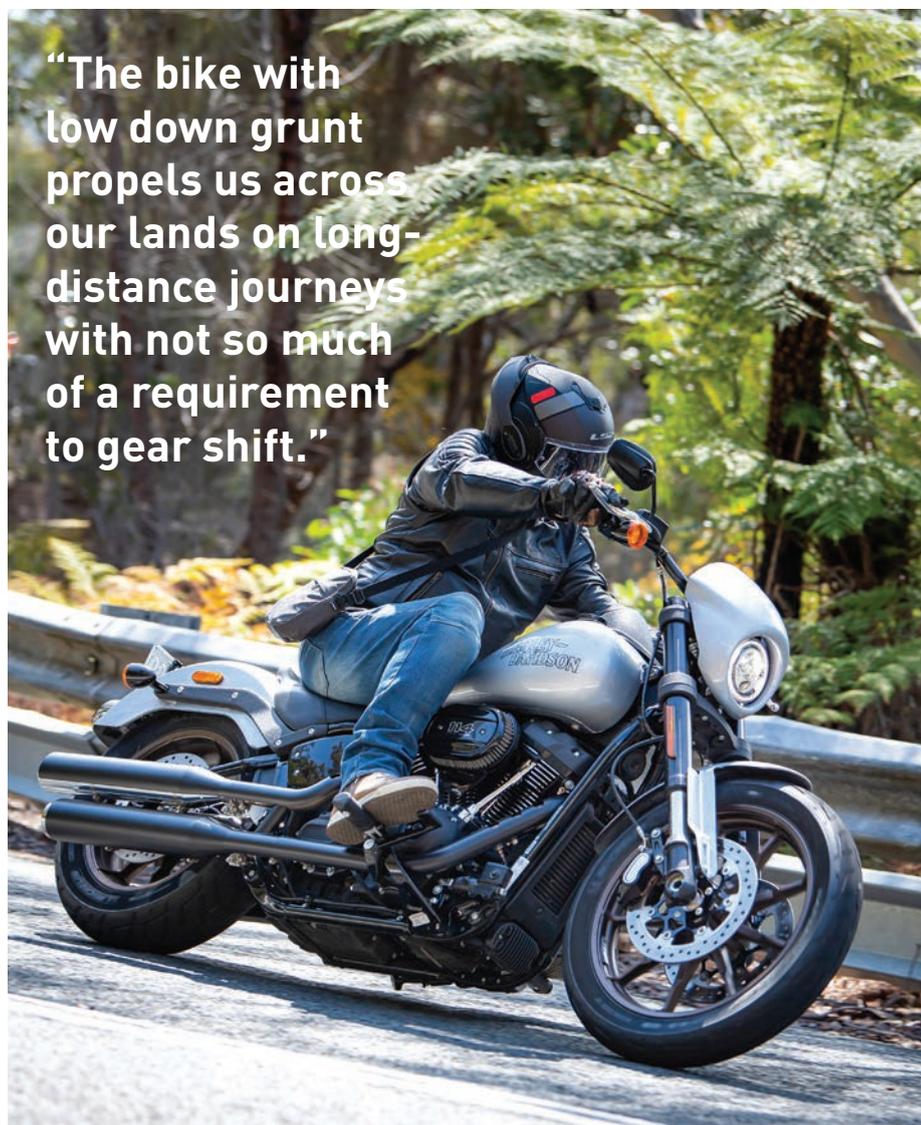
As a general rule, the more the horsepower, the faster the bike, but, generally again, owners of high capacity V-twins choose them for their ability to push them around in relatively lazy fashion without having to shift gears all the time as opposed to top-end speed. They have gobs of torque which we can relate to in the equally unscientific description of heaps of low-down grunt.

How does this precipitate the rider of a high torque bike running wide in a bend then? Well, and this is conjecture from talking (get it?) with riders not necessarily a neat application of physics, it all comes down to inherent riding style. The bike with low down grunt propels us across our lands on long-distance journeys with not so much of a requirement to gear shift. The rider relies on available torque to heft the not inconsiderable weight of the machine up to a decent speed, stay there, then slow and go back up again without swapping a cog.

Coming into a corner, speed is reduced as it should be but memories of available

grunt translate to a subconscious decision, changing gear is not required as gobs of torque will simply shove the bike through the corner using ready access to engine power in the nice linear fashion they are used to. All is going well until there is a sense a little more of that grunt is needed to get around the bend without running out of steam (a 'bogging down' feeling) and just a gentle twist of the throttle accesses those torque gobs pretty effectively, even at low revs associated with the still high gear, and the power delivery has the bike standing up and increasing the radius of its turn. Hey ho, we run wide.

The message when it comes to cornering then is whatever the configuration of your engine, entering a corner, slow down and pick a gear somewhere in the middle of the ratios you have available to match your speed, as this will give you a flexible means of keeping that speed constant along with lean angle through the bend without applying too much grunt to the rear. Just take it easy torquing in those corners! ■■■



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