

How to...

Them's the Brakes

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Want to improve your lap times? Want ride smoother on the road? Either way you'll benefit from good braking techniques as 2008 NZ Formula 3 champ Glen Williams explains....

A Test Of Bravery

Grabbing a handful of brakes as hard and as late as possible when riding on the racetrack requires a combination of both finesse and bravery. A good proportion of crashes occur whilst 'on the brakes' however there are several reliable braking techniques to help you avoid unplanned incidents or off-track excursions.

Safetycrats may tell you to 'Brake whilst upright only'. Whilst this might be fine on a public road, on the race track it's a different story and you often need to use the entry area of the corner (whilst leaned over) to slow down and maximise your overall corner speed.

Where To Begin

Firstly you need to establish where your brake marker is for each corner. A brake marker is an established point on the track where you decide to initiate the braking process. You might use a trackside structure or a permanent mark on the track. For starters choose an 'early' brake marker that is within your comfort zone for stopping and then work on progressively later markers. This will let you to build confidence and then allow you to try ever 'later' markers. Building up to later markers will teach you how the bike reacts whilst under ever increasing braking loads.

Move Your Booty

Try getting into your braking position early (just prior to touching the brakes). Typically you will position

yourself rearward on the seat and slightly off to the same side of the bike as the impending corner direction. Moving around too much on the machine when braking can unsettle the bike.

Use your knees and inner thighs to hug the tank, use your feet and pegs to take some load also. This is all to help you avoid placing too much of your weight onto the handlebars. Excessive weight on the bars will often have a negative effect on both your own and your bike's steering abilities. This becomes even more important in wet or slippery conditions where smoothness at the controls becomes paramount to maintain grip.

Slow Hand Luke

With your brake markers and body position sorted, let's turn our attention to the lever on the right handlebar - at least 90% of the braking duty is going to be done by the front brake. The rear brake is used but often in minimal or specialist occasions. Your method of applying the front brake is important. Grabbing the lever with aggression will likely unbalance the bike and load up (compress) the front fork suddenly whilst at the same time lightening the rear. An unbalanced bike is inherently unstable and this will kill your confidence to hold your preferred line going into the corner.

What you need to do is apply the front brake in a progressive, yet at the same time powerful manner. No matter what type of machine you ride you will benefit from training as much smoothness into your initial braking action as possible (the initial action is

the first 1/4 to 1/2 second of touching the lever). After this initial moment, it's then a matter of using as much braking force as you feel comfortable with to reduce the bike's speed as quickly as possible.

Braking On The Lean

The more aggressive part of the braking effort will still be done when the bike is more or less upright. When upright a good portion of the front tyre's surface is 'pressed' into the tarmac and provides both massive grip and substantial braking

ability. However, you can gain a faster lap time by 'trail braking' the bike deeper into the corner (whilst on a lean). Trail braking into a turn allows you to use a later initial brake marker and this is where the fun starts and the challenge begins.

As you lean the bike onto its side, the load and grip level of the front (and rear) tyre changes therefore meaning your braking force needs to be adjusted (usually reduced) accordingly to avoid a front end tyre slide, which can very quickly turn into what is commonly called 'losing the front' and crashing.

Different corners require different approaches. For instance, in faster entry corners the mere cornering action of the motorcycle will scrub off a surprising amount of speed and relatively less

front brake lever force is required. Slower turns, often require more lever input for a longer period deeper into the corner.

Factors that affect your braking force decisions are: track surface conditions (wet/dry/cold/hot); the shape of the corner and condition of tarmac (amount of camber and roughness); the type of tyres and their condition. Also, your machine set-up will have a large effect on how 'hard' you keep the front brake on and for how long and 'how deep' into the corner.

The general idea though is to trail brake as far into the decelerating part of the corner as possible, and this can often be right through to the apex. Keeping in mind, as your speed decreases and lean angle increases your braking force used will

typically reduce. Also remember when trail braking it is a good idea to keep any gear down-changes as smooth as possible and try to match engine revs to rear wheel speed. (Thank God for slipper clutches - which help us all a lot in that area). The last part of the process is releasing the brake. Once again this needs to be a reversal of the initial application and should be smooth and progressive.

Keeping things smooth and not scaring yourself silly whilst trail braking hard is a honed skill, and watching the GP and Superbike guys 'control sliding' both front and rear wheels into many corners shows you what is possible with practice and a well set-up bike.

You may find that you reach your own limits quite quickly, yet notice that other competitors on similar machinery may be braking later / deeper than you. This may simply mean that they have a different machine set up (one that gives them more confidence and grip to brake later). Of course it could also mean that they have taken a 'brave pill'. In my opinion the rider that relies on a sound braking technique will on average out perform a hit and miss 'ballsy-style late braker', although the latter type may be much more fun to watch!

Track Braking Checklist

- Get your body into position early
- Use your pre-established brake marker
- Grab the brake gently at first then hard
- Try to not put too much load into the bars
- Be smooth with gear changes and body movements
- Release the brakes in a progressive manner.

