

Going Round the Bend

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Many track day riders and all racers will know that there is no single corner on any racetrack that's the same as another. Each has its own character and each has their own 'fastest line' through them. Double NZ Formula 3 champ Glen Williams talks us through the different types of bends and curves you'll find on a racetrack and the proper way to carve them up.

Corners Make The Man

The corners of a race track are where the stopwatch sorts out the men from the boys. The true ability of the rider and machine are tested on the bendy bits and a 'fast lap' hides mostly within the corners of a circuit (not the straights).

New Zealand has a variety of race tracks – some will test your cornering skills more than others but each has its own character and most have at least one 'signature' corner in their make-up which offers a never-ending challenge to master.

Understanding the different types of corners that make up a racetrack can help you approach them with confidence and allow you to get through them with speed and consistency. Approaching any corner without a plan is going to kill your lap time and blow any consistency into the weeds.

Identify Corner Types

Corners can be basically broken down into three main groups. 1 Constant radius, like the last turn at Ruapuna) 2 Decreasing entry radius, such as turn one loop at Teratonga and 3 Increasing exit radius, i.e. turn seven at Taupo.



Additionally, they will have a flat surface or have a positive or negative camber and some will have a combination of surfaces and cambers within them.

Each 'type' or 'shape' of corner typically will have a minimum of at

least two race lines. Sometimes it's a good idea to walk or cycle around a race track as it allows you to identify the basic shape of each corner and help you spot any tricks that the designer may have incorporated into their layout.

For instance, it's common to see positive camber corners that flatten out on exit, or flat entry corners 'fall away' to a negative camber on exit (real tricky those ones).

Taking time for a closer look allows you to hatch a cunning plan on how you are going to deal with each bend when out on your bike.

There are some basic guides to each of these types of corners; for instance – 'slow-in, fast-out' corners (increasing exit radius bends) will often have only a single ideal apex point – and have a limited approach

line which is often in tight to the inside. Whilst 'fast in, slow out' corners (decreasing radius entry) corners may have two distinctly different entry lines. Deciding on which line is right for you will often simply come down to the type of machine you are riding and its particular set up, its power delivery and gearing, keeping in mind that your exit line is directly related to your entry line.

The plan though is to try and develop yourself at least two lines through most corners so as to give you different options come race-time or during a track day when you are wanting to safely and confidently pass riders in front of you through the corners.

Camber Challenges

Designers put camber into tracks sometimes simply due to drainage

requirements and sometimes because they want to throw the rider an extra challenge into the cornering process.

In my view negative camber corners are the toughest, we see these at a few tracks in the South Island (Levels and Teratonga). They will often have a flat surface entry and move to negative camber on exit. These corners can suck you in to the corner faster than you might be able to get out the other side! The negative exit camber has a detrimental effect on available grip and effectively increases your relevant lean angle. Unfortunately this happens right at the time you are trying to feed the power on and get out of the corner. So my advice is that you need to be precise and concentrating extra hard in these types of corners. Corners with positive camber can be a lot of fun, increased side-grip is gained in these types of bends as the motorcycle literally 'presses' your tyres into the tarmac. The trick with these corners is telling your brain that extra grip is available and convincing yourself that a lot more mid-corner speed can be held through a corner that has a positive camber. Be aware though that all positive camber bends flatten out at some point on the apex – and it is at this point that grip levels (particularly at the rear of the machine) can be compromised.

Flat corners have their own flavour. They will often have invisible apex points and exits - as you lean the bike over into the corner your eye-line becomes so low that you literally can't see the apex anymore. Building



trust in your entry line and deciding where to crack the throttle back on becomes important in these types of corners as you are trying to maintain a constant load on front and rear tyres. Folding the front and crashing upon entry is the most common danger of these bends (usually because you have run out of confidence of meeting your planned apex point). Keep in mind that also that ground clearance issues can arise at some point through these types of corners. Beware if the track is wet – as flat corners will often 'puddle' and have standing water on the surface which can really spoil your day in a flash (or should that be splash?).

Fast On The Fast Ones

It's an old saying but a very true one, "Go fast in the fast corners and slow in the slow ones". By this I mean you will stand to gain a lot more time and speed by getting the fast corners of a race track correct, than worrying about

trying to go fast in the slow corners. The fast guys in a slow corner may only be going 2-5kph faster than a slow rider - this is because it is easier to judge grip in slower corners and the slow corners are a lot less intimidating. You also tend to spend a lot less time actually going through a slow corner compared to a quick one so the gains overall are less. On the other hand the speed differential on a fast corner may be 20-30kph difference. The distance travelled at this speed between a fast and a slow rider offers a huge gain in time and distance.

Linked Corner Lines

Often at race tracks like Ruapuna (Christchurch) or Levels (Timaru) there will be a long sequence of corners that are closely linked to each other and there may be virtually no straight pieces of track between them. In these types of "series corners" what line you take at the first bend is likely to affect your corner speed and over-

all speed through the entire series of linked bends. Sometimes these types of linked corners demand that you take what appears to be an incorrect line at some point in the series – to gain an overall best time through them. Having someone on stopwatch monitoring your 'split times' for this particular section of a track will assist you to deciding what the overall best line through a series of linked bends like this is.

Corner Conclusions

Every corner is different, every corner is a challenge, and every corner is an opportunity to make up time. These are the thoughts that I take with me into every corner on every race track I ride on. By all means take a rest and check out the talent on the side of the track when you're on the straight bits – but by concentrating hard on the bendy bits you will be rewarded with faster and more consistent lap times.

In an upcoming issue of BRM we will go into detail on specific corner apex and exiting techniques to further improve your corner strategy and lap time, but in the meantime - happy carving!

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