

# QRIDE

## Motorbike Licences

### PRE-STUDY

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This "Pre-Study" Manual should only be used as a guide; if in any doubt, check with  
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## PRE-STUDY ...

### pre-ride safety checks

#### *Controls*

The front brake lever is mounted on the right handlebar and operates the brake caliper(s) mounted on the forks.

When you squeeze the brake lever hydraulic fluid is compressed in the master cylinder next to the brake lever to push the brake pads against the discs.

The front brakes do the majority of the braking as the weight of the bike pitches forward onto the front wheel, so it's important that you learn a 'feel' for those brakes.

Next to the front brake on the right handlebar is the throttle. This is your accelerator pedal, increasing the revs of the engine as you twist it towards you. As you use your hand and not your foot it's far more precise and responsive than a car throttle with a full range of movement in less than a twist of your wrist.

Moving across to the left handlebar there's another lever, but this one operates the clutch. Before you engage first gear and set off, spend a little time getting a feel of it, how hard or easy is it to pull closer to the bar. Do your fingers reach comfortably over it? Sometimes there are adjusting wheels on the lever.

Bike gearboxes are sequential, so you can't go from first to fifth like an H-pattern car gearbox, but you can click very quickly up and down the box.

Over on the right side of the bike next to the right footpeg is the rear brake lever. This also uses hydraulic pressure exerted by the sole of your foot.

Again, it's a good exercise on a deserted road to see how hard you can brake before the rear tyre starts to skid. Be careful that you don't let your foot rest on this pedal. It's easily done and will mean other road users think you are braking permanently and you will also overheat the pads and rear disc if they are constantly rubbing against them. It won't do much for your fuel consumption either.

Although the rear brake is the minor partner when you're riding one-up, doing 25% of the work, if you are carrying a pillion that extra weight over the rear wheel means it can do more work, and it also lessens the pitching effect, which makes for a more relaxed ride for your passenger. The ancillary controls are usually on the handlebar are the indicators, horn, dip and high beam on the lefthand cluster, and the engine killswitch and perhaps lights on/off switch on the right side. This may be different depending on make and model of bike.

### *Brake Lights (clean, functioning legally)*

During daylight hours, when it is not easy to see the brake lights when checking, place your hand behind the brake light or place the motorbike rear towards a wall, so that you can easily identify whether the brake light is working. Obviously check that the light itself is clean!

### *Tail Lights (clean, functioning legally)*

During daylight hours, when it is not easy to see the tail lights when checking, place your hand behind the tail light or place the motorbike rear towards a wall, so that you can easily identify whether the tail light is working. Obviously check that the light itself is clean!

### *Indicators (clean, functioning legally)*

During daylight hours, when it is not easy to see the indicators when checking, place your hand beside the indicators or place the motorbike indicators towards a wall, so that you can easily identify whether they are working. Obviously check that the lights themselves are clean!

### *Head Light (high / low beam, clean, functioning legally)*

During daylight hours, when it is not easy to see the headlights when checking, place your hand in front of the head light or place the motorbike headlight towards a wall, so that you can easily identify whether it is working. Flick from high / low beam to make sure that they are functioning legally. Obviously check that the light itself is clean!

### *Horn (functioning)*

Press the horn control - to check that it is functioning properly.

### *Mirrors (clean)*

Knowing what's going on behind you can be just as crucial to your safety (and enjoyable riding) as observing what's ahead—keep your mirrors clean—ensure they are clean before you ride!

As well as checking your mirrors before any manoeuvre, you should regularly check your mirrors as you ride.

### *Chain, Guard (secure, appropriate position)*

Ensure that the chain is secure and in the appropriate position. Chains stretch with time no matter how well they are cared for. You will know when the chain has stretched too much when you are able to pull the chain off the back of the rear sprocket.

Ensure that the guard is secure and in the appropriate position.

### *Tyres (pressures, tread, depth)*

Keep your tyres correctly inflated. A tyre that is very under-inflated generates a lot of heat which can lead to a blow out. Tyres that run too hot also wear out more quickly. Use a gauge and visual inspections must become second nature.

Check your tread depth regularly and replace your tyres sooner rather than later and never skimp on tyres!

### *Registration Label*

Keep your rego up to date and label compliant and apply your registration sticker (ensure you remove the old label when replacing with the new one).

### *Fluid / Fuel Tap*

#### 1. Brake Fluid

Motorcycles have two brake fluid reservoirs, one for the front, usually found on the handlebars and one for the back, usually tucked away somewhere under the saddle. Check for leakages!

#### 2. Coolant

Check your coolant level. Water cooled motorcycles can be a problem if taken through thick mud. The mud can be thrown up against the radiator where it dries thus preventing proper air flow. Check for leakages!

#### 3. Fuel

Remember when parking your motorcycle for any length of time to turn the fuel tap to the "off" position. This can prevent you coming out to a bike in a pool of petrol.

Check for leakages!

#### 4. Oil

Inspect oil level—do not allow foreign matter and dirt to fall into the sump during the inspection process.

Check for leakages!

## **maintenance**

### *Coolant*

Check your coolant level. Water cooled motorcycles can be a problem if taken through thick mud. The mud can be thrown up against the radiator where it dries thus preventing proper air flow. Check for leakages!

### *Brake Lever Pedal Travel*

Check regularly the pedal travel (ie how far you need to compress the brakes before they work). This sometimes can be adjusted via an adjusting screw. See Manufacturer's instructions.

### *Chain / Drive Belt Tension*

Bike chains are never taut but must be able to sag between 20mm and 40mm at the mid-point between the two sprockets. The sag is used when the bike suspension moves up and down over uneven surfaces. If your chain is not an endless loop it will use a master link to join the two ends together. Check the condition of this link on a regular basis. Drive belts are usually a lot more taut than the chain and most have a belt tensioner. See Manufacturer's instructions.

### *Tyre Tread Depth*

The rubber that is exposed to a good surface is what keeps the vehicle controllable. The deep tread is simply somewhere for the water / mud / sand etc to go when the tyre travels on an imperfect surface. If there were no tread, the water / mud / sand etc would come between the good surface and the tyre. The bike would cease to be in contact with the road and the result would be loss of control (aquaplaning in the case of water).

Obviously there are many different types of tyres, all with differing tread patterns and tread depths eg a sport touring tyre is wider, deeper and there is more of it. The compound is harder and the maximum load rating is higher. Cruiser types have a higher maximum load rating to cope with the bigger size of motorbike. On the inside of the tread there is a raised button. When the tyre gets down to that button, the tyre needs to be replaced.

Check manufacturer's recommendations when choosing your tyres!

### *Dealer Service Items*

Check your warranty and dealer service items and have them regularly serviced / maintained!

## roadcraft

### *Road Conditions / Curves / Bends*

Few things are more enjoyable than riding a sequence of challenging corners in the hills or mountains. At least it is when you get it right.

Sweeping through bend after bend in the hills is great fun. So much so, that it's easy to forget your basic visual techniques. In fact, riding this sort of terrain poses all sorts of challenges for your vision.

In a constant flow of corners, climbing up and dropping down, chasing the vanishing point can be completely overwhelming. On flat roads, a bend will usually tighten or open out progressively. In the hills, the vanishing point can, well, vanish. In an instant, the road can drop away and you cannot see exactly where the road goes next. It's easy to say you should have been going slower. It's also easy to panic, sit the bike up and head off the road braking like mad.

A sudden drop out of visual flow happens to the best of riders. The best prevention is to always use your peripheral vision to gain a general idea of the terrain (including where the road is likely to be going) and your location in it. Combine that with always taking the opportunity to look as far ahead as possible, so you have a rough 'map' in your mind's eye of the route ahead.

If you then do find yourself with a 'vanished' vanishing point, the drill is to roll off the throttle, perhaps use a touch of back brake, and follow the broad line of the corner you thought you had entered. Aim for the middle of your lane and, as your speed reduces, get ready to either turn tighter or quickly turn the other way.

In hilly country, gravity adds special challenges to riding, chiefly when braking and taking corners. Going uphill isn't usually a problem, in fact it makes braking and cornering easier. You slow quicker, of course. And opening the throttle to stabilise the motorcycle when cornering becomes instinctive when powering uphill. Though turning uphill in slow speed manoeuvres can be tricky, it's going downhill that riders feel most nervous.

Braking for a steep downhill corner means modifying your general technique. The usual advice about vision, lines, being in the right position, the right gear and the right speed still applies. Only more so. Downhill, you'll want to reduce your entry speed so you can still ride around it with maximum stability.

To prepare for a downhill corner, slide your backside as far back in the seat as you can and grip the tank tightly with your knees for support. On the braking approach, you still use a lot of front brake. But, as you approach the turn-in, you should be releasing the front, while keeping a small amount of rear brake applied. Depending on the steepness, you may still have the rear gently applied as you turn in.

To make the motorcycle stable, you need to do just what you always do in a corner, including progressively opening the throttle. This balances the front/rear tyre loads and makes it stable.

See how your entry speed needs to be lower? You can also see how shifting your weight backwards helps. Losing the front is what most people fear in a downhill corner. But proper set up before turn in, the correct entry speed and a smooth, stable technique will see you through. Be confident; use countersteering and lean to get you through on an open throttle - nervousness is as effective as gravity at making things go badly downhill.

### *Unsealed Surfaces / Intersections / Roundabouts*

Before you start salivating at the prospect of long, sweeping left-handers and empty straights, consider the downsides:

- Giant potholes and crumbling bitumen
- Pressure waves and rippled tarmac on tight bends (particularly on hills) caused by heavy vehicles
- Local drivers who fail to give way or spot motorcycles
- Slow or stationary farm vehicles, or stock around blind corners
- Tall grass and overhanging trees obscuring your view through corners
- Seemingly suicidal wildlife
- The lack of streetlights, signage and centre lines

Then, when you get back to town, change tempo quickly. The busy urgency of city dwellers can catch you unawares, especially at intersections and roundabouts.



## *Other Road Users*

Good defensive driving isn't just a matter of what you do, it's about anticipating what everyone else on the road does too. Be ready to brake. Don't weave in and out of fast, heavy traffic. And if someone else catches MotoGP fever, pull over to let them pass.

Patience, some planning and common courtesy are the keys to safely sharing the road with cyclists (and motorists too, for that matter).

Be wary, and:

- Look for cyclists on the road
- When passing, slow down, give cyclists a wide berth (at least 1.5m) and avoid using your horn
- When moving or turning left watch for cyclists on your left
- Watch for cyclists overtaking on your left in slow-moving traffic
- Wait for any cyclist ahead to clear the intersection before you turn - do not turn across their path
- Dip your headlights as you would for motorists
- Only drive across cycle lanes when entering or leaving side roads, driveways or parking spaces
- If you are crossing a cycle lane, give way to cyclists before you cross

Take extra care around young cyclists. Cyclists may veer away from the kerb or occupy a lane to:

- Avoid drains, potholes or roadside rubbish
- Be seen as they come up to intersections with side roads
- Discourage drivers from squeezing past where it's too narrow

Cyclists turning right need extra consideration, especially on multi-laned roads with fast-moving traffic.

## *Pedestrians, Children's and Level Crossings*

Please look out for pedestrians whenever you ride your bike. Pedestrians can be unpredictable, they may have impaired hearing and eyesight, or be absent-mindedly talking on their mobiles.

- Always be ready to stop near schools, bus stops and pedestrian crossings
- Give way to people using the footpath, when entering or leaving a driveway
- If someone looks as if they are about to cross in front of you, sound your horn or flash the headlight
- Watch out for children, especially from 8am to 9am and from 3pm to 4pm. Kids often lack road sense (slow to 20 km/h when passing or coming towards a school bus that has stopped to let children on or off).
- Never overtake a vehicle that is slowing for a pedestrian crossing or has stopped to let someone cross
- Take special care near roadside stalls and parked vendors—pedestrians visiting these may forget to watch for traffic
- Watch your speed and keep well out from the left side of the road - pedestrians regularly emerge from between parked vehicles
- Give pedestrians a wide berth as you'll probably be travelling at higher speeds, making it difficult for them to judge your approach
- Be vigilant near churches and other community landmarks where, trusting to safety in numbers, a number of people may attempt a group crossing

### Know the Rules

Give Way—an obvious one, but to survive you have to go the extra mile. Be prepared for other road users not to give way, even when you have the legal right-of-way. If in the slightest doubt, give way. You'll live longer.

### *Appropriate Road Position*

The only time you should use the far side of the road is when you're overtaking. Riding on either side 'when it suits' is a dangerous habit. If you are going to take a line that makes use of your entire side of the road, do so only when:

- You can see the whole road is clear
- The surface on your line is good
- There is no chance of drifting onto the other side of the road or off the road.

## Managing Riding Situations

### *Controls*

Use indicators even when there doesn't appear to be any other traffic around. It's also a good idea to check your indicators work when, and only when, you want them to. If you don't cancel a signal, motorists may turn in front of you believing you're about to give way (especially likely after failing to cancel a left turn). So always double-check, even on bikes with self-cancelling indicators, as their delay may be longer than is safe. If you find your indicator is flashing faster than usual, one bulb has probably failed.

Operate all controls according to manufacturer's recommendations without looking at them.

### *Take-Offs*

Before you stop, take note of the road camber. Highway bends often have a large degree of camber that can make reaching the ground a stretch if you lower the wrong foot. As you come to a stop:

Hold the bike stationary with the front brake. This illuminates the brake light and leaves both feet free to prop the bike up, select first and lower the side-stand as necessary

When ready to move off again have first gear selected and hold the clutch lever in, allowing you to move off promptly

If in doubt whether traffic has room to pass, activate your hazard lights

Always watch events behind you in your mirrors

If you need to stop suddenly going uphill, expect your bike to stop very quickly.

### *Operation of Transmission and Engine Through all Gears Appropriate to the Road Speed and Engine Load / Gear Changes*

Ride in a gear that provides enough torque for instant acceleration without the need to change down to get it. The lower the gear the greater the torque available for acceleration and engine braking, but the lower the road speed possible. Being in the right gear, close to maximum torque, is essential for overtaking. Make sure you've got the right gear selected, so you're ready to overtake with maximum acceleration when the opportunity is clear.

Changing up or down, maintain pressure on the gear lever until the clutch has been released to minimise the likelihood of selecting false-neutrals and losing drive. If a false-neutral is entered, change up a gear. Changing down, you might select a lower gear than intended, risking rear-wheel lock-up and a possible skid.

If selecting first gear from neutral is noisy, holding the clutch in and revving the throttle can help free the clutch and make it smoother. Allow the revs to drop back to idle before engaging gear. Always keep the front brake on until you're ready to pull away.

## *Acceleration / Engine Speed*

Explore your bike's acceleration capabilities. Controlled and progressive acceleration out of corners is great practice. Acceleration from the apex-point can be increased incrementally as the bike becomes upright. But keep in mind that accelerating while banked over tends to produce under-steer, making the bike want to stand up and run wide.

Acceleration is greatest just before tyre adhesion is lost, after which wheel-spin will occur. This can be prevented by easing the throttle slightly until adhesion is regained, or by selecting a higher gear.

If violent wheel-spin is replaced by sudden grip while the bike is banked over, the reaction can be severe enough to flick you into the air. This is known as 'high-siding' and happens so fast that, realistically, there's nothing you can do to counter it.

You can 'low-side' by pushing the front tyre so hard that it runs out of grip and the bike simply drops to the ground and ploughs on. You can also 'low-side' through total loss of rear-tyre adhesion when accelerating: the rear slides out so far that the bike drops and slides. Either way, you may be dropped onto the ground behind the bike or you may get caught under it. It always pays to wear the best possible gear.

Know your motorbike's limitations and do not exceed them!

## *Dynamics*

While remaining upright may be the primary goal of beginning riders, a bike must lean in order to maintain balance in a turn: the higher the speed or smaller the turn radius, the more lean is required. This lean is usually produced by a momentary steering in the opposite direction, called counter-steering. Unlike other wheeled vehicles, the primary control input on bikes is steering torque, not position.

## *Hill Starts*

One of the hardest things to master for a beginning rider is how to ride up a grade from a standing start. Many motorcycle driving tests require you to demonstrate this skill. It takes practice.

- Assume you have stopped the bike on an upward grade, that the bike is in first gear, the clutch is pulled in, your left foot is down supporting the bike, and your right foot is depressing the foot brake.
- Check the traffic from left to right looking for a sufficiently long window for you to proceed.
- Keep your right foot on the brake.
- Twist the throttle to get some engine speed.

Gradually release the clutch to the point where you feel the bike wants to go forward and the bike is at the 'power point.'

- Slowly release the foot brake and note that the power point is keeping the bike from rolling backwards.
- Give one last look both left and right and ahead to make sure you are clear to go.
- Give more throttle and release the clutch a little more to gain forward momentum.
- Balance the bike and move up the incline in first gear. If you release the clutch too quickly, the engine will die and if you aren't alert, you'll drop the bike.
- Once you are moving smoothly, you can proceed through the gears as appropriate.

## STATISTICS

Whether you want to know the statistics or not, the facts are that motorbike riders are 30 times more likely to be killed in a fatal road crash than car drivers or passengers.

Age Group	17—24 years
Riskiest Days	Weekends
Riskiest Times	2pm—6pm
Contributing Factor	Speed

Think about becoming a safer rider by:

- staying ALERT
- driving defensively
- being responsible for your own safety on the road

What techniques should you use to identify potential traffic hazards?

### *Active Scanning*

- Constantly be looking for things that will impact you on the road

### *Commentary Riding*

Talk yourself "down the road" :

- is my speed appropriate for the corner coming up?
- am I following too close?

### *Use Your Mirrors*

Use your mirrors every 3—10 seconds (the heavier the traffic, the more checks you will do

### *Observing All Round My Bike, Identifying Hazards*

A safe rider must concentrate on all of the space around the motorbike, not just in the direction of travel. In order to 'read the scene' for potential hazards the rider needs to continuously redirect his / her attention all around the motorbike in an ever-changing environment. Visually scanning the scene, recognising potential hazards and devoting extra attention to them without ignoring the rest of the scene is a skill that requires PRACTICE.

An example of hazard avoidance might be expecting a particular car to change lanes due to a slow-moving truck in front of it – this judgement is made from observation and prior experience of similar situations.

## HAZARDS

What are some potential hazards for motorbike riders?

- Road Users
- Cars failing to give way
- Slippery road surface / oil on road / painted lines
- Loose gravel / stones
- Rubbish / nails
- Gaps in bridge decking
- Merging traffic / intersections
- Defective vehicle
- Animals / Pedestrians
- Roadworks, Cones, Workers
- Bike lanes
- Train crossing



## CONSEQUENCES

What are the consequences if you DID NOT look for hazards?

- being unaware of hazards until it is too late
- being involved in a crash
- injury to myself and / or another person





## RECOMMENDED SAFE FOLLOWING DISTANCE

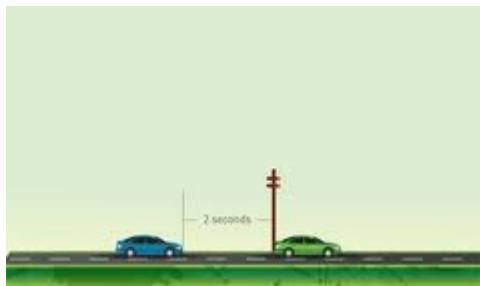
- 2 SECONDS
- 3 SECONDS PREFERRED

Increase following distance time when:

- Visibility Reduced
- Safety Compromised

## HOW DO YOU ACHIEVE A SAFE FOLLOWING DISTANCE?

- Pick an object that the vehicle in front is passing and count
  - 1001
  - 1002
  - 1003
- Motorbike should not reach that object before the 2 or 3 second count
- Count the seconds (2 minimum) between a vehicle in front passing an object and you reaching that object



## **REACTION DISTANCE**

Is the distance travelled from when you first see and then react to a hazard (1.5 sec average)

Is the distance travelled from when you first see a hazard and the motorbike commences to slow down

Novice drivers are slower or less likely to detect and respond to hazards in the driving environment

Slow hazard detection is associated with a history of greater accident involvement.

Failure to respond or braking ineffectively play a large role in motorbike crashes.

REACTION DISTANCE is increased when not CONCENTRATING!

## **BRAKING DISTANCE**

When speed is DOUBLED

- Braking distance increases by 4 times

When speed is TRIPLED

- Braking distance increases by 9 times

## WHAT ACTIONS SHOULD YOU TAKE IF VISION OR SAFETY ARE COMPROMISED?



- Increase following distance
- Increase space zone around motorbike
- Reduce speed



## EFFECT OF WET ROAD ON BRAKING DISTANCE

- Increases the Braking Distance
- Increases the risk of Wheel Lock-Up
- Tyres lose a degree of friction and the motorbike may take longer to STOP



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