
... everything you need
to become a good rider
Full
Control
NMCU
NORSK MOTORCYKKEL UNION


NSR

Wings or wheels - "pilots" must know what they are doing

Dear motorcyclist!

Motorcycle riders must not only deal with a demanding vehicle without protective bodywork. We are so vulnerable that we also must take responsibility for errors and mistakes by other road users. Therefore many motorcycle organisations claim that motorcyclists must become an elite amongst road users.

One condition for safe riding is to master a precise riding technique. A motorcyclist must be able to steer, brake and accelerate - the only three operations that can be done on a motorcycle. This is the theme for the first part of this book.

But, a good riding technique is not enough to be a safe motorcyclist. Riding technique is onlya tool to implement the tactical and operational choices you constantly have to make on the road.

In order to make the right decisions, one must have a basic understanding of traffic, though through strategies and good self-awareness. We know from research that the risks of taking incorrect decisions are dramatically reduced when you get some experience, so in the second part of the book we have gathered most of what experienced motorcyclists know about the road, traffic, motorcycles, equipment and accessories.

It is difficult to gain true experience by reading a book, but it probably helps to get some qualified advice on the way. Although Full Control is intended primarily for new motorcyclists of all ages, we also believe that experienced riders can benefit from reading this book - if only to nod in recognition. Full Control is written by motorcyclists for motorcyclists.

Good luck!

A short introduction to practical physics

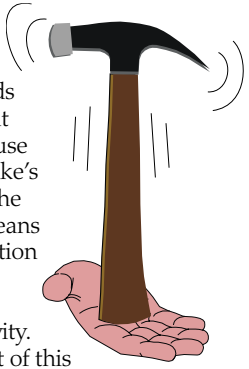
To master the laws of physics is like dancing with Isac Newton without stepping on his toes

How can the motorcycle keep upright? How does it steer and why does it turn when leaned over? Among motorcyclists there are unfortunately few precise answers to these questions. Most of the explanations are fairly inaccurate and based on notions and interpretations of own experiences. That is why many motorcyclists give their mount imprecise – and even erroneous – commands. In this chapter we will explain some of the physical forces so important to understand in order to fully cooperate with the bike.

Active balance.

The motorcycle has to make do with two tiny contact patches with mother earth and cannot keep upright when still. You have maybe watched trial riders keep their balance almost endlessly even though the bike does not move? So it is possible, but we will not detail on such acrobatics here. We will focus on what makes the two-wheeler keep its balance when rolling.

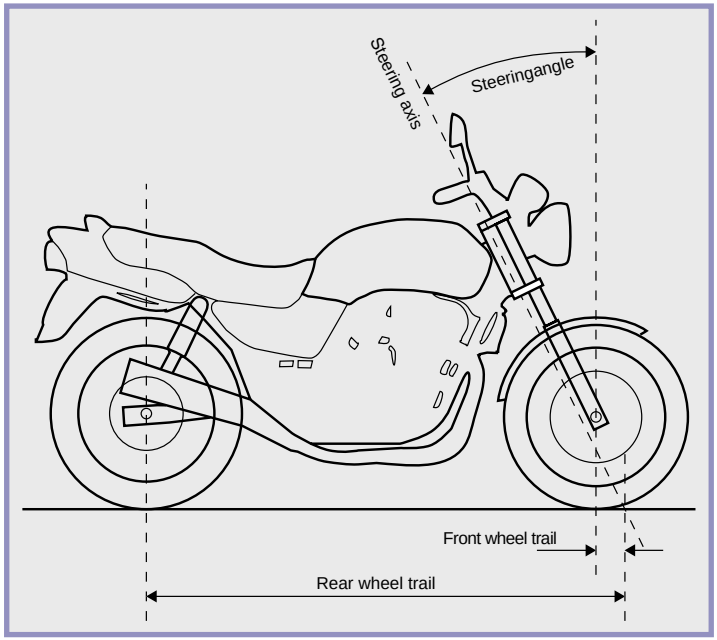
Ever tried to balance a hammer upright with the handle resting on your palm? What do you do when the hammer begins to tilt towards the left? You move your hand the same direction, of course. Thus you move the hammer's contact patch (in your palm) back under the centre of gravity. Balance restored.



You balance the motorcycle the same way when it is rolling. If the bike tilts towards the left (falls), and you want it to move straight ahead, you use the handlebar to move the bike's contact patches back under the mass centre. In practice, it means that you steer the same direction that the bike falls, enough for the wheels to move in back under the centre of gravity. Balance is restored. The effect of this manoeuvre increases with speed – a small steering input moves the contact patches quicker at 90 km/h than at walking speed.

Inherent balance and directional stability

Have you watched road racing on the Eurosport channel? Then perhaps you have noticed that riderless motorcycles sometimes continue on their own, stable as projectiles, straight ahead after the rider has been thrown off. The reason they can do this is mainly to be found in the steering geometry. The motorcycle's fork is



Inherent balance: The front fork geometry is a precondition for inherent balance and directional stability

oblique, so that an extension of its centreline hits the ground a bit ahead of the front tyre's contact point with the ground. The distance between these two points is called trail. The geometry of the front fork is a prerequisite for the bike's inherent balance and directional stability.

If you want to see for yourself how this works, straddle the bike with both feet solidly planted on the ground. Lean the bike a bit to one side. Make sure you support it firmly with your thighs so it does not fall. Let go of the handlebar and watch what happens. If the friction between tyre and ground is not too much, you will see the front wheel steer to the same side that you lean the bike. The effect of this, at speed, is that the bike on its own, without aid from the rider, will try to steer under the centre of gravity when it cants to one side or the other, and in this way manages to keep balance and directional stability. Many advocate that also the gyroscopic effect is important for balance and stability. The gyroscopic effect arises when a wheel rotates and leads to a resistance to sideways movement. The effect is present, truly, and increases with speed, but it is small compared to the effect of the steering geometry.

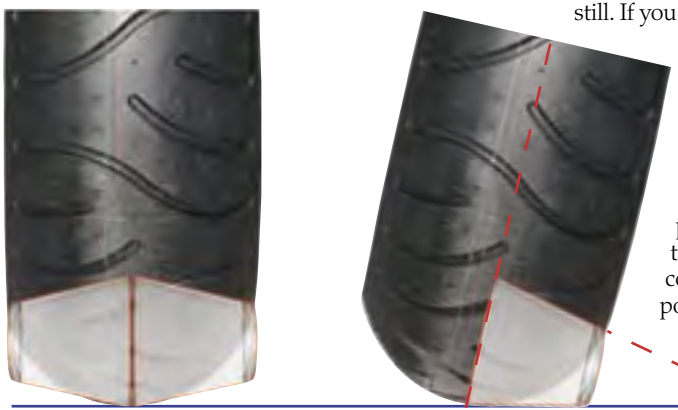
How do you make a motorcycle turn?

In the last passage we explained how the handlebar, fork and wheel "falls" to the right when you lean the bike to the right. The front fork geometry makes the front wheel turn when the bike is leaned over.

There is another reason too, that leaning the bike makes the wheel turn. Motorcycle tires, contrary to car tyres, have a round profile. The circumference is thus longer along the middle of the tyre than on the shoulders.

Imagine two conical drinking glasses set together like the picture shows. Set one of the glasses on its side on a table, to emulate a motorcycle tyre leaned over. Give the glass a push and watch how it turns rather than roll straight ahead. The reason is that the side with the longest circumference (the top of the glass) rolls farther for each revolution. The same is true for your front tyre and this affects the tyre to steer the same way that the bike leans.

The front fork geometry and the tyre profile makes the bike turn automatically as soon as it is leaned over.



The rolling circumference decreases: *The front fork geometry and the rounded profile of the tyre makes the bike turn automatically when leaned over.*

Balancing act in a curve

Newton taught us that an object that is not subjected to any forces, would continue to move with the same speed and direction. If moving, it will go on straight ahead. If it is still, it will keep still. If you affect it with a force in one or the other direction, the object will change course and/or speed.

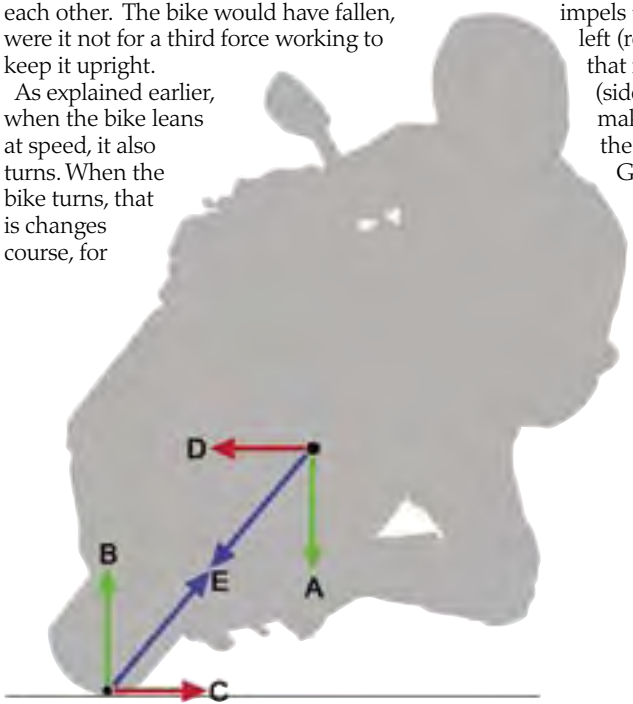
Imagine a motorcycle at speed. Seen from behind. When the bike is straight, the contact patches are directly under the mass centre. It means that gravity points straight down through the contact patches and that the counterforce from the ground points straight up through the bike's centre of gravity. The two-wheeler is in balance.

When the bike leans, for example to the right, the mass centre

is no longer directly above the contact point. Gravity and the counterforce from the ground still point straight down and straight up, but past each other and displaced sideways in relation to each other. The bike would have fallen, were it not for a third force working to keep it upright.

As explained earlier, when the bike leans at speed, it also turns. When the bike turns, that is changes course, for example to the right, Newton tells us there is a force pushing right. This sideways force "attacks" in the contact points between tyres and ground, and since these are far below the mass centre, impels the motorcycle to "fall" toward the left (read: straighten up). When the force that impels the bike to "fall" to the left (sideways force) and the force that tries to make the bike fall to the right are equal, the motorcycle is in balance in the curve.

Given balance and constant speed, the motorcycle will perform a perfect part of a circle. If you did not have to control the throttle with your right hand, you could have let go of the handlebar and followed the bike through a perfect curve.



Forces at work in a curve: *when the forces that try to tilt the bike to the left (sideways force) and to the right (gravity) balance each other, the motorcycle is in balance.*

*Green arrow **A**: Gravity*

*Green arrow **B**: Counterforce from the ground*

*Red arrow **C**: A sideways force that attacs the tyres in the contact patch*

*Red arrow **D**: "Centrifugal force", a force you "feel" a result of sideways acceleration in a curve*

*Blue arrow **E**: The sum of the forces equal balance*

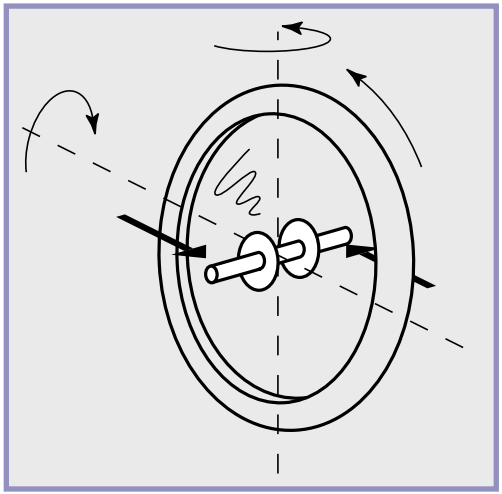
How do you initiate a turn?

To make the front wheel steer the way you want it to go, it follows that you must first lean the bike over. This is absolutely necessary to make a motorcycle turn. Thus, if you are scared to lean, you are in fact scared to turn. A bit unfortunate, isn't it, if the road curves?

So how do you make the bike lean over – cant? It may be done by body language, to move your own body relative to the bike, to one side or the other. We emphasize, however, that this is a slow and imprecise way of steering that results in long, slow"banana-turns".

An extremely more efficient way to initiate a turn is to give a short push on the handlebar, on the same side that you wish to turn towards. This push makes the front wheel steer away from the wanted direction. The contact patch of the front wheel moves away from the general direction of the"rest of the bike". This makes the bike swivel around its own mass centre, that is to lean into the desired curve. Elegant, isn't it?

Gyroscopic forces also contribute in this "opposite"steering movement. You can try it for yourself: Take off the front wheel on your pedal bicycle. Grip the wheel by the front axle and hold it out before you on straight arms. Get a friend to help you accelerate the wheel so it turns fast in the direction it would turn if you rode the bike. Now move the wheel straight up and down in a vertical plane. No problem, right? Next try to steer the wheel to the left as if you steered



Gyroscopic precession: *When wheel is turned to the left, it reacts by leaning to the right*

with the handlebar. Can you feel that the wheel reacts with a powerful cant to the right? This phenomenon is called gyroscopic precession.

If you initiate a curve by a short moment steering the opposite way of your intention, you immediately achieve the lean you need in order to turn the right way. This steering technique is called…..

Countersteering

Counter in this context means "opposite".

Countersteering means that you, for a short moment, in fact steer the opposite direction of what you want. This short, opposite steering movement effectively makes the bike lean to the side you want to turn. We have already stated that leaning is absolutely necessary in order to turn a two-wheeled vehicle.

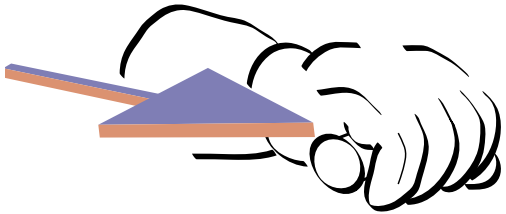
The countersteering is performed by giving a push forward on the handlebar on the side that you intend to turn. If you want to turn right, you give a short, precise push forward on the right handlebar. If you intend to turn left, you give a short push on the left end of the handlebar. We call this "push" a steering command henceforth.

Conscious countersteering is the supremely most effective way of steering a motorcycle. Immeasurably more effective than the "body language technique", where you try to make the bike lean and turn by moving your body to the side.

You can always use countersteering to change the direction of the motorcycle – presuming your bike moves at more than walking pace. It is, however, extremely important that you learn exactly how hard you need to push. At normal speed, very little force is, indeed, needed to achieve a serious change of direction.

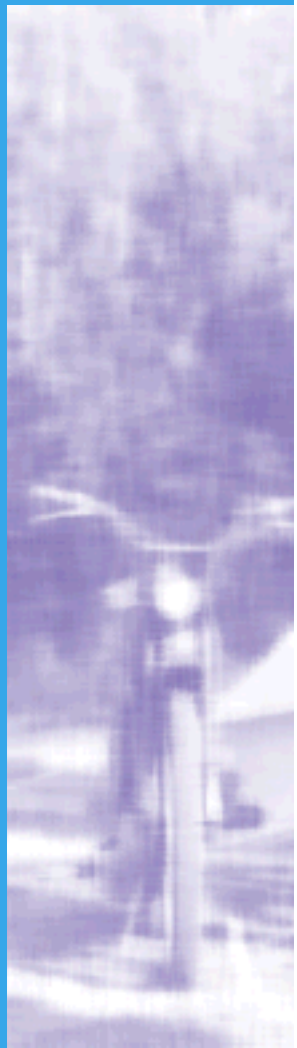
When entering a turn, the sideways forces will try to tip the bike outwards (read: hold it upright). To counter this, there must be an equal force that "pulls" the bike inwards. That is one of the reasons you must lean the bike into the turn: gravity will try to make the bike fall inwards. When in balance, these two forces make the bike go beautifully through the curve. Countersteering enables you to quickly and precisely achieve the right lean angle. The result is that you spend a very short rolling distance to achieve the change of direction. You get a very precise "turning point".

Imagine you are going into a right-hander. When you reach the turning point you give a short, precise push on the right handle bar end. This done, the front wheel steers left for a short moment. The "rest of the bike" will, because of its mass and inertia, try to go on straight ahead, while the front wheel steers left. This cants the bike effectively to the right, a prerequisite for turning right. The angle of the front fork and the trail impels the front wheel first to straighten and then to turn into the curve when the bike leans. The bike now finds, all by itself, a perfect balance between the outward force and gravity, so that the lean becomes stable. A perfect, sensitive harmony between the outward and inward



Counter steering: *If you want to go right, give the right hand side of handlebar a gentle push*

If you think you can steer the bike using your bodyweight, we are happy you can read this, because with a little less luck you might as well be dead



1

Countersteering: *A gentle push on the right handlebar ...*

2

... the bike leans

3

... and steers to the right

forces. Amazing, isn't it?

But remember this: The higher your speed, the stronger the self-stabilizing properties of the front end. You feel the bike as sluggish, hard to turn. It means that when speed goes up, your steering command must also be more powerful to make the bike turn when and where you want. In the chapter about steering, we will go into this in detail.

We recommend you to start practising conscious countersteering and make it your only steering technique. This will give you one single working habit that you can use in all situations. When you have to make a quick change of direction or swerve, countersteering is the only effective way.

Acceleration and braking in a curve

It is a fact that a motorcycle "straightens up" or drift towards the outside of the curve when you accelerate out of a curve. Why is that? When the forces that work inward and outward on the bike while turning are equal, the bike may continue the curve endlessly. When you gas it, the motorcycle will accelerate and the sideways force that tries to pull the bike out of the curve will increase. It exceeds the inward force and thus the bike straightens up and follows the road out of the curve.

It is also a fact that the bike straightens up and

drifts toward the outside of the curve when you apply the front brake in a curve. How can that be explained? In a right-hand curve, leaned over, the centre of the contact patch is to the right of the centre of the tyre – and thus also to the right of the imagined extension of the steering axle. When braking, the braking forces will "attack" in the centre of the contact patch and thus try to turn the wheel, fork and handlebar towards the right. In fact the braking forces make the bike steer more right and the lean angle changes. In a curve this feel like the bike is straightening up.

A few words about the suspension system

The suspension system gives us comfort on the ride. But the system has a task that is far more important than comfort:

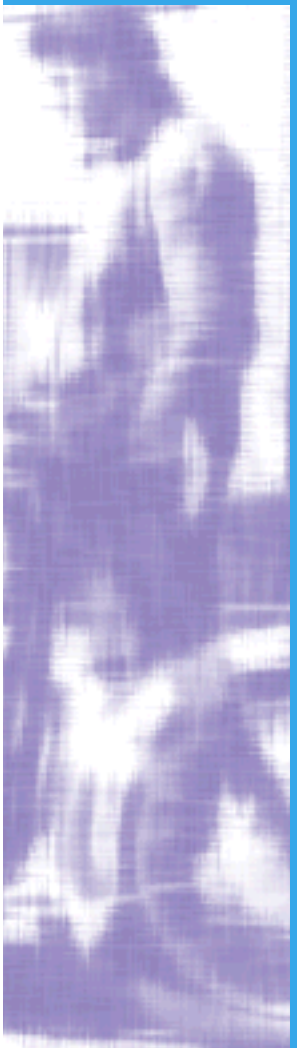
The tyre is like a football. It bounces. And it bounces hard! Imagine what happens when the rolling tyre at highway speed hits a hump in the road. It is compressed by the hump and then bounces back with ferocious energy. This energy rockets the wheel upwards.

The springs are designed to absorb this rocketing energy and gradually slow the wheel's upward travel so that the shock is not fed into the bike. When the movement is softly stopped, the compressed spring pushes your wheel back to the ground again to restore your precious road grip.

The springs alone, however, do not suffice to control the wheel's bouncing. The springs just continue their pogo dance if there is nothing to calm them down. The hydraulic oil in the shock absorbers holds the bouncing in check when the wheel rockets upwards and also slows it on the return so it does not bounce back full force. For when the upward wheel travel is stopped, the spring is compressed, and will "shoot" the wheel back down again with almost the same power as it was kicked upwards. The shock absorber and the oil that has to flow through restricting holes, retards the downward travel an puts the tyre neatly back on the ground.

Thus the tyre is forced to keep as much as possible in touch with the road, where road grip is found, and at the same time keeps the rest of the motorcycle calm and stable. It would not be without danger, but you should try to ride a bike without shock absorbers, just to learn to appreciate the job they do.

There is also another extremely important "shock absorber" on the bike, which can both stabilize the bike or disturb it. Yourself. The wind pushes and jolts you when you ride. Humps or potholes make your body bounce and jolt. If you sit stiff-backed and grip the handlebars hard your body's movement is fed into the bike and interferes with its job. A relaxed body when you ride is essential. Under section 3.2, "Riding position", you will find more about this.



”The dangerous instincts”

By ”instinctive faulty reactions”we here mean those unconscious, panic-like actions you do when you get scared. They come like a reflex, before you can think, without you planning them. The human body really is not built for riding a motorcycle. It is built to walk or run. During evolution we have been equipped with instincts and reflexes meant to protect us when in danger, triggered lightning-quick. An example is how you wink your eyes when some sudden movement startles you. Another is when you retract your hand, before you can think of it, when touching something hot. These are unconscious reflexes designed to keep you from harm. The problem is that some of these reactions can be life threatening when you ride a motorcycle. Instinctive faulty reactions are a major cause behind motorcycle accidents. More often than not they worsen a situation that you easily could have mastered if only you knew what you were doing wrong. And how to do it right. Each one of these instinctive faulty reactions has the power to override reason.

The most common of them is that you in a scary situation ”push away form the fear”by straightening your arms and you back, to create distance from the threat, to protect yourself. That is the absolute opposite to what is needed to steer a motorcycle, namely loose arms, lower arms horizontal and shoulders low. Been there? Done that? It happens to us all.

A second faulty reaction is that when scared you tend to fix your stare at the danger, what you want to avoid. And it is with motorcycles as with other weapon: you hit where you aim. Such ”target fixation”is probably a reason behind many accidents. This faulty reaction may come into play for example when you ride into a curve on the road and feel that the speed is too high or when a car does not yield for you and suddenly blocks your way.

A third one is the tendency to suddenly and quickly rolling off the throttle in the middle of a curve because you get worried about the road grip. This reaction is almost like hitting the rear brake in a curve, as the engine suddenly brakes the rear wheel and you risk a slide. A second consequence of rolling off the throttle is that you transfer a lot of weight to the front wheel and the bike becomes truckish to steer.

How can you learn to conquer these primitive instincts in order to handle the situation properly? There are really only three ways:

- Always be conscious of the problem
- Learn to recognize the situations that usually trigger them and the faulty reactions
- Learn and drill precise riding technique to become a correct working habit (new reflex) so that you may override the instinctive reaction

You are not the only one to get scared every now and then. Seasoned riders and instructors have long since identified what triggers cold sweat on your forehead:

- You are suddenly scared not to come safely through the curve
- You suddenly experience your speed to be too high into a curve
- Your lean angle is bigger than you are comfortable with
- Sudden worry about road grip
- An obstacle right in your way

Use this knowledge positively. No matter if the danger is real or imagined, the instinctive reaction is an effort to save you from harm. None of them, however, are in harmony with the motorcycle's physical properties or the principles behind a precise riding technique. In the following chapters we will show you how you can practise techniques that are appropriate – and with their help conquer your instincts.

A motorcycle is a precision-instrument and a correct riding technique will make you play like Eric Clapton

A precise riding technique

The riding technique we describe is founded on the motorcycle's physical properties. The technique puts you in control of the vehicle. Established as correct working habits this competence yields both joy in the riding and safety. Correct working habits in this context means well drilled operating commands that gradually become automatic and are triggered as a reflex when you need them most.

We know many motorcyclists who regard themselves as skilled even though they time after time act in a way that makes it impossible for the bike to function properly. They experience that their way of riding works for them – so everything is just fine, isn't it? With low demands and a lot of luck most things work out fine. It does not mean you are doing everything right, though. It may be that you always have a lot of margin. That is good in itself. But still: the honoured word "experience" can mean that you during long practice have established wrong working habits. They may be adequate in the everyday, but may cause you trouble in a difficult situation.

Tips and good advice from fellow motorcyclists can be valuable, but may be vague, inaccurate and lead you astray. The lack of precise textbooks on he subject is one of the reasons there are so many assumptions and so little concrete knowledge about riding technique. The formal driver training probably has not given you the precise riding technique that you need in an adverse situation on the road.

The basics of precise riding technique

To be able to describe the riding technique precisely, we will have to introduce a few terms that may be new to you. We recommend that you take the time to really get the grip on these terms and their meaning, in order to get the full profit of the explanations and exercises.

Countersteering / steering command

Countersteering is the most effective way to steer a motorcycle. You give a short and precise push at the end of the handlebar on the side to which you want to turn. That is, you give a steering command. If you want to turn right, you push the right end of the handlebar. For a short moment you actually steer the opposite way of where you are going. This moves the front tyre's contact patch with the road outwards from the centre of the turn so that the bike quickly achieves the right lean angle and turns. For details, see the chapter "A short introduction to practical physics."

Steering point

This is the exact point on the road where you choose to give the steering command that makes the bike turn precisely into the turn.

Anchored push

To countersteer you must push precisely at the handlebar end. In order for the steering command to move the handlebar precisely, and not only push you body backwards, you must have "anchoring". Just try it; stand with your side towards a wall with your feet close together. Raise your arm and give the wall a firm push. Not to fall you must step out with the foot furthest from the wall to support you. You must "anchor" yourself. On the bike, the natural anchoring point is the outside footpeg, the peg facing outward from the centre of the curve.

An "anchored push" means that you anchor yourself on the outward footpeg (consciously feel the peg under your foot), contract your leg muscles just like a small kick-off, and transfer this force to the opposite handlebar end. The term "anchored push" signifies that you both anchor and push at the same time in order to achieve precision in your steering command.

In a normal corner, the anchored push is experienced more as a "feeling" than an exertion of raw power. But in higher speeds, not to mention emergency swerving, you really need muscle in order to achieve the necessary effect of the steering command. That is why the habit of anchored push is so important.

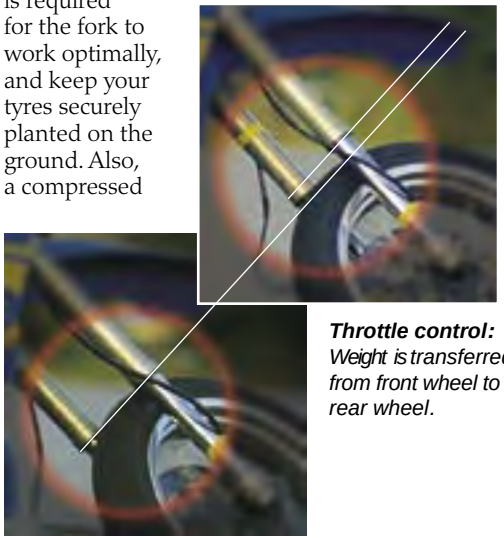
Throttle Control

When you lean the bike, a situation arises that you must realize. The rolling circumference of the tyre is smaller towards the shoulder

Throttle control is necessary to maintain the "harmony" through a turn

of the tyre. Hence, the tyre must turn faster when leaned in order to keep the same speed. Therefore you have to open the throttle a little immediately after the steering command in order to avoid that the engine brakes the rear wheel.

Throttle Control thus means that you open the throttle a bit immediately after the steering command. The effect is that weight is transferred from the front tyre to the rear tyre and that the bike feels more willing to steer. In addition, this little acceleration makes the front fork rise a bit, goes back to a medium position, which is required for the fork to work optimally, and keep your tyres securely planted on the ground. Also, a compressed fork would give less ground clearance, right?



Throttle control: *Weight is transferred from front wheel to rear wheel.*

Do you remember how the motorcycle "balances" the sideways forces and gravity in a curve? This balance demands steady speed and lean. Conscious Throttle Control gives this constant speed. Good anchoring gives you a steady lean. Together these two gives you optimal stability and road grip throughout the corner. You know when you do it right: it gives you the exhilarating feeling of safety and control – and it keeps the dangerous instinctive reactions at bay!

Anchoring points

Precision steering demands good contact with the bike without "clinging". You need anchoring points. Footpegs, saddle and fuel tank are the most important ones. By conscious use of these, you achieve effective steering commands and total control under braking – while it allows you a relaxed upper body, arms and hand.

In the following chapters we will elaborate on this foundation and describe a Precise Riding Technique that gives you total control over the tree things a motorcycle can do, namely to steer, accelerate and brake. But before that, we will look into some other prerequisites for success that you need to know and master.

Riding Position and anchoring: *Toeball on pegs, relaxed arms, bowed elbowes, loose grip and upper body leaned slightly forward*

Your bike is very good at riding, so don't disturb it while it is doing its job

Riding position and anchoring

Your riding position is crucial for control. A wrong riding position can ruin the motorcycle's possibility to help you out of a pinch. When you ride into a situation, for example a corner, you have to be ready to handle what is coming up.

You must be prepared mentally and physically, set your body to alert, and assume a riding position that enables you to act correctly and precisely.

Anchoring

Your riding position influences steering, braking, stability, suspension, ground clearance and

The rider is the most important "shockabsorber"

weight transfer by acceleration. An inadequate riding position may lead to failure to do the manoeuvre you intended or hamper the bike in doing its job.

You achieve precise steering with your toe balls on the foot pegs, loose arms bent at the elbow, a relaxed grip at the handlebar and your body leaning slightly forward. A swerve succeeds only if you are correctly anchored as well as your torso and arms in the proper position. Your arms and grip must be relaxed for the bike to be stable, Done right, you will sense that you hardly need to hold on to the handlebar at all, if it were not for throttle control.

Without an "anchored push" much of the power in a steering command will be spent pushing your body backwards rather than the bar forwards. In a slight forward crouch, you can tension your abdomen muscles, weight the outward peg and transfer the steering power effectively to the handlebar. In normal curves, this steering command is a subtle, sensual push. But the higher the speed, the more force you need in your push.

Riding positioning a curve

When you approach the steering point, you prepare yourself by assuming the right seating position; weight the outer footpeg to prepare for an anchored push. At the steering point you give the steering command, which is a quick push at the handlebar, just powerful enough and long enough to make the bike lean as much as needed. You keep the weight on the outward peg. This gives the bike stability because your weight is fed into the bike low down – and you will not disturb the bike while it is working.

You may also move your bottom slightly toward the inside of the saddle before you enter the curve. This achieves better ground clearance and less lean angle. You make the job easier for the bike. If, for example you hit a spot of gravel and the bike slides, you will make its job easier if you lift your bottom slightly off the saddle and anchor yourself in pegs and fuel tank.

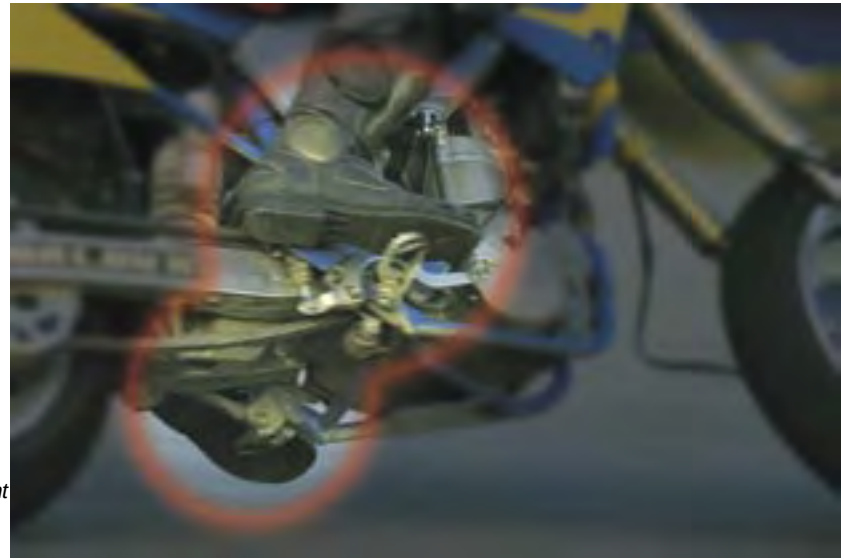
Suspension and springs carry the weight of both you and the motorcycle itself. Some times also the weight of passenger and luggage. In some situations it may be too much for the suspension. For example if you hit a serious bump, a dead badger or a chunk of wood that you fail to avoid. Then you can help your bike by lifting your buttocks off the saddle. The advantages are threefold: you anchor your weight low down, your knees will function as additional suspension, and your body keeps still even if the bike is jolted violently. Thus you quickly regain control and avoid clinging desperately to the handlebar.

Riding position while braking

Directional stability depends on your riding position. A relaxed seating position, -with loose arms and a relaxed grip on the handlebar is crucial.

Modern motorcycles have very good brakes. But faulty riding position and braking technique can ruin the bike's braking prowess. During hard braking, anchoring and sight are essential. Relaxed arms and a relaxed grip on the handlebar are necessary for the motorcycle to brake straight and strong. You need to be anchored solidly on pegs and fuel tank. If, on the contrary, you support your weight, with stiff arms, on the handlebar, the bike will be unstable and tend to dive alarmingly and lift its rear.

Weight on outer footpeg through a turn stabilizes the bike



Achoring:

Toeballs on foot-pegs and weight on outer peg

Attention and visual focus

It is not gift by birth to use your eyes correctly, but it can be practised. To be fully in control you must have a complete picture of the situation – that is to be consciously aware of all the important elements of the situation in front of you, at your sides and behind you, so as not to be surprised.

To be attentive is not the same as to "look at". If you focus on a point ahead of you, you can, with a little practising, have a fairly clear picture of what is happening in the rest of your field of vision, without moving your focus. When you ride through a curve on the road and your focus is far ahead to where you are going, it is still possible to see the white borderline in the periphery of you sight. You can detect if you are drifting towards that line or away from it without looking directly at it.

The part of your field of vision where you see sharply is called the focus area. The rest of the field of vision is a little blurred, but you can still detect movement, colour and form. Your eyes are actually more sensitive to movement and light outside your focus area. This is called the peripheral vision.

When your peripheral vision detects a movement – it may be a car on a side road or a moose at the edge of the forest – your focus will automatically move to check it out. This is a reflex. It happens before your can think. It is called the warning reflex.

Wide attention and active visual search

An adept motorcyclist is not just sitting there, waiting for his warning reflex to wake him up. He is continuously and actively searching for crucial information in the scene around him. You have to search far ahead of you to detect which factors will be important in the next few seconds. Also, you have to check the mirrors frequently to survey what is happening behind you.

Using focus area, you identify everything relevant to you. You have to move your eyes, actively search for important information. The further ahead you work, the smaller the eye movement you need and you will not tire so easily.

When you have identified the points or factors relevant for you, you know their position, and can survey them with your peripheral vision – without focusing them directly. These points are called reference points. It may be a child by the road, a car on a side road or exit – things you need to keep track of. A reference point can also bee the steering point you have chosen, the white border line, a patch of gravel on the blacktop. With wide attention, you can keep track of them – keep them under control – without looking at them directly.

You must practise to become skilful in visual search. Hunt actively for information, ahead,

at your sides and behind. Well ahead in time search and sort out the factors that are relevant to you. Foresee what is going to happen. Monitor them consciously with your attention. Discover if something moves or changes. You can practise this every time you are out riding: work far ahead in time, consciously note reference points, - and track them with your attention while your focus stays ahead.

To let the wide attention, the peripheral vision, work for you is much less exhausting than focusing every element. This is one of the reason novice drivers experience fatigue long before a seasoned rider.

Speed and attention

When you increase speed it becomes increasingly demanding to maintain a complete picture of the scene around you. All the factors that you must take into consideration come racing towards you. If you loose your grip on the picture, the dangerous instincts sneak out: you can become disoriented and react with target fixation, tunnel vision or frantic search.

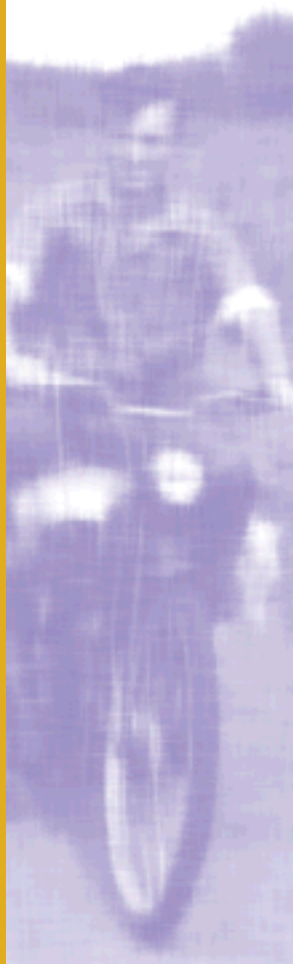
We take it for granted that you will choose a speed that allows you to see all that you need to see to maintain a complete picture of the situation. The complexity of the scene, the number of relevant factors that you must keep track of decide how fast you can ride – and stay in control. And of course you choose a speed that enables you to avoid the dangerous elements you are tracking.

The use of focus and attention in curves on the road

Many riders choose at steering point much too

Visual focus in a turn:
Look into the curve, in the direction you want to go

Look where you want to go! Motorcycles are like other "weapons": You usually hit what you aim at



early in the curve and thus often cut the corner or have to make corrections. Others give their steering command at the proper spot, but their steering command is not precise enough and they feel the bike is going wide. Both situations can trigger fear and faulty instinctive reactions.

Two important things you must be conscious about by cornering: where you will start curving, and, – not less important, – where you want to steer. Choose your steering point early. When you get close to it, move your focus into the curve, to where you are going. Let the peripheral vision keep track on the steering point. When you give the steering command you have to know where to point the bike. That is why it is so essential to move your focus into the curve before you reach your chosen steering point. Your wide attention, through your peripheral vision, knows when you reach your steering point, even if your focus is far ahead into the curve. Rehearse this until it becomes a habit.

To let the bike go straight till it reaches the steering point can be difficult. Instinctively you will want to steer as soon as you move your focus into the curve and steer too early. This is the instinctive "follow your eyes reaction". Practising and conscious trust in the peripheral vision will help you resist this instinctive tendency.

Head angle

Sight is essential for balance. Your body relates to the horizon and it needs to have your head near

Head angle: *Keep head horizontal, even when leaning the bike in a curve.*

horizontal to perceive your ambience correctly and to keep the body balanced. When you brake or accelerate, you know how essential this is. You have probably experienced how your head tends to fall forward under hard braking and you stare at the ground right ahead of the bike. Then it is difficult to keep perfect balance. Your body loses its reference points and becomes disoriented.

By cornering, head angle is extremely important. When you lean the bike, you must make sure that you keep your head horizontal in order to perceive the situation correctly and to be in control. Check with yourself that you really do this consciously when you ride.

Steering

”The ideal turn”

You are approaching a curve on the road. At the steering point you give a precise steering command, follow up with throttle control, keep your weight on the outward footpeg, and then relax again. The rest of the curve follows just perfectly, as if by magic. The motorcycle runs through the curve like on rails. Gorgeous, isn't it? But how is it possible?

The answer is conscious cornering technique. The technique, based on physics and the motorcycle's construction, and established as a natural working habit gives you precision, control, security, safety, joy of riding and the experience of mastering the bike.

In order to be able to master cornering, you must train, train and train. In cornering the adrenaline may rush and the dangerous instincts threaten to attack. Correct working habits are the main weapon to meet these attacks.

The ideal curve

Imagine yourself on your own motorcycle approaching a curve on the road. This is how you prepare yourself and carry out the curve:

The preparative phase:

1. Assume the correct riding position
2. Adjust speed and chose a suitable gear
3. Choose your steering point
4. Consciously weight the outward peg
5. Immediately ahead of the steering point, move your focus to where you are going
6. Softly release the brake

The steering phase

7. Give a precise steering command at the steering point

Throttle control

8. Roll on the throttle a bit to keep the revs constant
9. Loose arms, keep weight on the outward footpeg
10. Roll the throttle on gradually and carefully throughout the curve

The exit phase

11. Keep your focus on where you are going
12. Straighten the bike by acceleration or by pushing the outward handlebar end

”The steering circle”

1. Correct riding position

2. Adapt speed and choose correct gear

3. Choose your steering point

4. Put weight on outer footpeg

5. Just before steeringpoint, look where you want to go

6. Softly release brakes

7. Steering command at steering point

8. Carefully open throttel

9. Loos arms, weight on outer footpeg

10. roll on throttle throughout the entire turn

11. Look where you want to go

12. Straighten the bike

The preparative phase

This phase is as important as the rest of the curve. Assume the correct riding position well ahead of the curve. Relaxed upper body, lower arms close to horizontal, elbows loose. Many riders move their buttocks a bit inward and anchor the inside of their outward thigh firmly towards the fuel tank. Place your toe balls on the footpeg.

On your way toward the curve, you choose your steering point, – the spot where you intend to give your steering command. Your speed must be adjusted to the wanted cornering speed before you reach the steering point. Apply the front brake if necessary. Brake softly while shifting down. Choose the gear that will give you proper power through the curve. Softly release the brake. A common error is to let go of the brake too quickly and thus upset the bike since it then raises suddenly on the front suspension.

Consider the curve, its radius and how much force you will need in the steering command. A too early steering point results in cutting into the curve so that you will have to correct mid-corner. To find the correct steering point is a matter of conscious practising.

Close to the steering point, you press down on the outward footpeg. Crouch forward a little, "into the bike", let your upper body "collapse" so you can feel your arms relax and your lower arms almost horizontal. Immediately ahead of the steering point, when you know where it is without looking directly at it, you move your focus to where you are going, into the curve.

Forberedelsesfasen:
Rett før svingpunktet – når du vet hvor det befinner seg uten å se direkte på det – flytter du blikket dit du skal, inn i svingen.

The steering phase

Reaching the steering point, you give the steering command. You tension the muscles in the leg anchored on the outward peg, tension your abdominal muscles, and push on the opposite handlebar end. The quickness of your steering command decides how quickly you change course. Normally you give a subtle push, almost a caress and keep the pressure till you have achieved the wanted lean angle. On a wet road it is, of course, crucial with soft movements and a careful steering command.

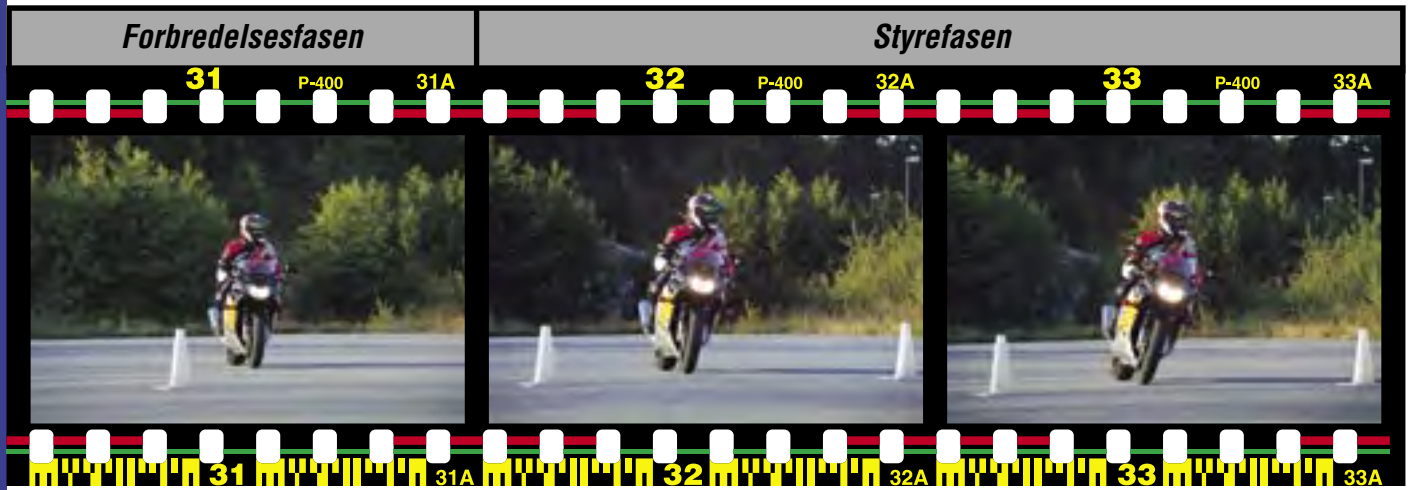
> *Listen carefully to the whispering feedback from the bike during normal riding*

If, however, you want to swerve in emergency, you must push quicker and harder. Then you are completely dependent on conscious anchoring and anchored push to get the necessary force and precision in the steering command. That is why it is imperative to practise anchored push in all corners, so you will have it established as a reflex when you really need it.

Throttle control

Immediately after the steering command, you roll on the throttle a bit. This small movement on the throttle grip is necessary to avoid the engine braking.

Then you roll on the throttle carefully throughout the rest of the curve. This careful acceleration transfers weight to the rear wheel so that you achieve an optimal weight distribution between front and rear. The goal is to have just a little more weight on the rear wheel than on the front. The bike the steers willingly, just as you want it to. You also get an optimal road grip, because the bike rises on the front fork, to achieve more travel, right in its best working area – and thus swallows bumps more easily.



The exit phase

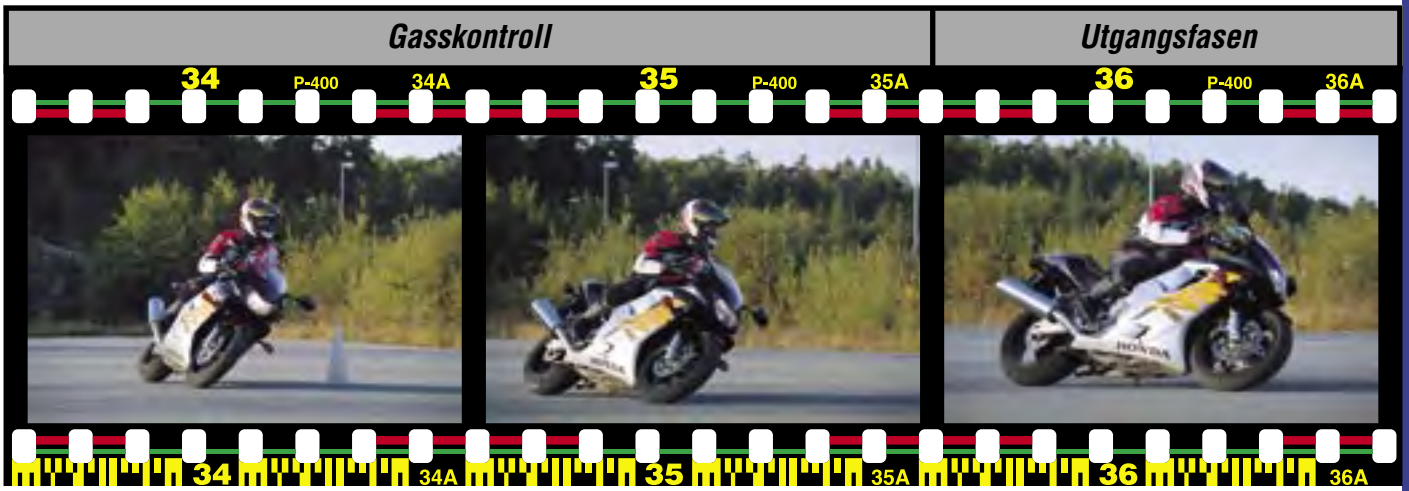
When you have achieved the right lean and applied throttle control, the cornering is almost finished. Let your eyes work far ahead. Start working with the stretch of road that follows the corner. You straighten the bike by increasing throttle and/or pushing the outer handlebar away from you.

Corrections in the curve.

Without precise working habits or because of changes in the picture, you will not always be spot-on with your steering command. You will have to correct. That's OK. But beware of the alarm clocks in your mind that can wake up the slumbering instincts! They are often ready to take control of your mind and change the situation for the worse.

That is when it is important to trust your bike and the technique. Collapse your upper body, to get your lower arms horizontal, anchor your push and roll n the throttle a bit. With knowledge and practising you can conquer the instincts that tempt you to roll back the throttle, straighten your body and clutch the handlebar desperately.

Don't ride so fast: You don't learn anything if you scare yourself all the time



Steering exercises on the road

You can practise the precise riding techniques every time you are out riding. Practise on a stretch of road that you are familiar with. Start with a speed that makes you feel absolutely comfortable in the curves. The exercises are set in a systematic order for you to learn the single elements and combine them to a whole that becomes a working habit and gives you smoothness. The exercises are laid out in to parts: The first five are cornering without braking before the curve. When you master these, you can start working on the sixth, which includes braking.

Exercise 1

Choose a stretch of road that you know well. Choose a gear that gives you smooth power through the curve. First focus your riding position. Make sure that your upper body is relaxed and your grip on the handlebar loose. Your arms should bee relaxed, your elbows should be able to swing loosely. On a motorcycle with a low handlebar, your arms must be near horizontal. As you approach the curve, consciously weight the outward footpeg. Be conscious that you steer by pushing on the inward handlebar end (countersteering). Make sure that you are properly anchored on the outward footpeg when you give your steering command (anchored push).

Exercise 2

Once again a familiar road, low speed. Practise choosing the steering point consciously. Riding position and anchoring as in exercise 1. Immediately before reaching the steering point, move your focus into the curve. Give your steering command, correctly anchored on the outward footpeg, and also against the fuel tank.

Exercise 3

Throttle control. Familiar road, low speed. Riding position, steering point, anchoring on the outward peg and visual focus as above. First you ride through the curves with the throttle rolled back after your steering command. Notice how the engine brakes slightly and your speed decreases. Feel how the bike is reluctant to steer into the curve.

Now repeat, but this time you roll on the throttle slightly immediately after your steering command. Notice how the bike steers more willingly and is more harmonious. Practise this until it has become a habit to roll on the throttle after your steering command.

Next you can try to roll on the throttle gradually throughout the curve. Remember to choose a gear that gives you smooth power. Think back on the section about throttle control and how weight is transferred from front wheel to rear wheel. Can you feel that the motorcycle is in perfect harmony? Is it steering willingly?

Practise this procedure until it has become a habit. Now you can increase your speed gradually, but still without braking before the curve. If you suddenly find yourself smiling, you are doing it right.

Exercise 4

Moving your buttocks. In order to increase ground clearance through the curve, you can move your buttocks slightly in the saddle – inward in the curve – so that your outward knee and thigh are firmly anchored against the fuel tank. Perform this movement well ahead of the curve. Then you will not upset the bike. Feel how well anchored you are when you have firm pressure on the outward peg and knee and thigh against the tank.

Once through the curve, you move back to the centre of the saddle. You do this by gradually moving your weight from the outward to the inward peg and lifting your body a bit. Make sure you do not pull at the handlebar.

Exercise 5

Lane changes on multi lane roads. Next time you ride on a multi lane highway, you can practise steering technique while changing lanes. The precise steering technique gives you a precise change of direction. The goal is to achieve "straight lines" between the steering commands. This is very different from the sloppy "banana-curves" so often seen. In this situation, there is probably nothing wrong with the "banana-curves", but it is in your interest to practise precise riding technique even when changing lanes. Without conscious practising, old habits are hard to change.

Exercise 6

In this exercise you shall combine exercise 3 and eventually exercise 4 with braking. On your way towards the curve you reduce your speed by applying the brake(s). Shortly before the steering point, you softly release the brakes. The rest is like before.

Gradually increase your approach speed and brake harder. If you choose to move your buttock inward on the saddle, you should do this before you brake, in order not to unsettle the bike. Practise until you are comfortable with the complete steering technique as described above. The goal is to achieve controlled, fluid movements through the whole procedure.

You will find more exercises in chapter 8 "Exercises in secluded area".

Braking

Braking:
To brake effectively you must pratice good working habits

After all it is not difficult to brake, brake hard. But serious braking can release an avalanche of faulty reactions in a motorcyclist. In order to be in control, you need to have practised good working habits. A correct braking technique stops the motorcycle effectively, stably and reliably.

Front brake or rear brake?

Modern motorcycles have good brakes. Most of them come with a front brake powerful enough to do all the braking alone. On most motorcycles, the front brake is the main brake.

Motorcycles are different, however. A custom motorcycle or a touring bike has more weight on the rear wheel. Passenger and luggage also lead to more weight at the rear. It may therefore be necessary to learn and master the use of both brakes at the same time. You have to learn to brake your own bike – in all situations with and without passenger and luggage. In the real world it is more demanding to control two brakes than one.

The front brake is the main brake. But, the fear of locking the front wheel scares a lot of riders from learning to use it properly. That is why you have to learn to trust the front brake and apply pressure correctly. If the front wheel locks, all you have to do is let up the pressure a trifle, so that the wheel turns anew, and then the bike stabilizes itself. It is no worse than that.

Rear wheel locking can lead to serious consequences, if you are not quick to release the pedal pressure. On most bikes it is absolutely preferable to use only the front brake, and let the rear wheel rotate, to avoid a rear slide.

Remember that if you drive a car more than

you ride a bike, it's a danger that you bring your braking reflex to the bike….that heavy foot. If you are not consciously aware of this danger, you may find yourself stomping the pedal instinctively when panic hits. This will more often than not lead to a locked rear wheel and a subsequent slide.

The conclusion is: if you ride a bike where the front brake alone can handle the braking task, concentrate on mastering the front. If, on the other hand, you ride a bike with mediocre brakes or much weight on the rear wheel, (long customs and touring with passenger and luggage), you must learn to use both brakes and combine them effectively.

Riding position

Your riding position is of great importance when you brake. A common error is to straighten your back and cling to the handlebar with stiff arms. This destabilizes the bike, transfers much of the weight to the front wheel, high up, and invites rear wheel lift. When you anchor yourself properly in fuel tank and pegs, with relaxed arms, you feed the inertia into the fuel tank and saddle, 60-80 centimetres further back and lower down. The result is that you keep your rear wheel down much longer and avoid overstraining the suspension up front. Hug the fuel tank firmly with your knees, let the muscles in your legs, abdomen and lower back hold your body back and relieve your arms.

Even your eyes influence braking, especially in the last phase. Take care to keep your eyes level and look far ahead.

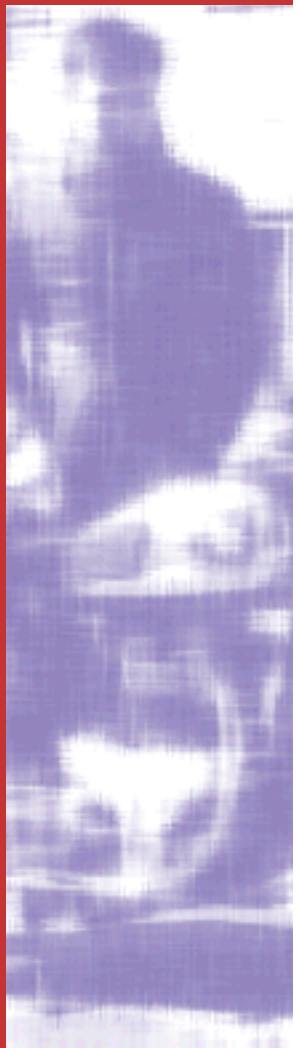
If you do it right, you will be able to sit on the bike, in complete balance, after it has stopped, while it rises on the front forks. Only then should you put your feet on the ground. If you catch yourself red-handed setting down your feet before the bike has stopped completely, you are out of balance and have not done it right.

Regulating the brake pressure

Let us focus on the front brake first. Effective braking results from reaching full brake pressure quickly and smoothly. Too many riders brake too meekly initially and have to squeeze increasingly harder as they approach the hazard. The braking distance becomes longer than necessary.

Thus you must practise to apply the brakes effectively once you realize you have to brake. To do this, you must apply the brake smoothly and determinedly. Smoothly to let the front suspension compress in a controlled way. Determinedly to achieve effective braking as soon as possible. Just remember that the bike moves 22 metres per second at 80 km/h. There is no time to waste!

A common error is to grab the brakes desperately and powerfully at once. This makes the front suspension "bottom" and the front wheel skid and stomp. Therefore: smoothly and determinedly. How smoothly and how determined? Sorry, but only practice on your own bike can give you the answer.



The rear brake is more difficult to modulate effectively. When the rear brake locks up depends on how hard you brake with the front brake and how much weight is thus transferred to the front wheel. If your front brake is really effective, it may be better to leave the rear alone, because the rotating rear wheel actually stabilizes the bike. BUT: when you load up the bike with passenger and luggage, the effect of the rear brake may be considerable. You just have to practise braking with luggage and passenger as well as solo.

The passenger's riding position under braking.

When you brake hard, your passenger may be thrown forward and hit you hard in you back. If you have not taken the time to instruct your passenger how to react under braking, you risk that he hits you in the back like a freight train. Then you will have a real challenge not to transfer the weight of the two of you to the handlebar and to keep your eyes level!

The passenger must transfer as much of his weight as possible low down on the bike. He (or she) must anchor himself by hugging your hips with his knees. It is also important that he tensions his abdomen, back and neck muscles to hold his upper torso back. This way he will not crash into your upper back, which inevitably would force you to stiffen your arms. And your passenger will not force your head forward and down. Done right, you will be able to keep your head level and look far ahead.

Braking in a curve

It is not advisable to use the rear brake in a curve, because the risk of a slide is considerable.

When you use the front brake in a curve, the two-wheeler tends to straighten up; it steers heavily and feels like it wants to go straight ahead, towards the ditch. To keep the bike on the right course you must countersteer simultaneously. This is the most efficient way of braking in a curve. It is worth mentioning that you must relieve the pressure on the handlebar when you reach low speed. If you do not you may risk that the bike falls.

The fact that the bike straightens when you apply the front brake in a curve, can be exploited in different, more demanding braking technique: You brake, the bike straightens itself, you can brake hard for a short distance, then release the brake and steer into the curve again.

Riding position during hard braking

Braking exercises on the road

Think about this: Under normal riding, you can travel hundredscore kilometres without even touching your brakes. This can make you "rusty" and unprepared. Therefore you will profit from brake practising every time you are out riding. Practising gives you good working habits. To practise safely on the road you must make sure you do not disturb other traffic. If you want to practise real emergency braking, find an area devoid of all traffic – a restricted area with lots of space, allowing you to err without unwanted consequences.

Exercise 1

Conscious practising with front brake only. Brake preparedness means to move your fingers to the brake handle and carefully take up the play in the handle. Practise brake preparedness consciously every time you approach a situation where danger can be expected. The goal is that you always apply the front brake first and have the shortest possible response time. Practise using the front brake in all speed reductions when you are riding.

Gradually increase brake pressure, for example by braking a little later when approaching a familiar curve on the road. Do it gradually. Make sure you are always comfortable and in control. Watch your riding position and your eyes. Consciously assume braking preparedness every time you approach a road crossing where you expect to have to stop completely. Be alert and always make sure the bike is in complete balance. If it is not, you will have to adjust riding position and the way you use your eyes.

Exercise 2

Get familiar with the rear brake. If you have a bike that does not stop effectively with front brake only or a motorcycle with much of the weight on the rear wheel, you must practise rear brake use. It is absolutely necessary, for instance when you ride with passenger and/or luggage.

Learn how much pressure you must apply to the pedal in different situations to make the rear wheel lock. Lock the rear wheel for a short moment, then let up. Practise until you feel confident about brake pressure. Learn to identify locking both on dry and wet surfaces, blacktop and gravel. Practising with the rear brake should be done very carefully.

Exercise 3

Combined use of front and rear brakes. Notice that the rear locks earlier when you apply front brake as well, because you transfer much load to the front tyre. Have your focus first and foremost on the front brake. See if you are able to apply the proper pressure on the rear at the same time.

To make do with the front brake alone is the best. That gives you only one brake to focus your attention on, when you're in trouble. Anyway, the front brake is absolutely the most important one and must be given priority. But if your motorcycle has a considerable part of its braking effect at the rear wheel, you must practise to use it effectively.

Exercise 4

Braking in a curve. Choose a familiar curve on the road on a day with dry surface. Choose a

speed that makes you feel comfortable, so that you have ample road grip and wide margins. Brake carefully with the front brake. Notice how the bike wants to stand up when you brake and steer straight ahead. The steering becomes heavy, that is, it feels reluctant to steer. When you become familiar with this reaction, try to oppose this stand-up tendency by simultaneously countersteering to make the bike follow your intended course through the curve. Practise until you are comfortable balancing the stand-up tendency with pressure on the handlebar.

You have complete control under braking in a curve when you are able to find the right balance between braking pressure and steering command, so that the bike both brakes and steers and is in complete balance at the same time. This is the best way to perform a controlled braking in a curve.

Exercise 5

Braking in a curve. Imagine that you suddenly see an obstacle in the curve in front of and you have to brake hard. You have become familiar with the motorcycle's tendency to stand up when you brake while the bike is leaned over. When you have to brake hard, you can consciously use this stand-up tendency. Remember that in order to use your entire grip to brake, the bike must go straight ahead.

Start at moderate speeds and moderate braking. Brake carefully with the front brake, the bike stands up, brake hard until you have reduced the speed as much as you want, release the brake softly and steer into the curve again. Notice that when you have reduced your speed and release the brake, the bike steers effortlessly into the curve again. Be sure your riding position is correct.

Gradually increase speed and brake pressure until you feel comfortable with this technique. If you feel most comfortable in right-handers, start there. When you master them, start practising in left-handers. Remember that the goal is effective speed reduction, not necessarily braking to full stop.

Exercise 6

Braking and swerving is best practised in an area free of traffic. You can still practise the technique and establish the working habit when you are out riding on the road. Make sure you are alone on the road. Choose a point on the blacktop ahead of you, for example a repair patch. Brake carefully on your way towards the chosen point. When you get closer, release the brake softly. Swerve by applying a light anchored push (steering command) and throttle control. Immediately straighten the bike with a new steering command the opposite way, follow up with a new steering command/throttle control and steer the bike back to your original course. Be conscious that you anchor yourself on the outward footpeg, give a precise steering command and immediately follow up with throttle control. Gradually increase the force with which you swerve and the quickness in the manoeuvre.

You also must practise real emergency braking combined with swerving. But then you need an area with lots of space and no traffic. In the chapter "Exercises in a secluded area" you will find a description of two good exercises.

Acceleration

Complete control under acceleration also demands knowledge and practising. Some times, too weak acceleration can be as bad as too hard acceleration.

Under acceleration much load is transferred to the rear wheel. This gives you a good road grip for speed increase. At the same time, the front wheel is unloaded. This can lead to steering problems and front wheel lift. The engine power is transferred to the ground through the contact patch between rear tyre and the road surface. This power propels the motorcycle forward. The rear tyre is literally trying to "pass" the rest of the bike – under it. The motorcycle's mass is "holding back" higher up, in such a way that the bike tends to lift its front wheel. By extreme acceleration the bike may lift its front wheel high in the air, even somersault. With passenger and luggage its tendency to "wheelie" increases.

Riding position

The tendency to wheelie under acceleration is related to the bikes centre of gravity, its actual mass centre. If you ride upright, high in the saddle, the mass centre will be high up. Under acceleration the body's mass (inertia) will hold it back. If you sit upright and hang on to the handlebar under acceleration the bike wheelies more easily.

Acceleration:
Full control during hard acceleration demands correct riding position.

To have complete control under acceleration, your riding position must be right. Lean your body forwards and anchor yourself on the footpegs. This moves some of your body mass forward and downward and you feed much of your weight into the footpegs, low down, disinviting wheelies. Your arms shall be relaxed, your grip loose on the handlebars and your eyes

far ahead.

Choose the right gear

As you know, the motorcycle's power depends on engine speed and gear. Almost all motorcycles increase their power with increased engine speed all the way to redline. A high gear and low revs gives the bike weak acceleration. A low gear and high revs gives the bike strong acceleration.

Acceleration by passing

Proper acceleration is crucial for safe passing. Too weak acceleration can be as dangerous as too hard acceleration. You want to pass quickly and safely in complete control.
To plan ahead, see the possibility for passing early and then use the free stretch of road effectively. This is the key. A common error is to start the passing manoeuvre too late. That puts you in a hurry in the end phase. Another error is to start out in too high a gear and not get sufficient acceleration. That too hazards the end phase of the passing. Starting out in too high gear often leads to hectic downshifting midway. Then you lose time and speed and distance covered. A fourth problem is too hard acceleration in the initial phase. You can easily loose control because the front wheel hardly touches the ground and you cannot steer. A successful passing is planned ahead in time, well prepared with correct gear and distance to the car ahead, and starts as early as possible when the chance occurs.

Accelerating onto the motorway

Whether you are entering a motorway from the ramp or entering another high-speed road, you have to choose an appropriate gap in the row of vehicles and quickly accelerate to the needed speed to enter it safely. If you accelerate hard on entering, the bike tends to go wider than you want it to. You must correct for this tendency by anchored push, more steering.

When accelerating onto a road with much traffic from a standstill, you also need to master both clutch engagement and throttle control, in order to get the needed acceleration and not stop the engine in a critical moment. In order to fully exploit the "anchored push" in such a curve from a standstill both your feet must come quickly onto the pegs, as soon as the bike moves forward. In the chapter "Exercises in a secluded area" you will find an exercise to practise for this type of situation.

Acceleration exercises on the road

Exercise 1

Acceleration on a straight road. When you travel straight stretches of road with no traffic, you can practise acceleration and riding position. Choose different gears and make yourself familiar with the bike's power in different gears and speeds.

Be conscious of your riding position. When you give throttle, lean your upper body forwards so as not to "hang from the handlebar". Tension the muscles in your abdomen and lower back to counter the "pull backwards". Transfer some of your weight to the footpegs. Anchor yourself by hugging your knees around the fuel tank. Make sure that your elbows are loose and that your grip on the handlebar is relaxed.

When there is no other traffic on the road, you can simulate a passing. Choose a point where you want to start the passing manoeuvre. Choose a gear that gives you smooth power. Do the proper visual search and use your indicator as if it were a real passing. Carry through with the passing manoeuvre and return to your lane. Do not forget to use your mirrors and check the "blind zone".

Exercise 2

Entering motorway or two-lane highway. Choose gear consciously. Keep an eye on the speed of the traffic on the road. Accelerate quickly, get into the gap and adjust your speed to the other traffic. Focus on riding position and gear. To get into the gap in the traffic should be totally relaxed and undramatic. Use of your eyes, riding position and right gear are the keys.

Exercise 3

Riding with passenger and luggage. Instruct the passenger about how to act when you accelerate. Your passenger may disturb the bike as much as the driver. Remember that also the passenger's body feels like it is pulled backwards under acceleration. The passenger must also anchor himself on the footpegs and lean forwards during acceleration. Calmness, predictability and smoothness create balance and safety.

When the motorcycle is loaded with passenger and luggage it behaves differently from when you ride solo. It is heavier, accelerates slower, has a higher centre of gravity, increases tendency to wheelie and steers slower. Listen closely to what the motorcycle tries to tell you. In the chapter "Exercises in a secluded area" you will find a very useful acceleration exercise.


SALOMA

Other aspects of riding technique

To ride a motorcycle is a demanding sport. Good machine control is necessary to become a skilled and safe rider. But, rider competence is much more than riding technique. Below you will find some short reminders of other aspects of riding proficiency. More on this type of subjects is found in the textbooks used in the rider education.

Road grip

The contact patches between tyre and road surface are approximately the size of the palms of your hands. The friction in these patches are called road grip. Dry road surface gives you good grip, wet surface offers less grip.

Correct riding technique is crucial whatever the road condition and even more important on wet road than dry. Conscious throttle control in a curve assures maximal road grip and helps you conquer the inclination to roll back the throttle when you get scared. Anchoring on the footpegs gives stability and balance.

Simplified, you have to learn to "trust your road grip". If you do not, your steering commands will be irresolute. Speed adaptation is the key word. With the right speed it is much easier to trust your road grip and fend off the dangerous instincts.

Lane position and choice of line through a curve

You have the right to choose your position within the lane. The situation determines which position is most suitable at the moment. There is no standard solution. You must continuously analyse the situation and choose the position to your advantage. Do you wish to see better? To be seen? Are you waiting to pass? Do you want to avoid obstacles in the road? You need to ask these questions to yourself in order to find the most suitable position at the moment.

Line choice in curves is often debated. Even here no solution is permanent. Position on the approach depends on the circumstances and your needs. The traffic rules opens for using the whole lane width. You must create your own advantages and safety by strategic lane position and line choice.

To think strategically can for example be to ask yourself the following questions:

- Which line will be best in order to use minimum road grip for turning (wet road)?

- How do I position myself to achieve a complete picture of the situation?
- Is it possible that an oncoming car may cut the corner?
- Can I expect obstacles around the curve?
- What lane position do I want to have if I must brake?

One thing is for sure: If you master the precise steering technique, a "wrong" line through the curve is not that dramatic. If you are skilled at precise steering technique you'll be able to make line changes quickly and precisely.

Traffic rules

The traffic rules make it possible for you to predict what another road user will do. Think about it! The traffic rules are thus not an instrument for the Authorities to control your behaviour. They are created in order to facilitate predictability and cooperation. Predictability greatly reduces the chance of misunderstanding intentions, surprises and accidents. Just think about how furious you become when someone else fails to yield. In other words: does not behave predictably.

- Are you predictable to other road users?
- Do you actually have the speed that the car driver on the side road expects when he is entering your road?
- Do you give him a chance to assess the gap correctly?
- Remember that you look small and farther off than you really are.
- How do you think the car driver will react if you have a speed far over the normal speed in the situation?

Speed choice

You must be able to detect, react to and act on what you meet on the road. Your ability to do so depends on your speed. Speed adaptation is about choosing a speed that:

- Enables you to maintain a complete picture of the situation
- Enables you to detect hazards in time
- Enables you to stop when a danger shows up
- Gives you confidence to trust the road grip
- Makes you confident enough to practice throttle control in every curve
- Enables other road users to judge correctly how far off you are (distance)
- Takes into account the well being of people who live along the road

Technical control of the motorcycle

Your motorcycle is an extremely able partner – if it is in technically good shape. It does not matter how good you are if the bike is not technically able to do its part of the job. Make technical control a daily drill. Learn to interpret the bike's

language. The feedback it gives you. It tells you all the time how it is. Motorcycle magazines and textbooks tell you a lot about technical check routines. Read it and practice. Here are six simple, but important points:

- Do all lights, signal lights and warning lamps work?
- Is air pressure in the tyres correct and thread sufficient?
- Do the brakes "feel" normal?
- Is the drive chain oiled and have correct play?
- Any leaks from brake system, suspension or engine?
- Any odd sounds from the bike?

Riding with luggage

The properties of the motorcycle are influenced by mounted equipment and luggage. With luggage, the mass centre becomes higher. The danger of front wheel lift increases. Heavy luggage should be placed in the tank bag or low in the saddlebags. Only light items in the top box. Acquaint yourself with the motorcycle's properties when loaded: how it steers, mass centre, braking behaviour and stability. Consider this when riding.

Luggage can be dangerous when not properly secured. Many riders bungee their sleeping bags on top of the saddlebags. This is not good enough. Some times sleeping bags have moved, come in contact with the sticky rear tyre and been "sucked" in to block the rear wheel! Use both bungees and straps with solid buckles. Check your luggage often.

Out of hibernation

No matter how seasoned a rider you are, you must re-practise skill and smoothness after the winter break. Your body forgets a lot during winter. Your head too. Give yourself plenty of time to wake up dormant knowledge and skill after hibernation. Practise braking – watch out for the "heavy right" (the car-foot). Find the right riding position. Be especially conscious about each of the elements of riding technique. Repeat risk factors, for example that many car drivers fail to yield to motorcycles – especially in spring.

Force yourself to ride the first 500 kilometres slower and more consciously than you used to at the end of last season. Rebuild knowledge and skill systematically. The faulty instincts are especially active in spring!

Borrowed or rented bike

Not two motorcycles are alike. You must get acquainted with each one. Be humble and take time to learn the properties and language of the unfamiliar bike. Many accidents happen on borrowed or rented bikes. Be restrictive about lending out your own motorcycle. Restrict yourself and learn the new bike if you yourself borrow or rent a bike.

Riding in the rain

Rain reduces sight and road grip. If you are worried about road grip, watch out for the dangerous instincts: the urge to roll off the throttle, the temptation to sit straight up and cling wide-eyed to the handlebar and the fear to give steering command. All of these instinctive actions only make the situation worse. Throttle control rules, also when the road is slippery, but you have to be very smooth and soft with throttle.

If sight is reduced, you must reduce your speed. A foggy visor makes it even more difficult. Anti-fog inner visors that you stick to the inside of your helmets visor are good help. They work like insulated windows and greatly reduce fogging. They are good value for the money.

Dress properly to keep you snug and dry. Wet and cold you will be stiff and unable to maintain a smooth riding technique. If you are freezing, concentration and attention will also be adversely affected.

Riding in rain:
Throttle control is important, even in the wet

EXERCISES ON A SECLUDED AREA

When you practise riding technique on the road, you have to consider other traffic and practise carefully. A secluded area offers you the possibility to focus on the exercises and practise effectively. You will want an area with a dry surface, hardtop and free from gravel. As you get familiar with the exercises and feel that you master them, you can also perform them on a wet surface.

Below we have described four exercises that you should practise carefully, with lots of space around you, such as an empty parking lot. You can set up the exercises with cones or plastic bottles. In our descriptions we will use the term "cones".

Even here it is important to start carefully and gradually build up confidence and mastery. The goal is to hone your skills at precise riding techniques in order to master difficult situations at realistic speeds. That implies wet surface practising is important. The speed and the braking distances we refer to, will give most motorcyclists ample margins on dry surface.

Before you start, we recommend you to repeat "The basics of a precise Riding Technique" in the chapter "A precise riding technique". Essential terms that you must be familiar with are: counter steering, steering command, anchored push, throttle control and anchoring points. Repeat also the section on riding position and visual focus.

Important:

Do you find it embarrassing to be seen practicing like this alone in a parking lot? Worried other riders may giggle and ridicule you? Well, rise above it – your goal is to become a good rider, isn't it? Well, then you have to exercise.

The practising ground

A suitable area may be a large asphalt paved parking lot or the like, big enough to set up a marked area 110 x 50 m. The exercises are set up with chalk, cones, coke bottles of something of the sort.

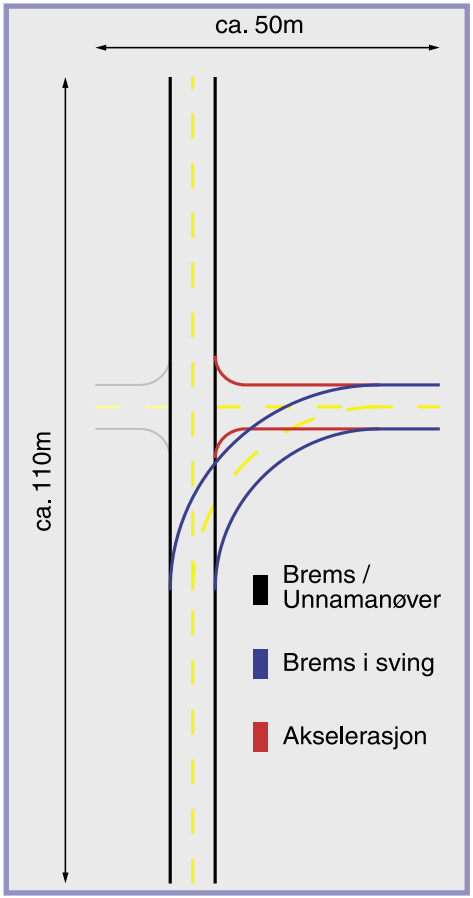
It is important to have enough space lengthwise to stop safely after each manoeuvre.

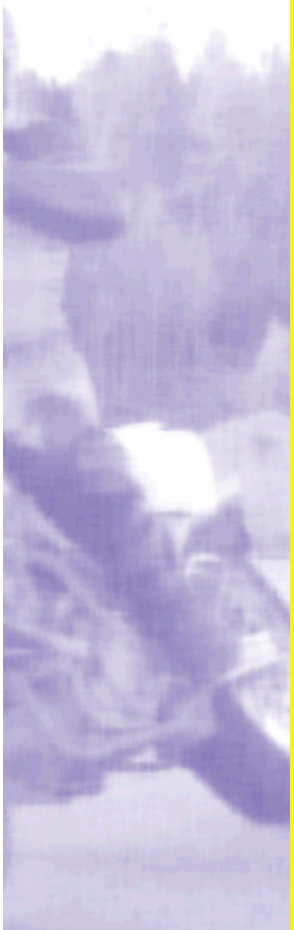
Swerving:
Length: about 100 m
Width: 6 m

Braking to full stop, straight:
Length: about 70 m
Width: 3 m

Braking in a curve:
Length: about 90 m (incl. 40 m curve)
Width: 3 m
Radius of curve: 25 m

Acceleration:
Length: 30 m
Width: 3 m





EXERCISE 1:
SWERVING FOR A CAR THAT FAILS TO YIELD

The exercise gives you the possibility to master a quick change of direction by anchored push, throttle control, anchoring points and correct use of your eyes.

The 30-m long area simulates a 6-m wide road with mid line and border line. At the starting point two cones are placed 3m apart, on both sides of the 3m wide right lane so as to form a gate. About 15 m further down you create a similar "gate" that spans the left lane. Another 15 m further you make a third "gate" in the right lane (see illustration). You need about 50 m room for acceleration.

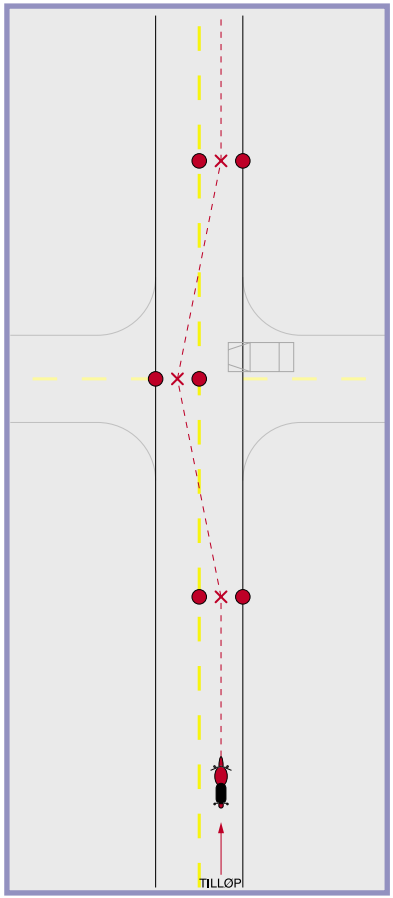
You accelerate to about 40 km/h (2nd gear?). Exactly in the middle of the first gate you shall perform a quick and precise change of direction towards left, by an anchored push. Using throttle control, anchor points and your eyes to where you are going, you ride a straight line to a point midway between the next two cones.

Exactly when you are in the middle of gate two, you make a quick and precise change of direction towards the right, and ride a straight line to the midpoint of gate three. At that point, you change direction again, quick and precise, to ride a straight line, exactly in the middle of the right lane.

The exercise is correctly performed when the motorcycle changes direction midway between the cones and follows a straight line from gate to gate. It is not properly performed if your line looks like a banana, that is slow, wide curves; which is what you get if you do not actively use anchored push to make the bike turn. Neither is it correctly performed if you do not hit the middle of the gates or your speed drops to less than 30 km/h.

The goal is that you realize how efficient the anchored push technique really is and to master the technique to achieve effective avoidance of a hazard. The effectiveness of your steering command depends on your anchoring on the outward footpeg. Throttle control makes the bike steer willingly, which is essential for quick change of direction.

Swerving: *Between the second cones you should steer firmly to the right*



Swerving:

Length:	*30m +*
Width:	*2 x 3m*
In-run:	*50m*
Distance between cones:	*15m*

Cone:
Steering point:
Correct line:

EXERCISE 2:
OPTIMAL STRAIGHT LINE BRAKING TO A COMPLETE STOP

Even in this manoeuvre, cones are a great help. The exercise will train you, by correct application and modulation of brake pressure, correct riding position and correct use of your eyes, to perform an optimal emergency braking to a complete stop.

You can use the same area as in exercise 1. Gate 1 marks where you start braking. Gate 2 is moved in line with gate one and the distance between them is 12 m.

You accelerate to 50 km/h. When your front wheel is between the cones in gate 1, you activate the brakes. Whether you use only front brakes or a combination of front and rear brakes, depends on your bike. If you ride a modern sport bike, for example a Honda CBR 600, it is quite natural to use only the front brake.

If you ride a Harley-Davidson Soft-Tail, you will have to apply both front and rear for optimal retardation. Whichever bike you ride, you must learn to brake in a straight line and to a complete stop in the shortest possible distance. At 50 km/h you must be able to stop within 12 metres.

The exercise is correctly performed when you brake optimally by correct brake pressure and without locking either wheel. You must also be able to keep the bike absolutely straight, along a straight line, by correct riding position, correctly feeding your weight into the fuel tank, loose arms and eyes level. Your feet shall stay on the footpegs at all times. A short, controlled locking of a wheel is OK as long as you quickly reduce brake pressure to make it roll anew.

The exercise is not correct if the whole braking is done with locked wheel(s), if the handlebar flips to one side, if the bike does not follow a straight line or if you have to set your feet down before the bike has come to a complete stop.

To master optimal braking at 50 km/h is an absolute minimum! It would be wise to practise maximal braking at highway speeds 90 km/h).

You just increase the distance between gate 1 and 2 according to speed. You also need some more room for acceleration. Increase gradually so that you are in complete control at all times. Ask yourself this question: if you are not comfortable with hard braking at 50, how do you dare the high speeds on the highways?

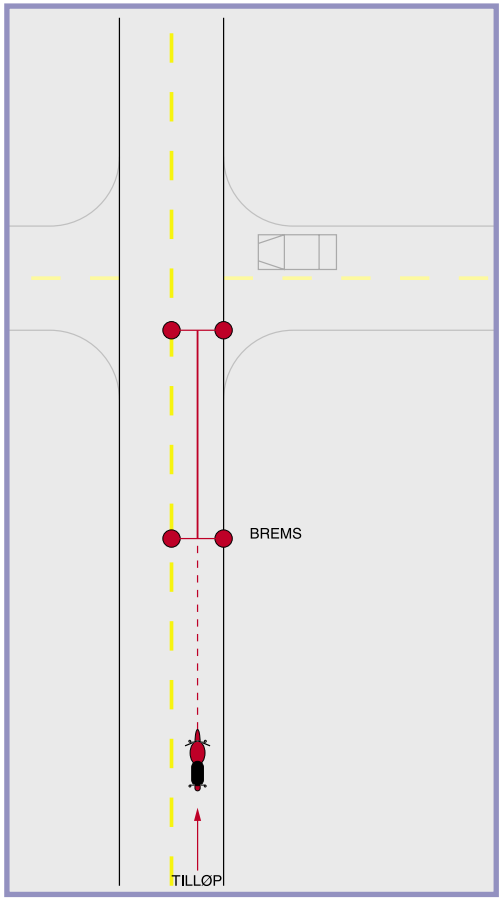
- From 50 km/h you must be able to stop within 12 metres
- From 60 km/h you must be able to stop within 18 metres
- From 70 km/h you must be able to stop within 24 metres
- From 80 km/h you must be able to stop within 32 metres
- From 90 km/h you must be able to stop within 40 metres

These stopping distances pertain to dry asphalt surface and should give you ample margins.

Hard braking:

Length:	*12m +*
Width:	*3m*
In-run:	*50m*
Distance between cones:	*12m*

Cone:
Correct line:



EXERCISE 3:
BRAKING TO WALKING PACE IN A CURVE

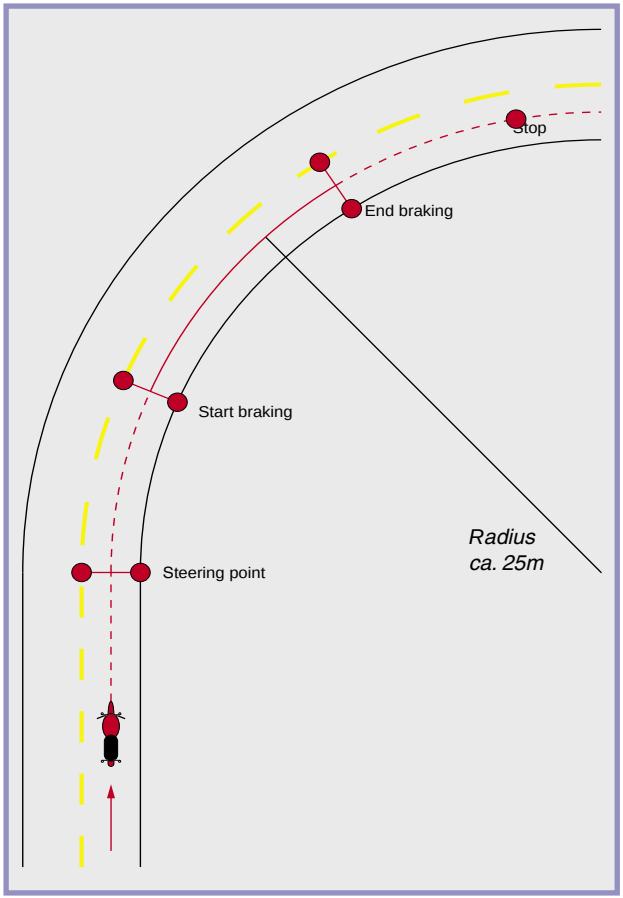
This exercise teaches you, by use of anchored push, anchoring and correct use of your eyes, to compensate for the outward drifting that arises when you have to brake in a curve.

Set up the exercise with a 3-m wide ”lane” with border lines. Use chalk, cones or plastic bottles. Room for acceleration and starting point as in exercise 1. After the starting point the ”lane” goes into a curve with a radius of 25 m. (Measure it out with a 25-m length of string). The two cones at the starting point represent the steering point. 10 m further down you place a gate to mark the braking point. Still 15m further you place a gate to mark where you stop braking. And finally, 10m after that the end point is marked with a single cone in the middle of the ”lane” (see illustration).

Accelerate to 40/50 km/h. Between the cones in gate 1 you start the curve by the anchored push technique. In gate 2, you start braking down to walking pace by applying the front brake. You should not stop the bike completely, as this easily leads to a fall and unnecessary damage to the bike. When you pass gate three, the bike shall point to the last cone in the middle of the lane.

The exercise is correctly performed when the speed is maintained until you enter gate 2 (the braking point), when you brake in complete control down to walking pace and the bike follows the exact middle of the lane. When passing gate 3 the bike should point directly at the last cone.

The exercise is not correctly performed when the speed reduction after the braking point is not considerable or when the bike at the approach to gate 3 is drifting out of the lane towards left or right. The exercise is a complete failure if the motorcycle at any point crosses the border line. You can also “turn” the exercise and practise braking in a left-hand curve.



Braking in a curve:

Length:	*35m +*
Width:	*3m*
Radius:	*25m*
In-run:	*50m*
Between cones:	*10+15+10m*

Cone:
Correct line:

EXERCISE 4:
TURNING RIGHT AND LEFT WHILE ACCELERATING FROM A STANDSTILL

The exercise enables you to master entering a highway with speed limit 80 km/h and dense traffic, from a side road, from standstill, by correct use of anchored push technique, throttle control, anchoring points and correct use of your eyes.

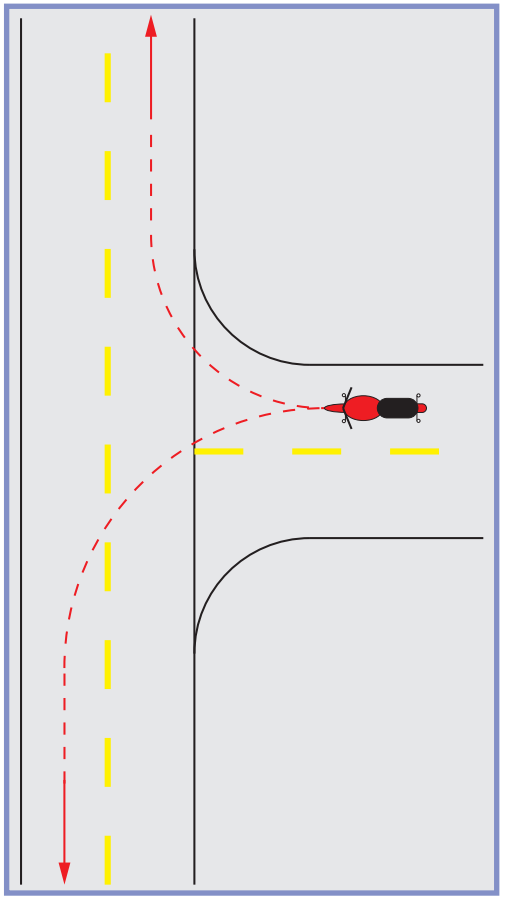
The track is 3m wide, does not demand room for acceleration and can be set up as in the illustration. You shall make a quick start and immediately place your feet on the footpegs. The starting phase is controlled by clutch and throttle. The bike is to be steered to the right (and left) by use of anchored push while at the same time increasing throttle opening. Your sight should be far ahead and point to where you want to go, namely to a place in the middle of the right lane on the road you enter.

The exercise should be practised both right and left, that is a right turn with acceleration from standstill and a left turn with acceleration from standstill.

The manoeuvre is correctly performed when you immediately put your feet on the footpegs, accelerate considerably and follow an imaginary line exactly in the middle of the 3-m wide lane.

The exercise is not correct if your feet drag or "paddle" or if the bike does not accelerate sufficiently. It is also failed if the motorcycle ends up outside the lane to the left or right.

Accelerating and turning from standstill:
Put feet on pegs immediately after start

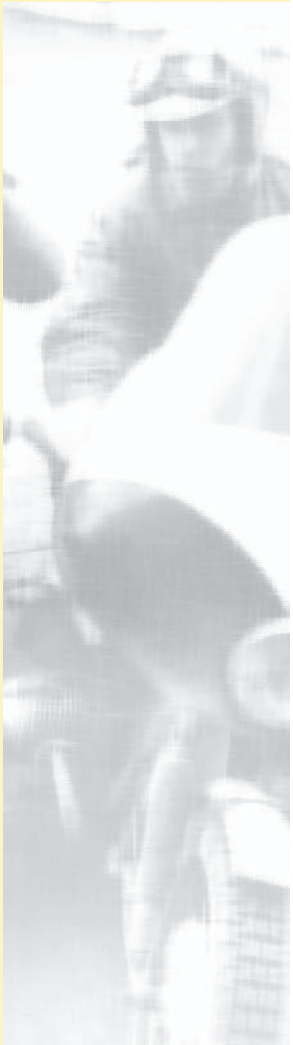


That was the chords: Now you can start composing your song

Acceleration and turning from standstill:

Length:	*ca. 30m +*
Width:	*3m*
In-run:	*0*

Correct line: – – – – –



The traffic game

There are those that equate never experiencing dangerous situations in traffic to being a good road user. At the same time there are motorcyclists who only narrowly escape being killed every day, without even knowing that they were involved in a dangerous situation. It is not only a well-worn cliché to say "to ride a motorcycle is to think motorcycle". If you don't use your head in traffic, chances are that you won't bring it home safely.

Riding a motorcycle is in the highest degree to actively participate in your own transport. You

***Interaction**: Traffic is complex interaction demanding "players" to learn the rules of the game - and comply with these rules.*

should ride with a high degree of self-awareness and demand your own space on the road and in traffic. Since we ride the smallest vehicles, our self-awareness must be higher.

A dialogue without words

Actually, one can compare a using a vehicle in traffic with a game. Let's call it the Traffic Game. It's an unusually nice game for those who know the rules and like to play. But, like any other game, you should know the rules to appreciate the game. In the traffic game, they consist of a mixture of formal traffic rules and the road users' own unwritten rules.

The first category is easy to understand, but they are nevertheless enshrined in every national traffic regulation and will, so it is thought, act as a common tool in the traffic. The traffic rules have been designed to create predictability. They give you the opportunity to predict the actions of other road users.

The traffic rules create predictability and an opportunity for interaction. Predictability reduces the risk of misunderstandings, surprises and accidents. Imagine how pissed off you are as a motorcyclist when a car driver does not respect your right of way - in other words, does not behave predictably. You don't use, for example, indicators just because it is written in a paragraph. You use indicators to give a signal to other road users that you are planning to turn right or left.

But whether you use the indicator switch or not you send signals to other road users. For example by the speed you chose. It is fair enough that you find the speed limits too low and that you feel that they delay your journey. But you can't suspend them and create your own rules that other road users do not understand.

In order to be an active participant in the traffic game, it is important to "speak" a language that everyone understands. If you fail to perceive and understand the signals given, it is easy to become an outsider. Then you have to add a lot of concentration on something other than riding the motorcycle.

***Wordless**: One has to learn how to communicate with other roadusers without using words.*

It is not wise using your motorcycle to educate taxidrivers and older men wearing hats. You are smaller and have more to gain by being friendly.

A good example of such exclusion, in what we might call an "advanced traffic game", is the air traffic controllers at Charles de Gaulle airport in Paris. They consistently talk French to the French pilots, although the official language in the air is English. This means that all other pilots who do not understand French are excluded from large parts of the "advanced traffic game" that takes place in the skies over the French capital.

Basically it's all about teamwork. If you understand the game, you can save both your own skin and the skin of the other players. Indeed, the actions you perform in traffic also affect the other players' actions. Therefore it is wise to give clear signals and actively invite to the dialogue without words. And with a dialogue without words we don't mean to be rude and give the finger to cocky taxi drivers.

On the German autobahn you soon discover the extreme version of the traffic game. You do not suddenly change lane if you see a bright red Ferrari doing 250 km/h in the other lane in your mirror. It is not necessarily only the other road user's responsibility to take you into account – it is also your responsibility to look after them. Remember that you, as unprotected motorcyclist, are the one who has most to gain from a more forgiving traffic environment.

***Teamwork**: Being vulnerable road users, riders are dependent of teaming up with motorists.*

To see and be seen are basically the same as to understand and be understood. A good example of being seen and understood is when approaching a zebra crossing where someone obviously has planned to cross. Then it is wise to slow down, gradually, well before the zebra crossing. Then you signal with all possible clarity for the pedestrians that you have understood the situation and that you intend to let them pass.

There are motorcyclists who ride with a philosophy that"if the others do not notice that I exist, I'm pretty happy - and if I am to be noticed it shall it be in a positive way". It's basically a noble thought, but if it is going to work in practice it is

necessary to know both the written and unwritten rules. Besides, one must always be careful to invite the other road users to the dialogue without words. But you should still never take for granted that it will work every time.

In short, it's not smart to force other road users to undertake unexpected actions because you didn't give them clear information about what you were supposed to do.

Although it initially may seem as if you have a clear path - where you, for example, have placed yourself in order to overtake a long truck, it can nevertheless happen that a car suddenly appears in the oncoming lane. Then you are at the mercy of the truck driver, who if he is aware of the situation, can slow down and let you sneak in front of his grill.

But the opposite can also happen. Many motorcyclists have experienced aggressive car drivers who instead of showing helpfulness, step on the throttle and refuse to let you pass.

Right place at right time

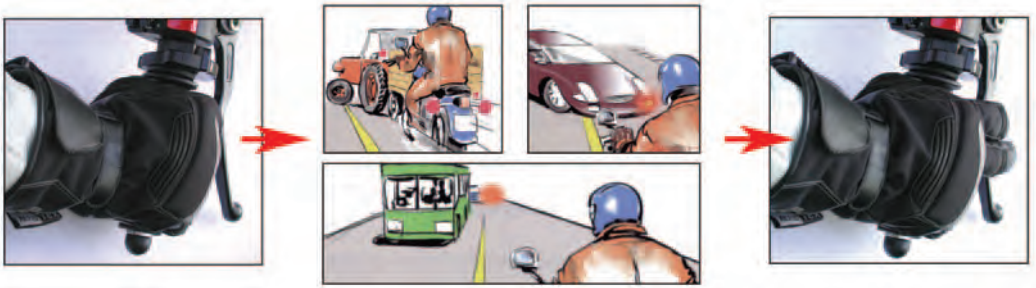
One of the main tasks as a motorcyclist is to understand and perceive the risks. From initial rider training you might perhaps remember a term like "the riding process". It is about seeing, perceiving, deciding and acting. To be able to act you must be prepared. Preparedness could, for example be that when you perceive something dangerous, you automatically move two fingers to the hand brake lever - without releasing the throttle. In reality, you have not really done anything at all, but you have nonetheless effectively put yourself in a state of readiness.

Preparedness is also to create the safety zone you need as a motorcyclist to correct your own or other road users' mistakes. Without preparedness, you will not have enough time for action. Experienced motorcycle riders instinctively know what to do in most situations and are always attentive to having enough space and time to perform the necessary actions. Remember that something as basic as emergency braking is as much in the head as in the two to three fingers you have placed on the brake lever. Readiness to brake gives you a time advantage, and time means space.

In order to create room for manoeuvres you must be able to control the bike and to get it where you want it to be. In other words: The worse your riding technique is, the less space you will be able to give yourself.

We have already concluded that time allows space and even though you may not have experienced that a truck suddenly appears on your left, most riders instinctively know that to be in the right place at the right time is essential for a motorcyclist. It is all about not being in the same place, at the same time as another road user.

Therefore, you should always ensure that you



Emergency preparedness *: You interpret a situation as potentionally dangerous and automatically move to fingers to the brake lever.*

have the possibility to perform the actions you want and don't let others decide what to do. The key words here are visibility, safety distance and the necessary time and space to correct your own or others' mistakes and errors.

To ride and kiss the tail lamps of the car in front of you and then overtake it is, for example, pretty stupid. Manoeuvres like that block others from participating in the traffic game. The motorcycle is basically a flexible and manoeuvrable vehicle, but often bikes are left too little room for manoeuvres from other road users. And it doesn't matter how big and important you may feel when you ride your bike, you as a motorcyclist will always be the weaker part. Like it or not, but that is the reality. Not even a Gold Wing-rider, stuffed like a Michelin man, can expect to survive in a harsh and unexpected encounter with a truck without getting wounds to both their self-reliance and their motorcycle. That unexpected situations occasionally may occur on the road was obvious to the inhabitants of a small European town a few years ago, when they got their first roundabout. It was built according to all engineering rules and a nifty stone sculpture was placed in the middle. On the opening day an elderly motorist was asked what he thought of the first roundabout in the city. He said:

"Well, it's beautiful. But it is very narrow when you meet oncoming cars".

Acting clearly and destinctively makes it easier for other roadusers to understand your intentions. To be seen is often about making oneself understood.

As a new motorcycle rider, it might be difficult to understand that the other drivers don't see you. Unfortunately, the traffic game is not always played by its own rules. Thus it is important that we, as motorcyclists, ensure that we always make ourselves as visible as possible for the other road users. One important factor is our position on the road.

You are riding in the right lane on a highway. Suddenly you decide to change lane, but instead of just throw yourself out into the other lane, you accelerate and slowly move towards the centre line. You place yourself there for a few seconds to double check the blind spot and then change lane. Imagine what a difference this means for car drivers in the left lane. Such behaviour creates predictability and visibility and benefits both you and other road users. Another good example is to place yourself on the far left side of the lane for a "blind" right turn in order to get a better view at a long distance.

A well thought-out riding style means that you have the chance to make alternative manoeuvres, and can, in an emergency use the famous plan B. But you do not have a chance even thinking about plan B if you have not put yourself in readiness - or if you do not have the necessary riding skills.

Good to see you

If you disregard towns with tens of thousands of mopeds and motorcycles like Saigon, Bangkok or Rome, it is actually quite easy to ignore powered two wheelers (PTWs) in the daily traffic picture. Although motorcycles are well beyond the threshold of visibility, they are amazingly often overlooked by motorists.

***Visibility**: Several producers of high quality riding gear offer models with high-viz details on arms and shoulders.*

One of the reasons that drivers "do not see" motorcyclists is that a motorcycle is not perceived as a physical threat for the motorist to the same extent as for example a truck. It is not by intent that the motorcyclist is overlooked. Two classic situations where motorcycles are likely to become "invisible" to the motorist are when the car is making a left turn or enter a priority road.

Unless you look at actively make yourself visible to the other road users, you cannot expect that they will see you. Riding in the middle of the road behind a truck is, for example, a bad idea, both in terms of being seen and for your own vision. If you are not visible, you have automatically missed a part of your preparedness.

Where you place yourself on the road is of great importance to your safety as a motorcyclist. Being in the right place also makes you bigger than you actually are. You don't have to be nuclear physicist to work out that an object that is moving relative to the background is more likely to be discovered than one that stays still. If you have an urgent need to be seen, it is a smart to move sideways on the road, doing slow pendulum motions from side to side. When you are riding behind a car, it is important to ensure that the car driver can see you in his mirrors. Try to ride in a way that you always will be seen, either in his side mirrors or rear view mirror.

Motorists often throw their vehicle illegally into the buslane, right in front of riders

Hi-viz vests are no longer just for road workers and police officers, but are now used by many

motorcycle riders in the belief that they are easier to be seen. Of course it does not hurt to use a hi-viz vest, but it can also give a false sense of safety. Often it is actually few who can see that you have a vest on you when you sit behind fairing and windscreen ore are hidden behind a sturdy top box.

There are motorcyclists who rely on high beam to be seen, where others rather think that it's just idiocy. As long as it does not dazzle others, the high beam can be useful when, for example, overtaking a queue. But don't expect all motorists to discover you for this reason. We do not live in a perfect world and therefore we must relate to the traffic situation where we are in the moment.

***Lane-splitting**: If lane-splitting makes you insecure, why don't you just stay in the queue?*

Slow moving queues

It is incredibly boring to be stuck in a traffic jam. Many chose to ride a motorcycle instead of sitting in a cramped and hot car. In most European countries it is not forbidden to ride between cars standing still or moving slowly in a queue in same direction. This is called "filtering". Filtering can be a risky activity and requires a substantial amount of good nerves, good riding techniques and a high level of attention. Good balance is a prerequisite for success. It is both dangerous and embarrassing to suddenly hit a car to the right or left of you, just because you didn't manage to keep your balance. An important rule is: Look far ahead - clutch and throttle control.

You should also keep in mind that car drivers stuck in a traffic jam can become aggressive. They would never take out their aggression by ramming the car in front of them, but they might consider blocking motorcyclists that filter.

Some use the high beam light when riding between cars in a queue and this can be a wise to signal what you are doing. But don't take for granted that every motorist will see you in the mirrors. Nevertheless, be sure to thank motorists

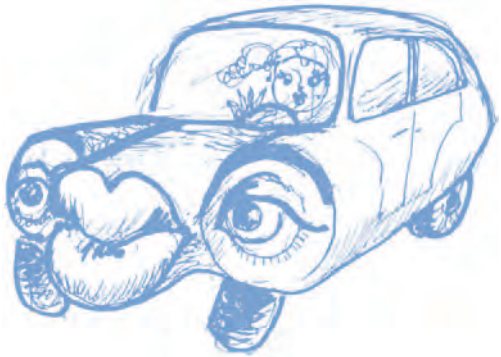
that see you and allow you the pace you need to pass.

If you want to filter with your bike you must be in total control. Both forward and backward, because it is not unlikely that there are filtering motorcyclists who want to pass you. For an inexperienced "filterer" it is advisable to follow in the wheel track of another biker and let him lead the way.

Filtering is an exercise best practiced at low speeds. When your speed is 70 km/h in a 60-zone filtering is both silly and forbidden. And remember that it is not shameful to stay in the queue - but it is time consuming and not least, very, very boring!

Regardless of what some believe, the bus lane is not a free zone where motorcyclists can do what they want. Some European countries and cities allow motorcycles in bus lanes, but you are rarely alone in them. One group is the road users who have their rightful place there, such as buses and taxis. A completely different matter are the motorists who insist on "borrowing" the bus lane when it suits them. They have a tendency to throw their cars into the bus lane, as if they want to hide that they are doing something illegal. Also, those who ride and drive in the bus lanes are also the first to make contact with junctions on the right.

It has become an increasingly common con-



ception amongst motorcyclists that a double road
marking line shall be considered as a separate "motorcycle lane". Some believe that passing such a line is a trifle in the grand scheme of things, but the oncoming traffic does not necessarily have the same view. But you have your full right - when it is not signposted with an overtaking ban - to overtake other vehicles in the same lane, as long as you do not cross the centerline and overtake in a safe way.

Car drivers

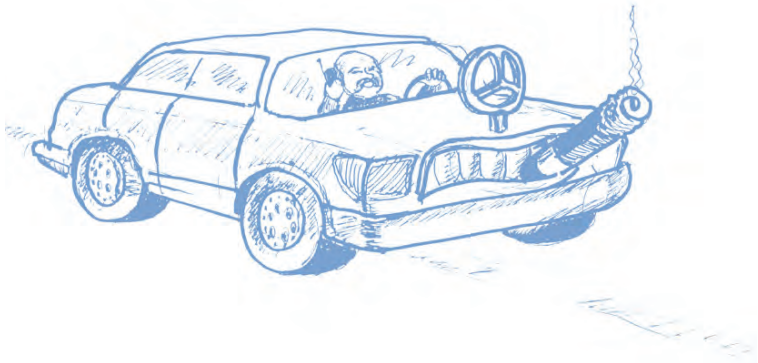
There is a widespread myth among motorcyclists that all car drivers are "stupid" and "bad drivers."

But as much as the theory is known, it is also wrong. Experienced motorcyclists actually rarely or never experience car drivers ignoring them. The veterans take this well known problem into

account in order to give themselves room for manoeuvre, which helps to prevent dangerous situations. In other words, they expect the unexpected and takes fro granted that not everyone follows the rules.

However, it is easy to turn the problem upside-down. Many of us have experienced that motorcyclists can create unexpected and dangerous situations for other road users. As a motorcyclist, you can make motorists scared and dangerous by roaring by a car at high speed without first having given the slightest warning. An equally annoying hazard can be four older men on Japanese cruisers insisting on riding 70 km/h on a 90-road to enjoy the view. In such a situation, you can be pretty sure that it annoys the truck driver who is stuck behind the motorcyclists and has little time to catch the ferry.
Basically it's all about something as simple as acquiring the skill of putting yourself in the situation of other users and show some "traffic empathy."

Some equate never experiencing a dangerous situation in traffic with being a good road user, while others claim that to be a good road user is to never be surprised about the dangers that might arise. If you constantly feel that you end up in dangerous situations in the traffic, it's most likely you, and not the other road



users, who should be blamed. Or as one of our acquaintance's grandfather said with a high degree of self-awareness:

"Every time I was out driving my car there were more and more idiots on the road - until one day I realized that I was the idiot".

Motorists are the majority in traffic and they actually have every right to be there. As motorcyclists we don't pose a threat to them, so we have to be clever find ways round the problems created by inattentive car drivers. We ride on two wheels without protective bodywork around us and must therefore also take responsibility for mistakes made by other road users. Thus, it may be wise to learn and recognize the behaviour pattern for different kinds of drivers. Although it is a little too easy to stereotype different drivers - an elderly man with hat, a Polish minibus, German tourists or a cocky preppie in an Audi Q7 - one must always relate to these drivers and one way or another manage to communicate with them.

Being on the road is a bit like betting. There might be some secure matches, but it's always wise to hedge your bet. One thing you can be sure of is that the worst drivers are the easiest to spot. Signals that tell you to be on your guard are for example: Uneven speed, wobbling in roadway and hesitant driving when entering a motorway. Do not try to educate drivers by using the horn or using the finger. Instead, steer away and give them space.

No matter how annoying it may be, there is usually a reason why the car in front of you drives slowly. It may be a slow-moving vehicle, for example a tractor, or other items on the road that causes the car in front of you to lower their speed. Deer are good for dinner but is less appreciated as a sticky mound on the road.

When you come up behind a slow moving vehicle like a tractor, it is important to be observant, because it can quickly change direction, turn off the road or stop completely. Try to look for signs that may indicate such behaviour. If you choose to pass such a vehicle, it may be dangerous to overtake at full speed. You should rather ease of the throttle and ride slowly by.

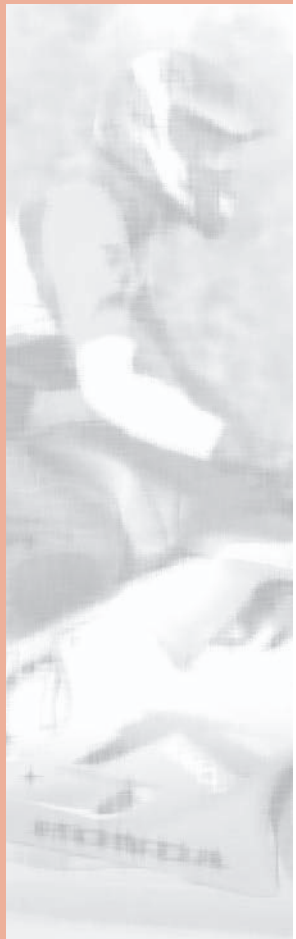
As a participant in the traffic game, communication between the various road user groups is important. One research report says that eight out of ten collisions between cars and motorcycles can be blamed on inattentive car drivers. But it doesn't help that car drivers have the legal responsibility when it is the motorcyclists who end up in hospital. Therefore, motorcyclists have to take responsibility for errors made by other road users. If you don't, the consequences can even be fatal.

Eye contact may be good, but it works poorly with dark visors. It's better to see if the car moves

***Responsibility**: To a certains extent, riders must also take responsibility for mistakes other road users make - and thus make ourselves visible through a conscious riding style.*

Be sceptical to motorists and take responsibility for solving problems they may cause

in a way that indicates that the driver has seen you. If a car is standing still, but quite clearly is about to turn out of the way, it is a good idea to look at the front wheels. If there are any movement or rotation of the wheels, it's a sure sign that something is about to happen. But don't lock your eyes only at one point. It's better to get a comprehensive picture of the situation by using what we call "broad vision" and "wide attention".



Inside the head of a motorcyclist

Take command!

Riding a motorcycle can in many ways be compared to ski jumping. They are both activities that can't be done in a half-hearted manner. You simply can't jump "just a little" in a huge ski jumping hill. Either you jump, or you don't. You must have the courage to do what is right. On the motorcycle, you can't, for example, choose to lean the motorcycle just a "bit" if the corner requires a 30 degree lean.

We have already concluded that a motorcycle is a flexible and manoeuvrable vehicle. But it's of little help little if you aren't able to manoeuvre it where you want it to go. Or perhaps more importantly, to avoid that the bike goes where you definitely don't want it to go.

Unquestionably it is often difficult to determine who was actually in command: The biker or the motorcycle …?

One example of a situation where you have to be good at taking decisions is when you ride at moderate speed in a residential area and a child suddenly appears on the road ahead. You see the child, perceive that there is a dangerous situation, decide that something must be done, brake and manoeuvre away. You take command!

But you can't make the right choice if you do not have the right tools. Without preparedness there will be no action. And the correct tools when you have to take action are precise and efficient riding techniques. You may be able to plan for a lot, but not everything!

When your mind is fully occupied with receivingand processing information, it hasn't the capacity to think about riding technique. It must function by itself. Automatically. Therefore, the riding technique must be practiced as natural work habits. It is you who should tell your bike what it should do.

But almost as important is not to disturb the bike when carrying out the manoeuvres you have decided. You should also listen to the signals you get from the bike and do something before it starts to protest.

It is not only when speed is high, and the potential dangers can cause fatal outcomes, you should take command. Imagine that you ride on to a packed ferry. The bike is fully loaded for the summer trip round Europe, it's hot under the helmet, the ferry crew are stressing you and the ramp is both steep and slippery. The whole situation feels anything but comfortable but you can't

choose to enter the ramp "just a little". You must have the courage to do what is right and to take control of the situation.

It can be equally unpleasant to enter a motorcycle rally site on a rainy day. Bike fully loaded and the spot where you have decided to put up your tent being on the top of a steep grass-grown hill. If you don't have the speed to ride up the hill without stopping you will fall. However, if you take command and carry through what you had originally planned, the chances of success are generally good.

Taking control is also about riding a motorcycle that you actually manage to master. Regrettably, it is a relatively common misconception that if you buy an R1, you automatically become as good at riding as Valentino Rossi.

Of course, you should choose a bike with your heart, but it is equally important that you also use your head. If you are a short person, you should avoid the tallest adventure bikes. But there are ways to bypass physical barriers. Quite a few bikes can be modified and there are lots of "bolt-on" kits available that allow you to customize a bike to your needs.

You should definitely not ignore buying the bike of your dreams because it might be challenging. Motorcycle riding is first and foremost about emotions, and you will never be satisfied with anything that you perceive as a boring compromise. No motorcycle is dangerous as long as you are aware of what you are doing and take into account that your bike might be a bit too large or a bit too agile.

***The right bike**: If the bike of your dreams is a size too big it is difficult to have "full control".*

Some use excuses to avoid learning proper riding techniques. You can hear people say "they run so gently and so few kilometres per year that they don't need to know very much". Or that they "only ride a cruiser bike". Of course, those arguments are neither valid nor true. Every motorcycle riders must learn precise and efficient riding techniques and dare to use them. And you

When the "harddisc" is busy receiving and processing traffical information, machine control must be automated

have to practise. The license is only a certificate that allows you to practice on your own!

Petrified

The weather is good, the road is nice and your speed is comfortable. A perfect day for just relaxing and enjoying the ride. But then you enter into a curve and suddenly you discover that it is sharper than you originally thought.

The instinctive feeling of danger is so intrusive that you become totally paralyzed. The blood disappears from your head. Your arms and back are completely rigid. It feels as if you have an iron stick in your spine and your gaze is fixed exactly at the tree you definitely do not want to hit!

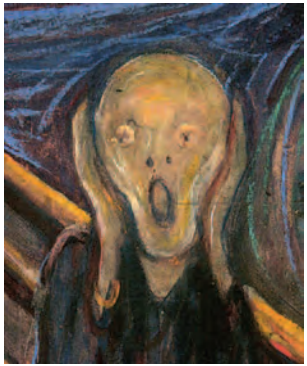
***Petrified**: Blood disappears from your head. Arms are completely rigid. Eyes locked on the object you absolutely don't want to hit. The only thing that can save you is an auotmated efficient riding technique overriding the dangerous instincts ...*

This is a situation the vast majority of motorcyclists have experienced many times. We can summarize the phenomenon as *instinctive reflex reactions*, originally there to protect us from danger. On a bike however, these instinctive reflex reactions makes you petrified and unable to act.

They are reflexive reactions that come automatically, without you thinking or planning them. The human body is not really built to ride a motorcycle. It is built to walk or run. Through evolution, we have been equipped with a series of reflexes that are there to protect us and that strike instantly when we sense danger. For example, you close your eyes automatically when something is moving towards your eyes. And if you touch something hot you quickly remove your hand.

These are subconscious reflexes that could save you from getting hurt. However, when riding a motorcycle of these instinctive reactions can be really dangerous. Instinctive "error" reactions are a major cause of motorcycle accidents. These reactions often make a situation worse. You easily could have come out unscathed if you had only been able to control your reactions. All these

instinctive reactions have enough power to drive away reason and logic and leave us to panic.



How shall we learn to overcome these innate instincts? There are really only three solutions. First, to always be aware that the problem exists. Second, learn to recognize the situations that trigger panic and thus the instinctive reactions. And third, to practice a precise and effective riding technique until it is fully automated. Then the learned habits will overrule and control your dangerous instincts.

The joy of speed

The kicks one can get when riding a motorcycle is for many the very foundation and reason for originally choosing the activity as their personal adrenaline injection. They could instead have chosen, for example, parachute jumping or climbing mountains. However, if your goal of riding a motorcycle is to "show off", you really should consider a different activity. To "show off" is never synonymous with mastering a bike, and big gestures does not mean you have full control - rather the opposite.

Such a riding style usually results in you preventing the bike from doing its job. And one of the reasons for motorcycle riding is the incredibly nice feeling that you get when you feel at one with the bike and are able to control it with tiny inputs. That feeling gives you euphoria like nothing else!

If it's solely the entrance of the next corner that you focus on, you have crossed a limit (and we're not talking about speed limits). You enter into a psychological state where one can lose the sense of time and space and become almost impervious to external signals. In psychology this state is called "flow", and it's not just motorcyclists who may experience this. Such a floating sensation is also quite common with people who get stuck on slot machines or internet surfing.

The condition is characterized is if the sense of time and space disappear, and you have an extreme focus on the task, almost like being in a kind of "tunnel". When you experience this as a motorcyclist, it is becoming really dangerous. It's actually when everything seems perfect that a warning bell should start calling somewhere deep inside your helmet. Experienced motorcy-

***Floating**: The phsycological phenomenon "floating" is fantastic, but dangerous because you tend to ride much too fast.*

clists know what they should do when these warning bells start to ring and they manage to slow down before it's too late. The most honest among us admits to have had experiences like this:

"We were two bikes following each other and we were looking forward to some really nice corners a little further down the road. But suddenly my mate in front of me brakes hard just before the first corner. I thought, what in the world is he doing? I changed down, turned the throttle and was about to overtake him when I suddenly saw the tractor with a long pitchfork that was in the process of crossing the road".

Just admit it, sometimes we go a lot faster than we really want. It's actually quite possible to become intimidated by our own speed. Such a condition is characterized by the riding style becoming more and more inhibited and edgy. Riding over the top of our own capacity can be dangerous when you are out on a ride with others, and the pace is about to exceed your own limits.

Speed is, like many other aspects of motorcycling, about choosing the right time and place. It's easy to be tempted to increase your speed when the traffic in front of you is packed and the chances of overtaking one after the other are there. But remember that there is always something that stops you in the end. The dynamics of such a situation can be illustrated by a true story, which is certainly not unique:

"I was heading north in the dense Sunday traffic, doing 90 km/h until a motorist reduced the speed to 88 and I overtook him in an elegant manner. When the speed of the queue gradually increased to almost 100, I continued to pass cars in front of me, following the logic that, if I'll take that, I'll take that, I'll take that ... In the end I rode so recklessly that I did not dare stop at the next fuel station to fill up the tank. I simply thought that it would be too embarrassing to maybe meet some of the people that I had just overtaken".

Accept a bad day

Some days you can have the feeling that the whole motorcycle is warped. 70 km/h is perceived as 120, everything shakes, vibrates and creaks and the brakes do not work like they should. Days like that you press the horn button instead of the turn signals and smooth corners suddenly feel like squares.

Obviously, something might be wrong with your bike. But often it is just an indefinable feeling in your head. This is definitely not the day to engage in demanding riding.

Try not to urge yourself by saying, "push harder, you need to clear this, you could do this yesterday, keep on pushing". The result will be (at the best) only stiff arms and high shoulders. These days you just have to rely on the riding technique you've learned and take a quiet ride instead.

Sunday morning ride: *If you have a bad day, tell your fellow riders so they can take it into account.*

It can be hard to admit that you have a bad day on the bike. But everyone, even professional riders, experience it once in a while. Sometimes you know it when the bike rolls out from the garage.

You have a gut feeling that this is not your day and it's a feeling you shouldn't ignore. It does not need to be a particular reason, but we know that strong moods can trigger the phenomenon. Therefore it is not advisable to use the motorcycle to let off steam, for example, if you have had a quarrel at home.

Technical anxiety

Technical anxiety usually strikes when you have the least use for it. Additionally it's often reinforced by stress, rain and darkness. It's definitely not fun to ride on the German Autobahn at 200 km/h and suddenly start worrying about whether the chain will go to pieces or if you actually tightened the front wheel bolts.

Technical anxiety is very distracting and takes away concentration from the tasks you have as a rider. The best medicine for such anxiety is regular safety checks on the motorcycle.

It is understandable if you don't acquaint yourself with all the features work on a new wash-

Don't hesitate to inform your riding companions if you have a "bad day" and need a lower pace

The best medicine against tchnical anxiety is frequent safety controls on your bike

***Maintenance**: Good maintenance prevents unwanted episodes and makes the riding experience better.*

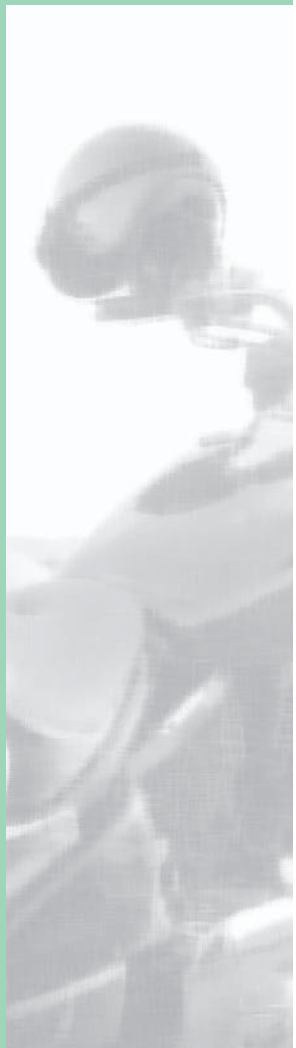
ing machine or a mobile phone. But there is an essential difference between washing machines and motorcycles. The worst result of improper use of the washing machine is that your white shirts turn red.

It is different with a motorcycle, where it can be fatal if you don't learn how it works and how it should be managed. Even if you don't like technical gadgets you really need to read the user manual and learn the most basic elements of maintaining your motorcycle. For example how to check the oil level, to check the tyre pressure (when cold) and to ensure that the chain is lubricated and has the right tensioning. Before every ride.

Check also from time to time, crucial nuts and bolts - especially after you've had the bike serviced in a workshop. There are examples of even truly professional motorcycle mechanics not always having done the job properly.

Also: If you know the bike is in perfect condition, it will dramatically enhance the Good Riding Experience

On a good day, when everything feels right, it is very nice, and very safe, to ride a motorcycle



Always something in the way

Like it or not, but we have the roads we have, and we have to live with them. After all, there is a difference between dangerous roads and bad roads. Poor roads we must live with, dangerous roads we must report to the responsible road authority. If we refuse to deal with the road network that we have, we have to stay at home.

Road traps

This means we must learn to deal with loose gravel on the roadway, cracks in the asphalt and slippery diesel spillage. Therefore it is important that you as a motorcyclist learn to recognize the signals of such road traps so you don't panic when they unexpectedly pop up. The most observant have probably already figured out that once again it's about being prepared. Actually, not all so-called road traps are as dangerous as they seem.

Obviously, it is frightening to suddenly discover that someone has spilled a load of gravel just when you are about to lean the bike in a curve. In that situation the most important thing is never to panic and freeze. Indeed, the best solution is

***Sand or gravel**: if you spot sand or gravel on the roadway the best solution is often to be totally relaxed and do nothing at all.*

often to do nothing at all. There is guaranteed better grip ahead and your bike is more stable than you think.

Help yourself out of danger by lowering your shoulders and looking far ahead. The dangerous instinctive reaction in this situation will tell you to go hard on the brakes. But that is the worst you can do. It usually leads to the exact opposite of what you had in mind. If you suddenly find yourself in loose gravel, stay calm with good anchoring in the bike and look far ahead. And above all - do not brake! If you let the instinctive reactions take control you will brake and fall, maybe even before you come to the gravel.

***Mud**: If there is a quarry or a large construction site by the way, chances are big that there will be mud on the roadway.*

Typical examples of where you can expect to find sand and gravel on the road surface is at exits from farms and industrial areas, at road repair and on secondary roads after heavy rain.

Longitudinal cracks and potholes do not make motorcyclists jump with joy. They must be dealt with in the same manner as gravel and sand. First and foremost, do not panic brake. It is exceptionally stupid to hit a hole in the road with a locked front wheel. To open the throttle a wee bit in this situation is actually best, because then you prevent the suspension from totally compressing when you hit the hole. As in many other situations it is also best to not disturb the bike when it is doing its job.

Motorcyclists who have travelled in eastern European countries can tell stories about streets where manhole covers have been stolen and sold as scrap. However, as far as we know, few motorcyclists have been hauled up from Russian sewer manholes.

It's amazing what obstacles you can overcome if you don't get petrified. Like this one:

"I was riding on the highway and the traffic flowed at just over 90 km/h. Suddenly, a pallet fell off the truck in front of me. It happened so quickly that

If you get into loose gravel keep calm and look far ahead. And most important: Do not brake!

Remember that diesel spill most often occur in roundabouts and near petrol stations

Diesel spills: *It is quite common diesel spills occur on steep, wind9ing roads, but fortunately one can actually smell diesel spills when you ride a bike.*

there was no time to react at all, so I just to rode straight across the pallet with the throttle open. The shock absorbers on the bike obviously got a beating, but that was all. The bike was never even close to falling over".

In conjunction with resurfacing of roads, the old asphalt is usually milled away. In such conditions many of us have experienced (or at least imagined us) that the bike behaves like a lump of jelly. This is, however, more of a mental per-

ception of the situation than a real danger. Good anchoring, loose arms and looking far ahead solves the"problem".

Diesel spills can instantly transform the driest summer roads to veritable "skating rinks" for motorcycles. There are many ways to detect diesel spillage and it can be wise to learn some warning signs to look out for. At the first roundabout after a gas station you can almost certainly assume that it will be slippery. Diesel also has the characteristic that you can smell the spill before you spot it on the road. This applies, for example, on steep, winding roads where diesel splashes over from over-filled tanks on heavy goods vehicles.

But even without oil and diesel spills summer roads can be horribly slippery. Especially after the first rain after a period of drought, the roads get really slippery. Again good anchorage in the motorcycle, loose and free arms, looking far ahead and riding extra smoothly solves the problems. Other examples of slippery roads traps are road markings, railroad tracks and cattle guards. Of

Slippery asphalt: *Newly laid asphalt can be slippery when wet, but it is not a problem if your riding technique is good and you ride extra smoothly.*

Tramrails: *When it is raining it is smart to cross tramrails transvers.*

course, everyone knows that it's stupid to accelerate on a railroad track and that it is best to aim between the zebra stripes on a zebra crossing.

Hairy road traps

Other elements that can create dangerous situations on the road are animals. From moose, the king of the forest, and down in size they have a nasty tendency to often be at the wrong place at the wrong time. As previously stated, all traffic signs and other reminders of dangers which authorities install are placed where they are for a reason. Warning signs for moose and deer are clearly not put up for the German tourists to bring them home as souvenirs. Such signposting

Milled road surfaces are uncomfortable - but not dangerous

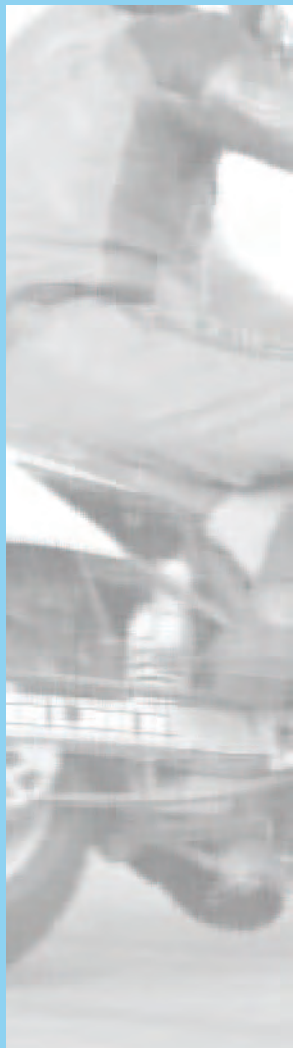
are put up where moose and deer usually cross the road. Dawn and dusk are the most active periods for moose, but you should still be aware of wild animals during the entire day, especially in signposted areas.

Moose or deer are not team players you can trust. There are in fact examples of moose that have actually attacked cars and motorcycles. And remember, moose or deer rarely come alone. When you discover a moose or a deer, don't lock your eyes on the animal. What you look at you will hit!

Small animals, like cats and badgers, are actually less dangerous to motorcyclists than you might think. Obviously, it is in every way uncomfortable to ride over a cat or another small furry animal at 90 km/h, but it is certainly better than panic braking and crashing.

***Moose warning signs**: These signs are put up on the advice of wildlife experts and you can be absolutely certiain that they are placed exactly where moose use to cross*

Moose warning sign are always put up where moos use to cross. Don't fix your eyes on the moose - you hit what you stare at.



Out on the road

Get a grip

If traction becomes an issue when you ride on a normal road, you have already exceeded some limits. Although the interface between the tyres on your bike and the road is not bigger than a few square centimetres, it is important to trust the grip - because it is important to dare to do what is correct. At the same time, one should not underestimate quitting while the going is good. And always use correct riding technique and a riding style that challenges traction as little as possible - determined but smooth.

In order to trust that you always have an adequate grip, your bike obviously must have good tyres. Tyres are perishable goods, and even though there may be several millimetres of tread depth left before they must be replaced, an old tyre is nonetheless totally unusable if it has been sitting too long on the bike and the rubber has become hard.

By traction we mean the friction between the tyres and the road surface. All forces will work through these two contact points and it goes without saying that if one or more of factors are not optimal, it will radically inhibit the process of transferring forces.

In conclusion we can say that fresh tyres in hot and dry conditions provide good grip, while worn tyres on cold and wet roads provide less grip. Nevertheless, a smooth and proper riding technique compensates for the less traction you will have on wet and cold roads. It is foolish to ride off the road just because you did not trust the grip. If you choose to rely on the traction, you also dare to do what is right, namely to conduct the manoeuvres the situation requires.

It may feel uncomfortable to experience a small loss of traction. But as a rule it is not dangerous - although it may feel as if you are sitting with your heart in your throat. Often the wheels are only slipping a few millimetres before the tyres again are glued to the road surface.

Tyres need heat to function optimally. A good example is road racing where you always use tyre warmers before a race. In other words, the closer to optimum operating temperature, the better traction you get. Even in the rain and cold, ordinary road tyres are hot enough, but remember that riding in such weather conditions affects traction negatively in other ways. Another contributing factor has to do with tyre air pressure. Too

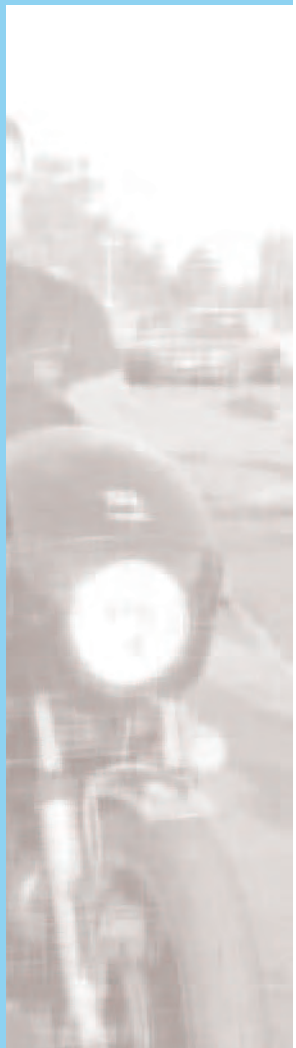
low pressure can make a brand new tyre totally useless after only a few kilometres. Additionally, incorrect pressure has major consequences on how the bike behaves on the road. For example, too low pressure in the front tyre makes the bike incredibly heavy to steer.

Brand new tyres have a slippery wax surface that must be worn off before they function properly. Ride very carefully for 20-30 kilometres after a tyre change, or roughen the tyre surface before using the tyre, then you will be safe.

Rain and darkness

You just have to face it. If you can't ride in rain, the chances of getting any particular return on the investment of a motorcycle in the north of Europe are relatively marginal. We've all experienced that you start the ride in the finest summer weather you can imagine, but end up going back in heavy rain. Indeed, it may still be perfectly okay to ride in the rain if both yourself and your bike are properly equipped. With proper clothing and good tyres, rainy weather often gives a truly great riding experience.

Sometimes the trip simply can't be put off, but as with other things in life, riding a motorcycle in rain is down to good planning. Dew inside the visor and a steady flow of rainwater down your neck are not nice. But you can avoid the dew



problem by using a special inner visor or other similar products. And you can actually stay pretty dry for quite a long ride in the rain with quality Gore-Tex riding gear or a good rain suit outside your leathers.

Still, there's probably some who are reluctant to go off on a trip when the rain pours down. But rain and darkness are often more a mental than a physical danger in motorcycling, especially if your entire focus is on cursing the rain and the dark. One thing is true though: When rain is pouring down and visibility is almost zero a precise and efficient riding technique is crucial. Just remember to conduct all commands smoothly and gently.

With passenger and luggage

It's amazing what you can actually pack on a motorcycle. The trick is to compress and think smart - both in terms of what you actually need for the trip and how you place it on the bike.

The best is of course to have panniers mounted on the motorcycle. But if you use "loose" baggage, it is important that it is well strapped on to the bike. A sleeping bag or pack roll that suddenly loosens and enters the rear wheel is an unpleasant way to end a motorcycle holiday.

Today there is a good selection of luggage solutions available suitable for motorcycle use. A "sailor bag" for motorcycle use is a smart and reliable solution. You find them in almost all sizes. Although it may seem as if the designers of your bike would have preferred that you attach loose luggage with elastic bands, it is not recommended. You should rather use pack straps that you can buy in any sports shop or gas station.

No matter what type of bags you use, it is important not to overload the bike. A normally functioning motorcycle can quickly lose its riding capacity due to heavy packing and how the luggage is placed. A good "rule of thumb" is to pack heavy items, like the tool kit, at the bottom and as far forward as possible.

It's usually very nice to bring a passenger on the trip. Some even think that the bike is more stable with a pillion passenger. Ideally, your very first passenger is an experienced motorcyclist since this person knows how a motorcycle behaves. Similarly, it is important to allow an inexperienced person to learn how to be pillion passengers. Remember that you yourself have used quite some time to learn how to ride the bike. So if necessary, you must give your passenger proper instructions of how to sit on a motorcycle.

You must be aware that the performance of the motorcycle changes with a passenger. You get a higher total weight, an offset centre of gravity and balance point, increased load on the shock absorbers and a larger mass to slow down. Addi-


Listen to, and respect, the signals you get from your pillion passenger

Before the trip you have to give proper instructions on how to behave as a pillion passenger

tionally, you must be aware that when there are two of you on the bike, it's actually the pillion who should be in charge. Not necessarily in the choice of route, but in terms of pauses and especially speed and riding style.

It is really, really stupid to ride the pillion passenger "religious" on the first trip. Always keep in mind the passenger's experience of being out of control and totally dependent on being able to trust the driver.

If you can't handle close physical contact with others, it is not advisable to ride with a pillion passenger. It is not very much space for two adults on a motorcycle, and you must, in order not to disturb the bike, sit close together. Of course, the driver should make the effort to accelerate, brake and switch gear as soft as possible. This also eliminates helmets colliding. Experienced passengers gradually develop their own technique on how to sit hold on.

Many bikes have handlebars behind the seat, but not all passengers feel comfortable sitting with their arms backwards. Some choose to sit with their hands on their knees, others are holdeing on to the rider - or on the rider's clothing. No matter how you choose to sit and hold on, it is important that the passenger is actively using the thighs to "squeeze firmly" and get good anchoring.

The pillion must also have information about how a motorcycle leans in the turns and that he/she must follow the rider's movements - but leave it to the rider to control and steer. An old trick is that the passenger should look over the driver's left shoulder in left turns and over the right shoulder in the right turns.

***Close**: A pillion passenger has to sit close to the driver and follow the movements of the bike.*

It's obviously nice to bring your girlfriend/boyfriend one on a motorcycle tour, but it is important to ensure that you don't become single again when the trip is over.

If you ride with a pillion passenger, predictability is important. You have to beforehand agree on what you have in mind. As driver you have a big

responsibility, and you probably want to make the passenger feel safe and comfortable. Therefore the passenger must be involved in the decision making process. Listen and respect the signals you get and always find out the passenger's motorcycle experience before you dash off.

Although it may seem a bit too simple, you actually have to start with the basics, such as how to get on and off the bike. There is nothing to dampen the mood as much as having to start the trip lifting up a 300 kg motorcycle from the gravel. With experienced riders and passengers a small nod is usually enough to say that it is all right to get on or off the bike. The driver should always be on the bike before the passenger climbs on to the pillion.

Once you are out on the road, it is also good to be able to provide signals about what you as a driver are supposed to do. A light tap on the thigh of the passenger before quick acceleration is often enough to inform about what is going on. Riding with an inexperienced and perhaps simultaneously inattentive passenger can quickly affect both the bike handling and your concentration. Avoid sudden moves. For example it is not wise for passengers to stretch stiff muscles in the middle of a curve.

But it is important to let passengers be allowed to "move" on the bike. Just think of how you as driver constantly move buttocks, legs and feet. Lastly the passenger has another important task, namely to wave to oncoming motorcyclists and show the whole world that they are enjoying their motorcycle tour!

Children on bikes

You can't ignore the fact that all forms of motorcycling involve some risk. It is also more demanding to have a child as pillion passenger than an adult. Therefore, it is the parents or guardians that must decide whether to take children on a motorcycle tour or not. Motorcycle organisations shall not interfere in these decisions and therefore neither recommend nor discourage

***Properly dressed**: The kids in this family join adapted rides - always wearing proper riding gear*

***Sidecar**: This little fellow feels comfortable and happy in his child seat in the sidecar.*

anyone to ride with children as passengers. We do not know of any research in this area, so our advice is exclusively arriving from motorcyclists' own experiences.

Road Traffic Regulations decide if and how children are allowed on a motorcycle, both on the passenger seat of a motorcycle or in a sidecar. The law also states if children must have an approved helmet and at what age they are allowed on a motorcycle. A summary of national laws concerning children on bikes can be found on the FEMA website.

A helmet does not mean hockey or ski helmet, but a standard, approved motorcycle helmet that should fit the head of the child. The helmet requirement also applies to children in sidecars. In addition, the child should wear at least as good protection as you yourself are using. It is possible to buy excellent equipment in children's sizes at most major retailers. Children grow rapidly and many therefore choose to buy used safety equipment.

Should you bring children on motorcycles on long tours, sidecars are a very good option - especially if you want to bring small children. In the sidecar, the child can be strapped in a child seat. With crackers, juice and drawing books, the trip becomes a lot more interesting for the child, and at the same time, less strenuous for you as an adult.

On a solo motorcycle, the child should be able to reach the foot pegs. If the legs are not long enough it's usually possible to move the foot pegs. It is a problem that children on motorcycle tours often fall asleep. Some therefore choose a solution where they buckle the child with the rider with a custom-made harness that can be bought in many motorbike stores. The inappropriateness of such a solution is that the child may become the adult's "airbag" if you crash. Many therefore choose to ride with a belt with handles that the child can hold on in. More and more people are also using a custom-made child seat strapped to the motorcycle seat. It is also helpful if the bike is fitted with a top box so the child has something to lean backwards against.

Intercom is a good tool for having continuous contact with the child and check that he/she is enjoying the ride. But whatever transport solution, a motorcycle ride with children must always be planned and implemented with the child's interests in mind. This means, amongst other things, that the daily trips should not be too long and that there must be frequent breaks with fun activities like eating ice cream and playing.

Comfortable equipment

In Europe it's only the helmet that it is a legal requirement to use as a motorcyclist. But many argue that back protection is almost as important as the helmet. For some riders, it's as impossible to sit on the bike without back protection as it is to ride off without a helmet.

To go out on a motorcycle ride is a bit like Alpine skiing. Most people understand that you need good and proper equipment on a skiing trip in the high mountains. It's exactly the same with motorcycling. But remember that the equipment you choose should fit - both to your body and to the trip you will go on. You will not be able to ride with "loose arms" if you are like a stuffed sausage in your personal safety equipment.

Some feels that it is more comfortable to buy cloths that are a little too big. But that is wrong when it comes to motorcycle equipment. If you afraid of freezing it is better that you buy your-

Better buy your helmet and riding gear one size too small than one size too big

self a warm jacket to wear outside the riding suit. Padding and other protective equipment are placed exactly where they are to protect the exposed areas of the body if an accident should occur. If your biker clothing is too big, you can be absolutely sure that the protection will shift place if you fall off the bike. You do not necessarily have to buy the most expensive equipment, but often there is a correlation between price and the quality of the equipment.

There is an eternal debate among motorcyclists as to what is best, leather or textile. The person who rides a bike in all weather will probably thrive best with textile clothes, not least for reasons of convenience. In addition, the textile clothes with Gore-Tex or other types of membranes are clearly more comfortable when the temperature is creeping down into the red zone and the rain pours down. If you ride in leather, you usually have an extra jacket available, and if it rains you have to stop to put on rain gear.

But if you look to the roadracing environment you will see that leather is preferred, one of the reasons being that textile clothing has slightly poorer performance than leather if you slide along the asphalt. One thing you should remember when it comes to "Gore-Tex clothes" is that the membrane of these garments is dependent on temperature differences to work. If it is colder on the inside of the jacket, boot or glove than it

***Leather or textile**: 80 km/h skid tests with crash test dummies dressed in leather and textile riding gear from the same manufacturer showed no significant difference in safety performance.*

is on the outside, the water will penetrate. Therefore, it is not smart to warm up the gloves on the engine when you take a break in the rain.

***Back protector**: Many jackets come with an "in-built" back protector, but we will still recommend a separate protector like this.*

Also, try to avoid bringing wet "Gore-Tex-stuff" inside if you stop at a roadside café to have a cup of coffee.

Gloves are not only to keep your hands warm. They also have an important safety function. If you wonder what it's like to crash without gloves, you can try to open the car door at 50 km/h and put your palm on the asphalt. That will answer your question! When you buy motorcycle gloves, they should have "curved fingers" that allows a more comfortable grip to the handlebars.

We have already noted that it is important that your equipment fits and that you should not have too much underneath the riding suit. But you obviously must wear something. Opinions differ on what to use. While some consistently choose wool or cotton, other chooses thermal "super underwear" - especially if you must drive in hot weather.

When choosing a helmet, the most important thing is that the helmet fits your head shape. The helmet should sit really tight. When buying and testing a motorcycle helmet there are some rules to stick to. The helmet should fit so tightly that it will not move very much to the sides of your head. When the chinstrap is tight, you should not be able to pull it forward.

While in the United States so-called motorcycle helmets marked with "only for looks" are sold, all helmets sold in Europe are approved and CE

marked. Despite an often the imaginative and colourful design the helmet is not something you primarily use to look good. Still, it might be smart to choose a slightly more startling colour than black.

Something you should consider when you want to invest in a new helmet is how easy or difficult it is to change visors. The visor gets scratched and needs to be changed from time to time. In addition, many choose to ride with dark visors in the day and replace it with a clear visor when it gets dark.

If you ride mostly in the chilly Nordic countries, it initially might seem a bit unnecessary to worry about if the helmet has good ventilation. But in the south of Europe good ventilation in the helmet is crucial for keeping your head cool. Besides, ventilation actually prevents fogging.

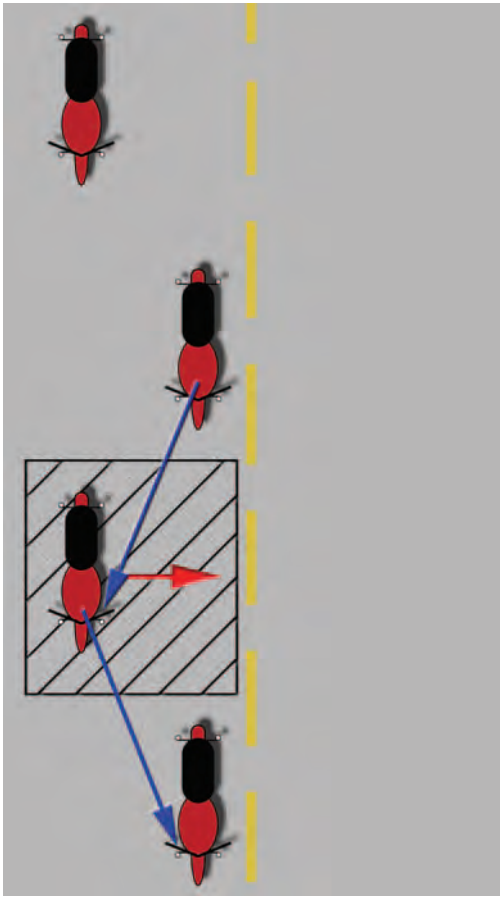
Riding in a group

It's summer, it's sunny and it's Sunday and you are up early to ride with good friends. It's a really enjoyable activity, which however, quickly can become a nightmare if you do not take into account the experience level of those who are attending the ride. Riding many motorcycles in a group is nice, but it requires discipline and diligence. We all have different riding styles. What is perceived as undramatic for an experienced motorcyclist may be perceived as dangerous and

stressful for someone who is inexperienced or on a new, unfamiliar bike. Done right, however, a group ride with experienced riders could be a joyful and eye-opening experience, providing a steep learning curve. But it could just as easily be the opposite if one is forced to push the envelope too far.

The experienced riders might want to know a little about your experience level before pulling away, and you have to be really honest in terms of your own level of performance. Remember, it is always you who is responsible for your own riding. Even if you are riding in a group, it is not "follow the leader" that is the rule. The rider of the bike in front of you can actually make mistakes. It is also important to be brave enough to speak up if the speed is too high. Perhaps ask a question like, "is it just me, or did we ride very fast in the last couple of corners"?

It is not uncommon for beginners to think like, "because I do not have much experience, it is probably best to be at the back". This is completely wrong! Whoever is last must actually ride faster than the lead bike because of the so-called "accordion effect". Thus, when riding in groups, the inexperienced rider should always ride immediately behind the lead bike. The first and last in the formation should be experienced motorcyclists. They monitor that the speed level is right and make sure that no one is falling behind.



When riding in groups, the inexperienced riders should always ride behind the lead bike

***Group rides**: On a group ride it is vital to be honest with regard to own level of performance. If you are, a group ride with experienced riders could be a joyful and eye-opening experience.*

In many ways, group riding is a bit like fighter pilots practicing a formation flight. When conditions permit, ride in a zigzag formation. It reduces the length of the formation and gives a satisfying safety distance to the rider ahead of you. To minimize irritation from other road users, move towards the roadside and let traffic coming from behind pass when necessary.

Never ride too close to the person in front and under no circumstances up alongside of him. The area at the side of the bike is "owned" by him, and it can quickly become necessary to change track, for example, to avoid a pothole. Keep track of the location on the road and do not wobble from side to side. Keep a steady pace and avoid jerky riding.

If the bike in front of you changes track in the formation then you also need to change your track. On winding roads, and where circumstances otherwise determine, you need to ride in an individual track and with a good distance to the rider in front of you.

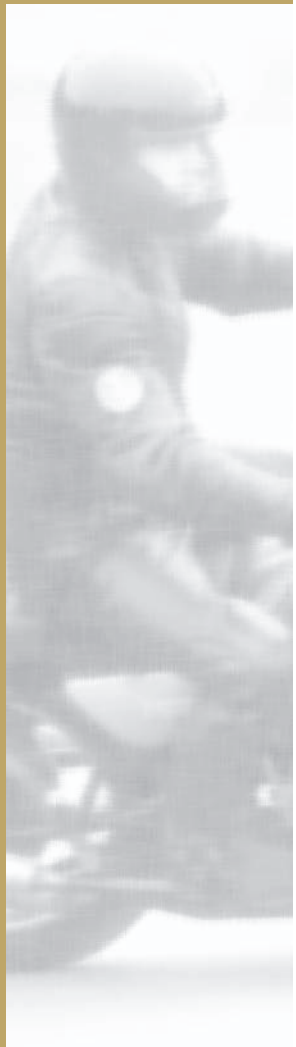
When you overtake, remember that there are riders behind you. Ride quickly past and don't slow down at once when you have passed to make room for those who come after you. Don't overtake in a jerky style, ride smooth and calculate margins. The bike behind you might trust your judgment and stick with you.

Actively use your mirrors. If the bike behind is slowing down and you're about to lose contact,

stay back and let a large gap be formed in front of you so that the bikes later have the chance to discover that someone has fallen behind. Make sure that the bike behind you can see where the formation is going when you come to a junction (blinkers). Tell in advance if you have to leave the group during the ride

If the formation comes to an unusually curvy and pleasant route, some of the most experienced riders located at the back might want to overtake to ride in a slightly sportier pace. Let them pass and proceed at your own pace. If you are inexperienced, don't try to catch up - they will wait for you further down the road!

Group rides are alway more successful when making clear agreements in advance



Always be prepared

Good planning

Riding a motorcycle is always more comfortable and safer if you can find some good riding strategies. Strategy is a word that may seem slightly pretentious, but translated into everyday language, it simply means, "having a good plan". Planning provides safety and the more strategic you think, the better prepared you are for surprises during the trip.

It's not just professionals like military personnel, airline pilots and navigators at sea who must have clear strategies for their operation. Also motorcyclists must have a master plan. Not just a plan for where you're going and how to get there, but also a plan for how to behave in case of unexpected situations during the trip. The more detailed and elaborate plans you have, the easier it actually is to deviate from them when things do not go as you planned. In other words: If you have clear riding strategies, it is easier to implement tactical and operational choices during the trip.

An important element in this process is to obtain as much information as possible about the trip, and make strategic plans based on that information. A good example is when you are on a tour in European and have decided to stop at the big motorcycle dealer Detlev Louis in Hamburg to look for a new helmet. The traffic in Hamburg is dense and fast and if you do not know the direction and try to ride at random, it is easy to get stressed. And a stressed rider is not safe and often

***Planning 1**: if you want to get to a particular place a big foreign city and don't have a GPS it is wise to memorize your route, so you don't get dangerously stessed.*

makes tactical and operational mistakes. If you've carefully gone through the route in advance and know the name of main streets, famous buildings and parks you must pass, you can pretty quickly correct if you take a wrong direction. Then you will be much less stressed and minimize the chances of having an accident - and you might even see a bit of the city of Hamburg.

Maps or a GPS are fundamental tools. But it helps little to have the map if you need reading glasses that are left at home. Bringing your glasses in the chest pocket of your jacket is a small, but important example of being well prepared.

But no matter how well you have read the map, and how much you have memorized highway exits in your head, you can actually still miss the exit you intended to take. Then it is important to have a strategic on how to deal with such a situation. Instead of panicking and abruptly cross two motorway lanes in heavy, high speed traffic, it is better to have the attitude that"there will soon be another exit". And it's not necessarily a disaster to ride in the wrong direction. Many motorcyclists can tell you that the best experiences they've had on two wheels was when they got lost.

When planning, it may be wise to take your own strengths and weaknesses into account. If it feels uncomfortable to ride in heavy traffic, it is a good strategy to avoid rush hour in big cities. The best may even be to find an alternate route around the city. Although it might be longer, it can also be a much nicer road.

If you are scared of heights, and want to ride from Germany to Italy, it is an extremely long detour to ride around the Alps. Then it is a good strategy to find a pass where there aren't several hundred meters straight down. Compared to Passo Stelvio, the Brenner Pass and the Gotthard Road Tunnel are pretty undramatic.

***Planning 2**: If you are not accustomed to riding in heavy traffic it is not recommendable to enter big cities during rush hour.*

Good planning reduces anxiety of the unknown and makes you less stressed

***Planning 3**: If you are scared of hights it is not smart to choose a steep Alpine pass like Passo Stelvio. Passo Brennero is a better choise.*

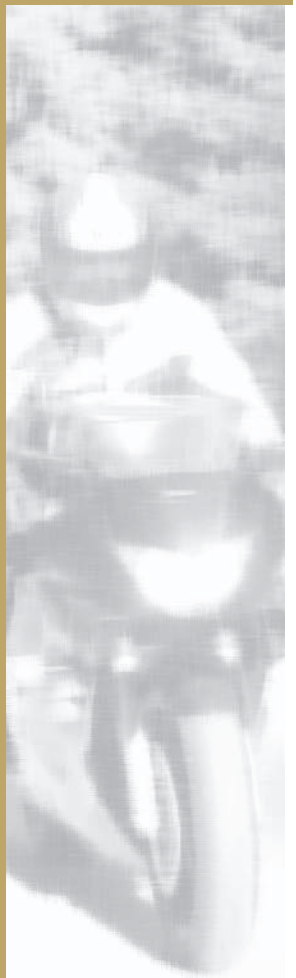
Before the different stages of a European tour it is smart to go through the route in advance and make clear notes about important motorway exits, road numbers and other reference points in the map pocket of the tank bag. However, it is not always easy to interpret the map when the rain pours down or when cruising speed is 130 +. A strategically placed note with key words in big fonts is easier to read.

It is also foolish to test how far you can ride on the last drop of petrol. Therefore it should be part of your riding strategy to refuel before the engine starts to cough. For one reason or another, this is a situation that often occurs when it rains and is dark. And you're guaranteed to not even know in which direction the nearest fuel station is located. An empty tank is not only impractical. If you have to call the breakdown service it may at worst indicate a substantial disruption of travel funds.

The tank must be filled and the chain has to be lubricated. A pretty easy job, but a job that makes your hands greasy. A couple of disposable gloves under the seat eliminate having to stab your oily fingers in the expensive motorcycle gloves. Simple and smart.

There are also a few other small items that can be practical to carry under the saddle. For example, a tyre puncture repair kit. Punctures always seem to happen at the most inconvenient times, such as in the middle of nowhere on a dark autumn evening. Then it is incredibly convenient

***Planning 4**: Usefull items to have stowed under the seat of your bike*



to have tyre plugs, rubber solution and a couple of CO2 cartridges available. And do the job in the light of the Mini Maglight you always bring with you. Without such a repair kit, a puncture is an almost impossible obstacle. With a tyre repair kit worth a few Euros, you are on the road again after barely half an hour.

Tactical choices

One should not suffer a drop in confidence if one chooses the safe choice when an unpleasant and unidentifiable feeling of vague danger appears. If, for example, you are riding at high speed in the left lane on the Autobahn in Germany it may be wise to immediately "seek refuge" between the trucks in the right lane if you feel danger. Would the gut feeling prove to be true, and there will be a huge crash on the left side of the motorway, you're relatively safe between the heavy trucks. HGV drivers are extremely professional and rarely do something quick and ill considered.

Another example of a good tactical choice is to ride in the lee of a large HGV when wind cones are straight out on long, open bridges. The professional driver will probably understand that you have a problem and do everything to help you.

When you perceive that there are road works, an accident or anything that hinders traffic in the

***Tactical choise**: It's gale force wind and rough sea and the small ferry does not have lashing opportunities. To avoid struggling with a 250 kg motorcycle, and mayby loose it, it is wise to insted take the long ride around the fjord.*

Gotthard Road Tunnel, it is not advisable to ride in the nauseating exhaust when you can instead get fresh air and great outdoor experiences by taking the mountain road. Maybe this is obvious to some, but nevertheless a good tactical choice you can only make if you are prepared and actually know that another route exists.

Often it's good to give up while the going is good. It goes pretty much without saying that you are not a particularly good rider if you are extremely cold and wet. It may well be that in some situations you should make a tactical choice to

simply cancel the tour - or change the route in relation to the weather.

On unfamiliar roads

You've probably heard the saying "when in Rome, do as the Romans". It's a survival rule that it is relatively easy to transfer to motorcycle riding in unfamiliar environments. As a motorcyclist, you simply have to adapt to the traffic culture that you are experiencing. If you can't do this, or don't want to, you should rather stay at home.

***"When in Rome, do as the Romans"**: Italians drive with smaller margins than Norwegians and Germans, and we just have to adapt when we visit Italy.*

The most obvious example is when you are in the UK. If you come from Italy or Sweden you may think that it is "unnatural" to drive on the left, but you obviously can't insist on riding in the UK like you do in the rest of Europe. Then you'll crash. And it will be your fault.

In Germany, where everything runs very smoothly, it is expected that you will follow the German driving pattern. That means precision, concentration and following the rules. It can be dangerous to insist on riding differently.

In Italy, the motorists drive with small margins. It is not uncommon to find that two motorists drive side by side in the same lane when it is queued and it is wide enough for two cars. Illegal yes, but very practical, and something you as a tourist simply has to relate to.

Self-awareness

Who you are as a person means a lot to who you are as a motorcyclist. If you are a person with a short fuse, you can be pretty sure that it will boil under the helmet if you are standing for hours in a queue. Then you can easily make wrong choices. A good strategy then is to et out of the queue and take a time-out. But to imple-

***Safer**: Research shows that a friendly rider is less accident prone than an aggressive rider.*

ment this, you need to think about whom you are and how you react in different situations.

Self-awareness is not just a mental thing, it will definitely be a physical factor on the occasions when your personality affects your operational choices - choises that will allow you to survive - or not. If you are on a group ride with the club, and know that you are a bit aloof and don't have the best riding technique, it is a good strategy to decide to yield if the pace gets too high.

Another question you should ask yourself once in a while is if the other road users perceive you as friendly or hostile. If you really are a decent and tolerant person, and yet constantly find yourself in situations where you think it is necessary to give "the finger", you have chosen some pretty crazy riding strategies.

There is a place and a time for everything. When it comes to riding a motorcycle, it is best to choose a time and a place that does not disturb others, especially if you want to ride in an inspired style.

One does not necessarily have to violate the speed limits in order to feel the power of the bike and get the kick a good riding experience provides. Therefore it is a good strategy to seek out the gentle feedback a harmonious, soft and safe riding technique provides, rather than always pushing the bike to the limit. It is dangerous and rather stupid to get used to very strong stimuli to thrive on a motorcycle.

It is important to choose the right time and right place. You can surely find a favourite stretch where you can get great mastery experiences without provoking anyone or risking anything.

Also ...

The large ferries, operating on open waters, usually have good solutions for securing the motorcycle. Put the bike in first gear and always place available rubber pads in front/ behind the wheels. Remove heavy luggage and strap the bike standing on the side stand. Not all ferry companies have suitable straps, so it may be wise to bring your own straps. Common rope works very poorly.

Mount straps from the mount rings on the car deck to both sides of the bike, and then tighten so you compress the bike suspension. Tighten the strap on the left side of the bike first. If you have a sidestand that pops up by itself, attach a strap between the sidestand and the front wheel (turn the handlebar fully to the left).

Be very careful about securing your motorcycle properly. It is sad to find the motorcycle "spread" all over the car deck when you come down to the car deck the next morning. And remember, the ferry company will try to shirk all responsibility. Tie properly and you can sleep soundly - even if you get rough seas on the trip.

Asphalt that can get quite soft in hot weather, and the sidestand can sink through and make the bike fall. To prevent that from happening you should put a small plastic plate under the side stand. Additionally, if you attach a string to the plate and tie it around the handlebars, you can easily lift it up and put it back in your inside pocket before riding off.

***On the overnight ferry**: If you strap your bike properly you will sleep better!*

If you basically are a friendly and tolerant person and still often end up in situations where you feel it is necessary to give the finger, you probably have chosen completely wrong strategies for your riding

Few things in life are better than riding with your good friends on a warm autumn afternoon