NonStop Off Road Academy

NON STOP

Coaching Manual

Trials
Enduro
Trail
Moto-X
X-Country
Adventure

Nelson, New Zealand

NON STOP Adventure

tasman lifestyle Sporting Holiday

GOLDPINE "your outdoor timber specialist"

www.nonstopadventure.co.nz

COACHING MANUAL

Section One

Observed Trials

Contents

INTRODUCTION

Welcome to the Observed Trials Coaching Manual. The information presented here will improve your trials riding skills.

Observed trials is a challenging sport which when given time and practice allows you to become a more skillful rider.

Don't lose sight of the reason you started riding. Wasn't it to have fun? Enjoy your sport at a level at which you feel comfortable, and always remember that it doesn't matter if you are a raw novice or the world champion - you can always improve!

MACHINE PREPARATION

An observed trials bike is specifically designed for this type of riding; it will perform satisfactorily when it is set up correctly. Set up and maintenance of your machine will be reflected in your results. You will find this manual a useful source of info for all off road riding.

The basic setup for a Trials bike

What do you use to control your motorcycle? The three most basic and important are:

1. Throttle
2. Brakes
3. Clutch

In order to control your machine precisely these will need to be correctly adjusted.

Trials is a precision sport.

Throttle

- Check that the throttle assembly is secured correctly on the handlebar and that it snaps shut by itself when released.
- The cable should have the absolute minimum of free play. 5mm of play will translate to a delay when you twist the throttle. Make sure that the cable is secured and positioned correctly.
- Start the motor and let it idle whilst turning the handlebars onto full lock in each direction. The revs of the engine should not increase at all. If they do the cable may be positioned incorrectly.
- Use a slow action throttle. This gives you more control as you are accelerating.

Brakes

All current model bikes have hydraulic disc brakes which require only minimal maintenance. Older models have drum brakes which require a little more attention, but the basics still apply.

- All cables/hoses should be positioned correctly, be in good working order, and be well lubricated (cable).
- Brake pads should be checked regularly and replaced when worn or if they get an oily substance on them.
- The front brake should be able to be locked by using only one finger. This allows you to keep a good grip on the handlebars.

Machine Preparation

Set up and maintenance of your machine is very important and will be reflected in your results.

Safety Clothing

A reminder: safety clothing such as helmet, boots, pants,and gloves should be worn at all times. Even when practising, you may still crash.

Clutch

One of the most important yet neglected components of a trials bike. Think of how many times it engages and disengages in a days riding!

- Your clutch should be able to be fully engaged and fully disengaged by using one finger. This allows you to keep a good grip on the handlebars.
- The state of your gearbox oil and clutch plates is extremely important. Gearbox oil should be changed regularly using the oil recommended by the bikes manufacturer. Clutch plates should be checked regularly and replaced when worn.

PERIODIC MAINTENANCE SCHEDULE

The following information is intended as a guide for a new comer to the sport of motorcycling. It is based on the assumption that you ride your bike every weekend.

Once a Week

Wash bike
Lubricate cables
Clean and lubricate chain
Clean air filter
Check for loose nuts/bolts, including linkages
Lubricate lever pivot points

Once a Month

Weekly checks, plus:
Grease swingarm and suspension linkages
Change gearbox oil
Check brake pads for wear
Check for loose spokes

Once Every Six Months

Weekly and monthly checks, plus:
Dismantle/clean/grease swingarm and linkages
Check wheel bearings
Change fork oil
Dismantle/clean/grease head stem bearings
Replace brake fluid
Check clutch plates for wear

HANDLEBAR AND LEVER POSITIONING

To control your bike with precision you must position your handlebars and levers correctly. Alloy or chrome-molly bars are the best to use; they should also be straight and of standard width. Bent handlebars cause an uneven stance on the bike.

NonStop Tip: The total width we recommend is 800mm. You may need to shorten your standard bars equally at each end.

Handlebar Position

Position bars so they are in the optimum "middle position."

- Bars pulled back will give you slower steering and a cramped riding style, but they are better for drop offs and getting traction.
- Bars pushed forwards will give faster steering. Better for rear wheel hops, turns and steps. Not as good for drop offs, down side of logs, etc.

Where ever you put them there will have to be a compromise, so position them centrally and comfortably.

NonStop Tip: Try them in more than one position to see what best suits your riding style

Lever Positioning

- Levers should be slightly lower than horizontal.
- You should easily be able to reach and operate the clutch and brake with your Index or both Index and middle fingers.
- If you leave the lever clamps slightly loose but tight enough that they stay put whilst riding, when you crash they will rotate on the handlebars rather than break.

SUSPENSION SETUP

Paying particular attention to how your suspension works and fine tuning its various adjustments will be of great benefit to your riding. People have a tendency to ignore the suspension - a pity, as proper adjustment can make maneouvres such as front and rear wheel hops, air turns, etc. a lot easier.

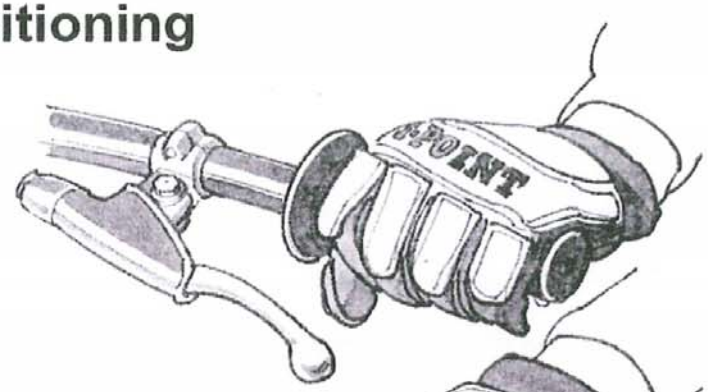
How does oil affect suspension?

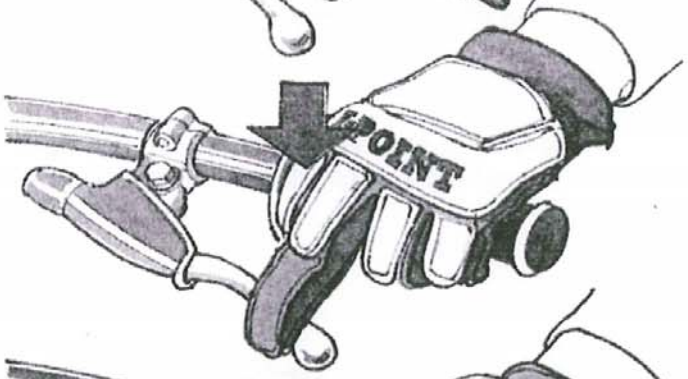
When your suspension goes up and down, the oil is forced through holes in what is known as the "damper rod." This works on basic hydraulic principles - a fluid can't be compressed so the oil will only travel through the holes at a certain speed. The speed is determined by the size of the holes and the weight or viscosity of the oil. Therefore, the damping characteristics of the suspension can be changed by changing the weight of the oil. There are two forms of damping with motorcycle suspension:

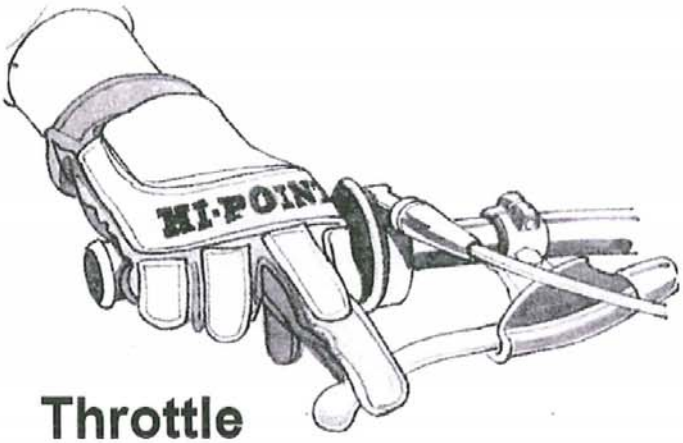
Handlebar and lever Positioning

Levers should be slightly lower than horizontal You should easily be able to reach and operate clutch and brake levers using any combination of your index or middle fingers.

If you leave the lever clamps slightly loose but tight enough that they stay put whilst riding, when you crash they will rotate on the handlebars rather than break.

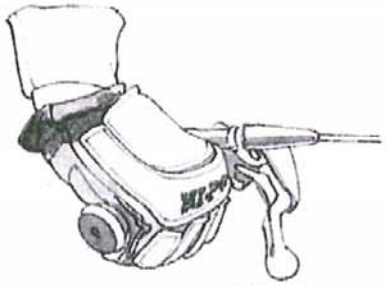


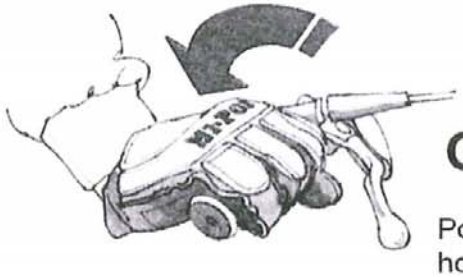


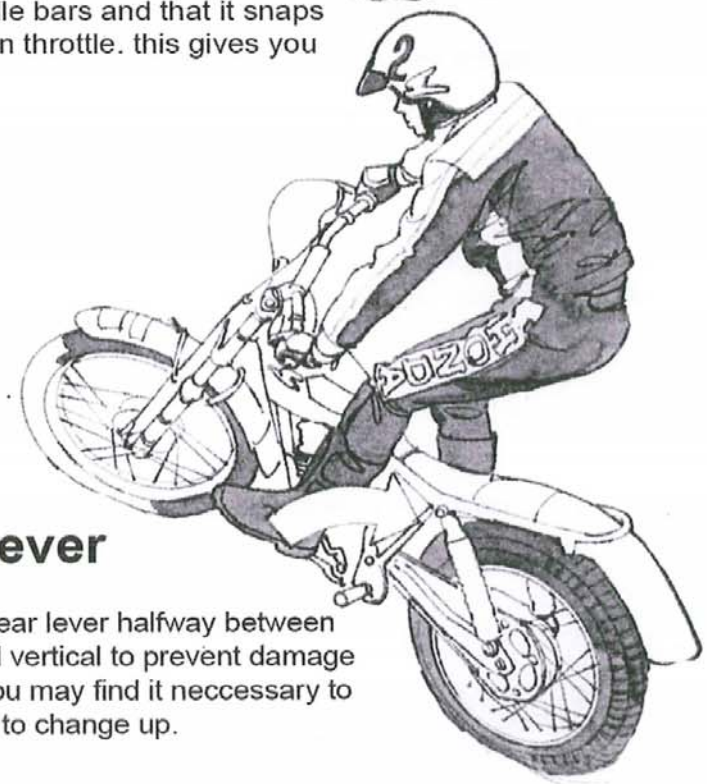


Throttle

Check that it is secured correctly on the handle bars and that it snaps shut by itself when released.Use a slow action throttle. this gives you more control as you are accelerating.







Gear Lever

Position the gear lever halfway between horizontal and vertical to prevent damage while riding.You may find it neccessary to use your heel to change up.

1. Compression damping - When the suspension is being compressed the oil is forced through a hole and in company with the spring slows or absorbs the shock of impact.
2. Rebound damping - Once the suspension has been compressed and is now starting to extend rebound damping takes over. The oil is again forced through a hole and slows the rate at which the suspension extends to its maximum length.

When performing trick riding you will find it a lot easier if your suspension reacts a little faster on the rebound. You can experiment with the front suspension by changing the damping adjustment. If you don't have adjustable damping you can experiment by changing the oil in the forks. As a starting point you could try a grade lower than the manufacturer's recommendation. (Remember: thinner oil will flow faster through the holes, thus faster damping).

Unless you have adjustable damping the rear end is not so easily altered. Oil changes in the rear shock should only be attempted by a qualified person. Note: Suspension set up with quick damping will make the bike unstable on certain types of terrain.

Setting up your spring preload

- If your forks are too soft you can increase the "preload" by fitting spacers at the top of the springs.
- The rear shock will usually have some form of adjustment.
- It is important to find the correct balance between front and rear suspension. If your forks are too soft and the rear too hard, the bike will react differently than if the situation was reversed.
- As an indication sit on the bike and bounce up and down. Watch both ends of the bike - they should compress and rebound at the same rate.
- Expert riders may prefer their suspension set up a little harder - they tend to hit obstacles harder and faster.
- For the beginner or novice it is probably wise to have your suspension set up a little on the soft side as you will get better grip in the wet.
- Suspension should always be even front and rear.

Don't be afraid to experiment! It is also a good idea when changing suspension settings to only change one thing at a time, and always take notes of what you have changed and how much you have changed it.

Basic Suspension Maintenance

- check for seal leaks - replace as required
- check tube/shaft for damage
- ensure steering head bearings are in good condition and correctly adjusted
- Check linkages - ensure all bearings and bushes have minimal play and are well greased
- clean out thoroughly and renew oil regularly. Fill to manufacturers specifications.

CAUTION

Do not attempt to dismantle rear shock units - they contain high pressure gas and should only be serviced by a qualified person!!

Chain

Make sure that the connecting link clip is on the inside of the chain facing the wheel. This prevents it being knocked out if hit with a rock and the subsequent loss of your chain.

TYRES AND TYRE PRESSURES

Many different types and brands are available; radials are the best front and rear.

Pressures

Tyre pressures should be checked with an accurate low pressure gauge before you start riding.
As a guide:

Front	Rear
Dry 7-8 psi	Dry 5-6 psi
Wet 5-6 psi	Wet 3-4 psi

NonStop Tip: During standard conditions use 6 psi front and 4 psi rear. The lower the tyre pressure the more the likelihood of compression punctures.

PRACTICE

It goes without saying that practicing intensely will improve your riding. Practice is great for refining basic skills. Novices should always start on simple sections - don't leap straight into the hard ones. Progressing from easier to harder is a universal learning technique - you build your confidence, you stay in one piece and you improve. For competent riders another method can be of benefit - harder to easier. Lay out a section that you feel is uncleanable. Study it and try to clean it. If it is truely uncleanable then you make it slightly easier until you clean it. The important thing is that you analyse and understand why you couldn't clean it initially, and then why you eventually did clean it. This method pushes you to your limits and beyond which will improve your riding skills.

Practice Partners

Try to avoid practicing alone, particularly if you are new to the sport. If you must practice alone avoid risky riding. Work on the basics instead. There is a bonus to practicing with your mates -whatever they try to do so will you and you will indulge in a little friendly rivalry. If you are a newcomer you will learn a lot by practicing with experienced riders. Don't be afraid to ask questions as most competent riders are only too happy to assist and offer guidance.

The Worst Practice Error

Don't practice what you like; don't practice what you do well.

With the help of your practice partner practice your weaknesses to improve. Find something you can't do well eg. Turning on a camber. Mark out *a* section that includes turning on a camber and practice it. The people who mark out trials are not usually known for marking out things that you do well. By practicing what you find difficult or what you lose points on, your trials sections will become much less daunting.

NonStop Tip: Some early lessons from a competent coach will save a lot of frustration and prevent bad habits.


Practice

WARMING UP

A proper warm up is essential to prepare your body for physical exertion. Do a few stretches, ride around slowly for a while, do a few turns and a wheelie or two. Loosen up then hit those sections!

Why Warm Up

A gentle warm up should always precede vigorous activity. This can help prevent injury and/or aggravation of existing complaints by:

1. Gradually increasing heart rate and breathing;
2. Increasing muscle temperature in readiness for activity;
3. Making joints more pliable;
4. Preparing yourself mentally for exercise.

A good warm up should consist of:

- stretching specific muscle groups to be used in the activity;
- Activities involving most of the body that start slowly and gradually increase in intensity.
- eg. Going for an easy ride, doing a few turns and tackling basic obstacles to warm up yourself and the bike.

Stretching

Why stretch?

- prevents muscle injuries, such as muscle strain;
- reduces muscle tension and helps with relaxation.

How to stretch

1. Go to the point where you feel tension (not pain).
2. Hold for 8 to 15 seconds, relax and repeat.
3. Breathe normally.

Do not overstretch.

Why Cool Down

A gentle tapering off period should follow vigorous activity. This can help prevent:

1. Blood pooling which can result in dizziness and fainting when exercise is stopped quickly;
2. Muscle soreness in the days following the exercise.

A good cool down will consist of:

- Gentle exercise that gradually decreases in intensity;
- stretching of specific muscle groups that were used.

THE ART OF BALANCE

Think of your bike as a platform on which you are standing. No matter which way the bike leans, you keep your body upright and centred. With the use of handlebar pressure, peg weighting and 'body english' * you can achieve excellent balance.

*** NonStop Tip:** Moving the bike between your legs with a wide stance

Balancing the Machine

- Don't position your legs too close to the frame. This makes it hard to correct your balance. Allow room to move the bike between your legs.
- Turn the handlebars onto full lock.
- Hold both brakes on.
- The bike should be engaged in gear and the clutch in.
- Try to remain relaxed. A tense stance will make your task more difficult.
- Use bar pressure, peg weighting and body movements to correct any imbalances.

What is Bar Pressure and Peg Weighting

Bar Pressure

Try standing on the pegs in a balancing position. Lift your left foot off the footpeg. Immediately you can feel the mass of the machine transfer to the right. What do you instinctively do to counteract this transfer of mass? You push down on the left side of the handlebars. Try it and see! You have just applied bar pressure.

Peg Weighting

Now try doing the opposite to what was said above. Balance on your bike and lift your left hand off the handlebars. You can feel the mass of the bike moving to the right, and you will instinctively apply peg weight with your left foot.

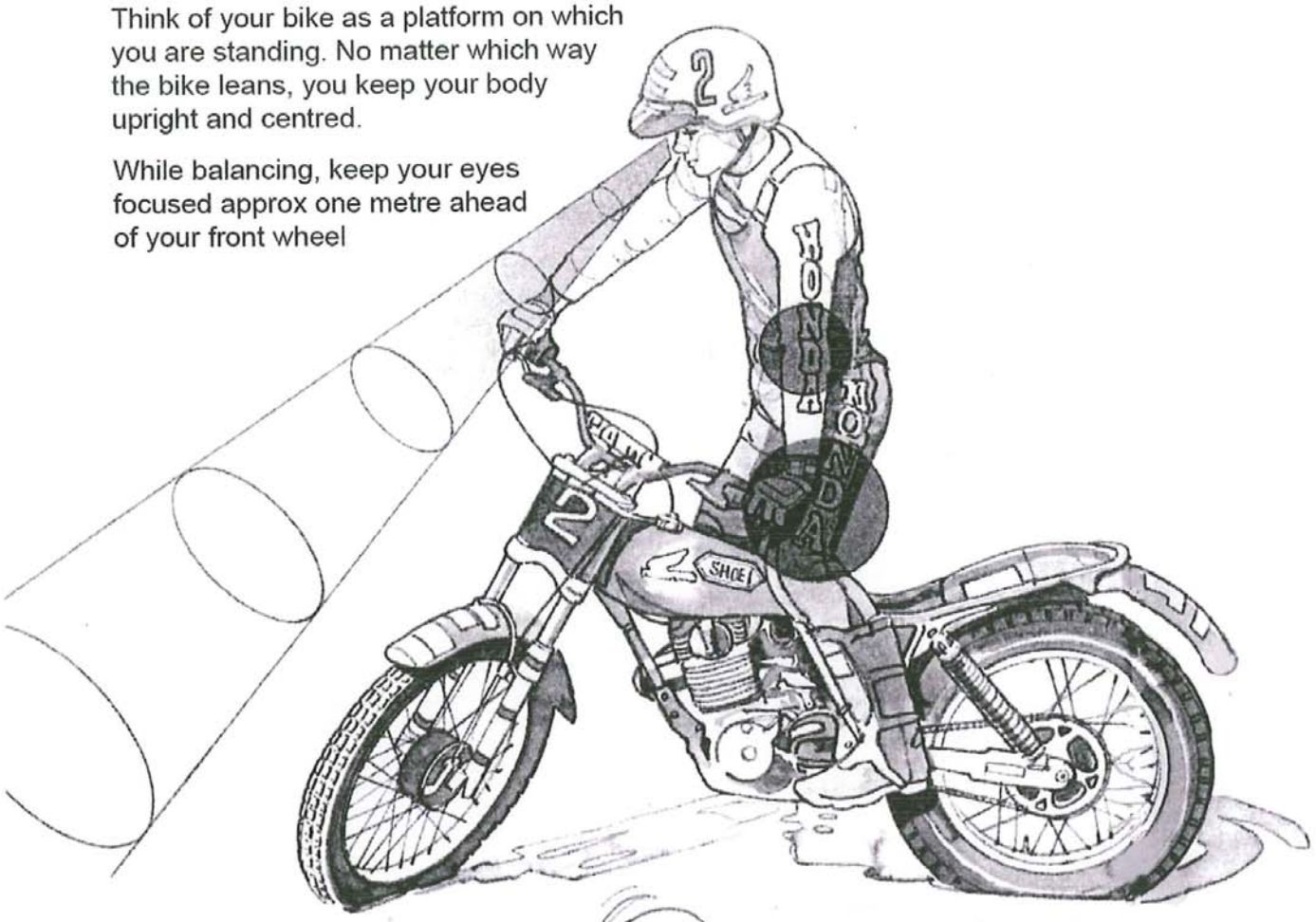
Practice Balancing

The beauty of balance practice is that it can be done at any time - even in the shed at night (motor not running). To gain your balance stand on the bike with the handlebars turned onto full lock either to the left or right and use peg and bar pressure to correct any imbalance. Remember - relax! After some practice you should be able to stand there for extended periods without losing your balance. Don't worry if you can't balance straight away. You will improve your balance enormously if you practice for a few minutes each day. Bored with balancing? Try balancing while listening to music or watching trials videos to occupy your mind!

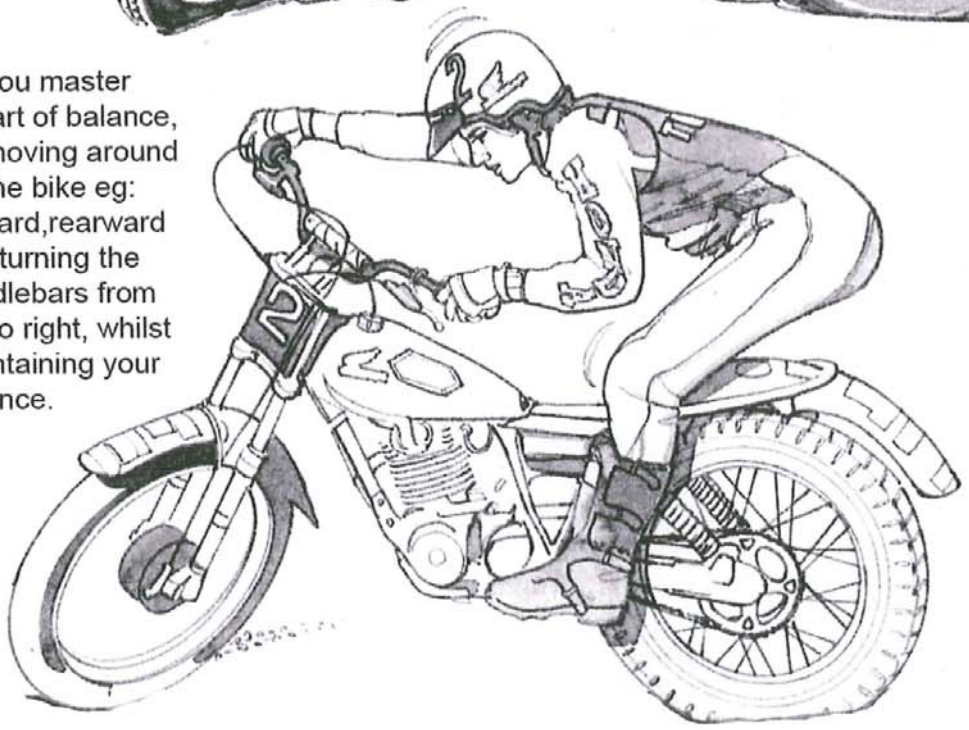
The Art of Balance

Think of your bike as a platform on which you are standing. No matter which way the bike leans, you keep your body upright and centred.

While balancing, keep your eyes focused approx one metre ahead of your front wheel



As you master the art of balance, try moving around on the bike eg: forward,rearward and turning the handlebars from left to right, whilst maintaining your balance.



HILLS: UP AND DOWN

Uphill

Before I discuss riding techniques for uphill sections, I should first stress a very important safety rule for attempting these hazards. If you feel you are not going to make it to the top, just let the bike stall, never pull in the clutch lever. With the clutch disengaged, the bike can free-wheel or slide backwards with some unpleasant results. Instead, let the engine stall and lay the bike on the ground. The footpeg and handlebars will anchor the machine on the slope while you decide what to do next.

Firstly approach the climb with a relaxed but positive stance. Do not rush too quickly at the climb, particularly if the approach is flat, or you may find yourself over-revving the bike's engine to the point at which it runs out of its torque and power band. With experience, you will be able to judge the correct length of run-up to a hill, so your engine is producing its maximum torque just before you reach the incline.

You can find this point in the engine's rev range by conducting some simple experiments on the flat ground. Select second or third gear (the ratios used most often on hills) and then roll the throttle from the closed position to wide open. At some point between tick over and peak revs, usually at around the two-thirds stage, the engine will feel extremely strong. This is the optimum throttle and engine speed setting you should aim to achieve as you complete your approach to an uphill section.

When planning your line, try and avoid any lumps or bumps that are likely to send you airborne before you reach the serious part of the climb. If such bumps are unavoidable, however, you will do better to approach the section a little slower so that your rear wheel maintains contact with the ground and retains traction.

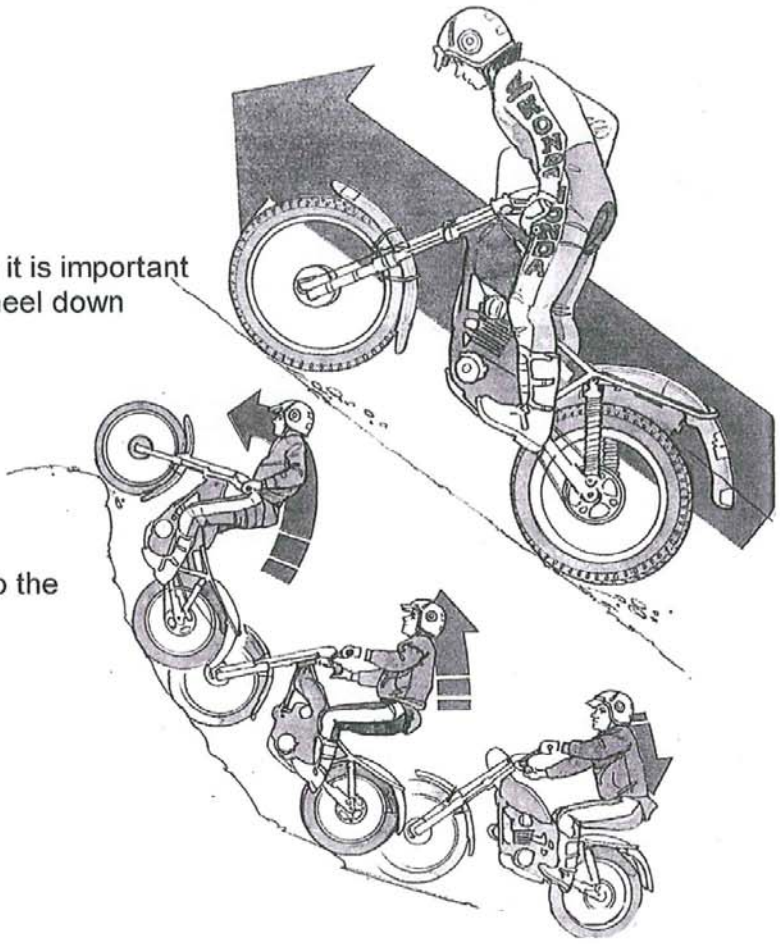
As the front wheel meets the incline allow your arms to move back towards your body.

At this point I recommend bending your knees, crouching into the bike and leaning forward (how far forward depends on the steepness of the incline). This will lower the centre of gravity and help keep the front wheel down, while putting more weight over the rear wheel to assist with traction, which will give you that all needed drive to carry you up the hill and over the top. Made it!

uphill

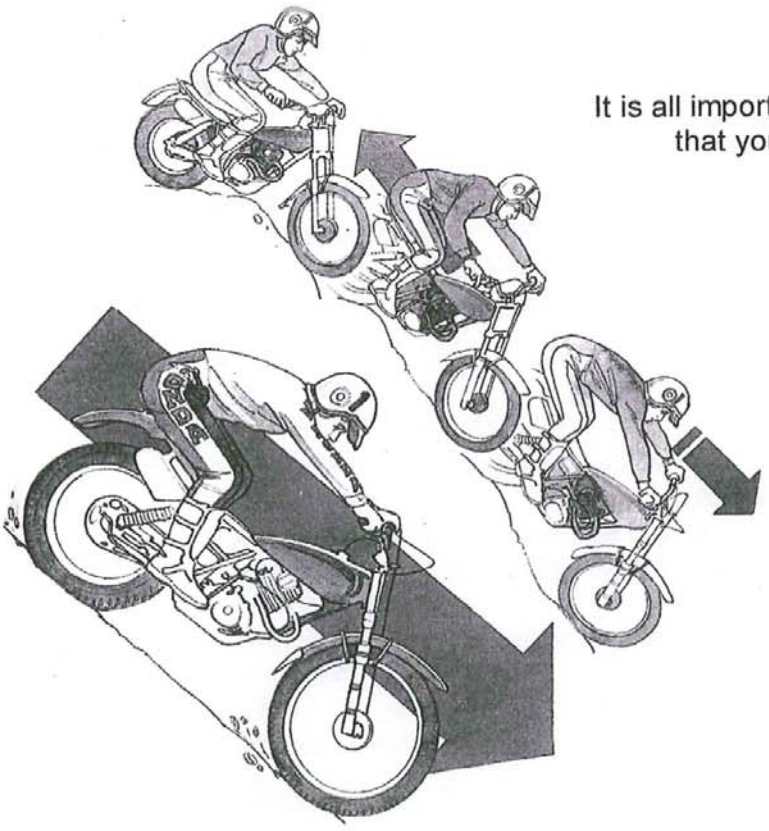
On gentle slopes with plenty of grip it is important to lean forward to keep the front wheel down

On steeper climbs I recommend bending your knees, crouching into the bike and leaning forward .



It is all important that when you approach a descent that you have scrubbed off as much speed as possible before descending

Always lean as far back over the rear guard in a crouched position. Pushing down on the handle bars to improve front wheel braking



downhill

Downhill

- It is all important that when you approach a descent that you have scrubbed off as much speed as possible before descending.
- Most of your braking will be done via the front brake whilst keeping the front wheel straight and avoiding locking-up the wheel. You will find the rear brake will assist but doesn't play as important a role as the front brake.
- I recommend index finger on the clutch lever, slightly engaged, to reduce the likelihood of stalling your engine if you happen to lock up the rear wheel.
- Always lean as far back as practical over the rear guard in a crouched position.
- For optimum front wheel braking push down on the handlebars.

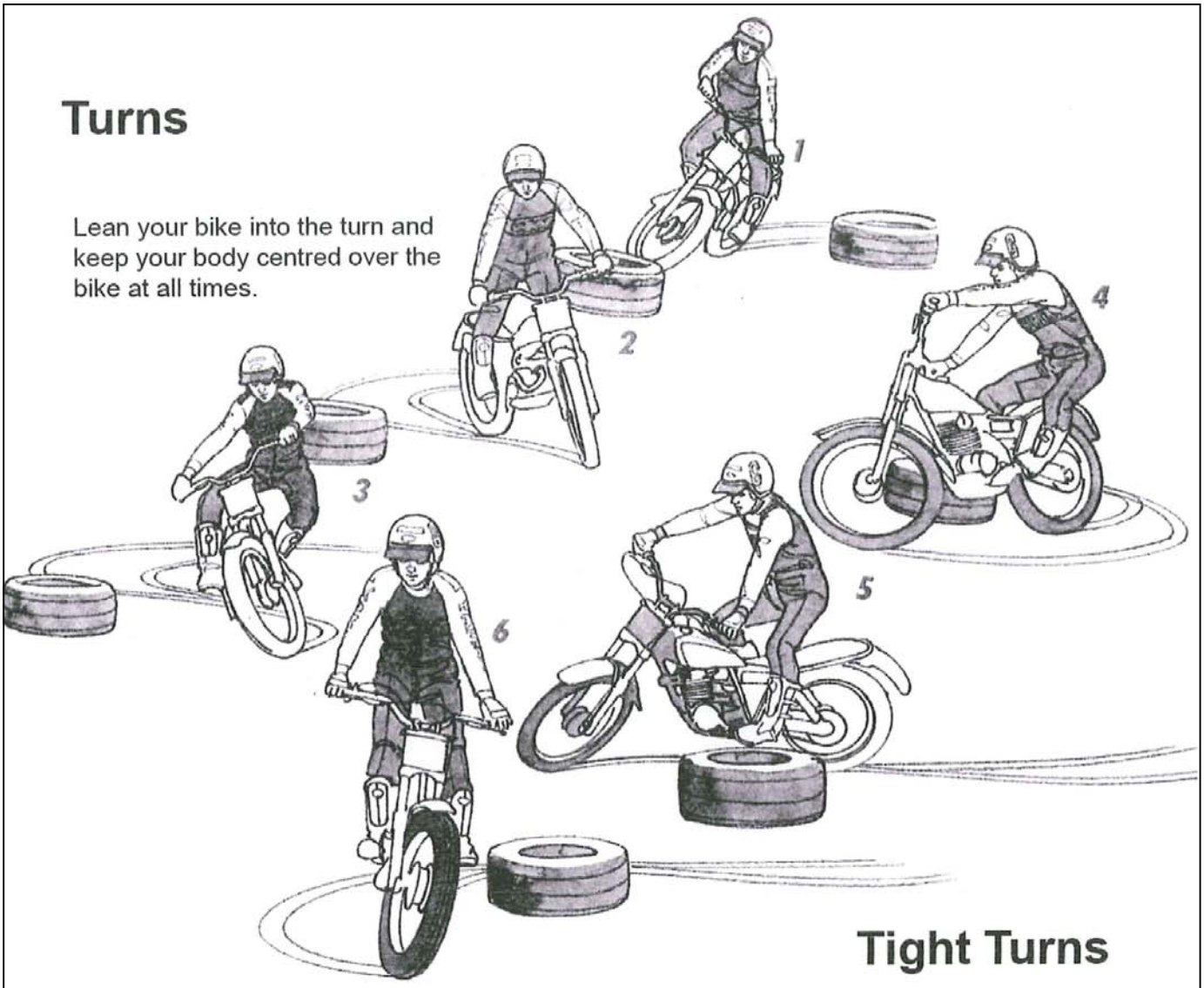
TURNS

Understanding and adhering to the following points will enable you to turn your bike with confidence. Turns are one of the trickiest things to master in observed trials. You spend most of the time turning over a very wide variety of terrain. Turns are also where most dabs are taken so it pays to become proficient in turning the bike.

- Be aware that the rear wheel will always turn inside the line of the front wheel. Try to learn how to judge where the rear wheel is going to run, and offer the smoothest line to the rear wheel.
- Make use of all the room that the section markers allow. Why make your turn any more difficult than is necessary? Don't forget to take into consideration what you have to do after the turn!
- Lean your bike into a turn by laying it against your inside leg. Keep your body centred over the bike at all times. The amount of bike lean required to complete the turn will depend on how tight the turn is.
- To stabilise the bike or recover your balance use peg and bar pressure. By pushing down on the outside grip/peg you can alter the angle of the bike. Practice this technique until you are familiar with the effect it has on the bike.

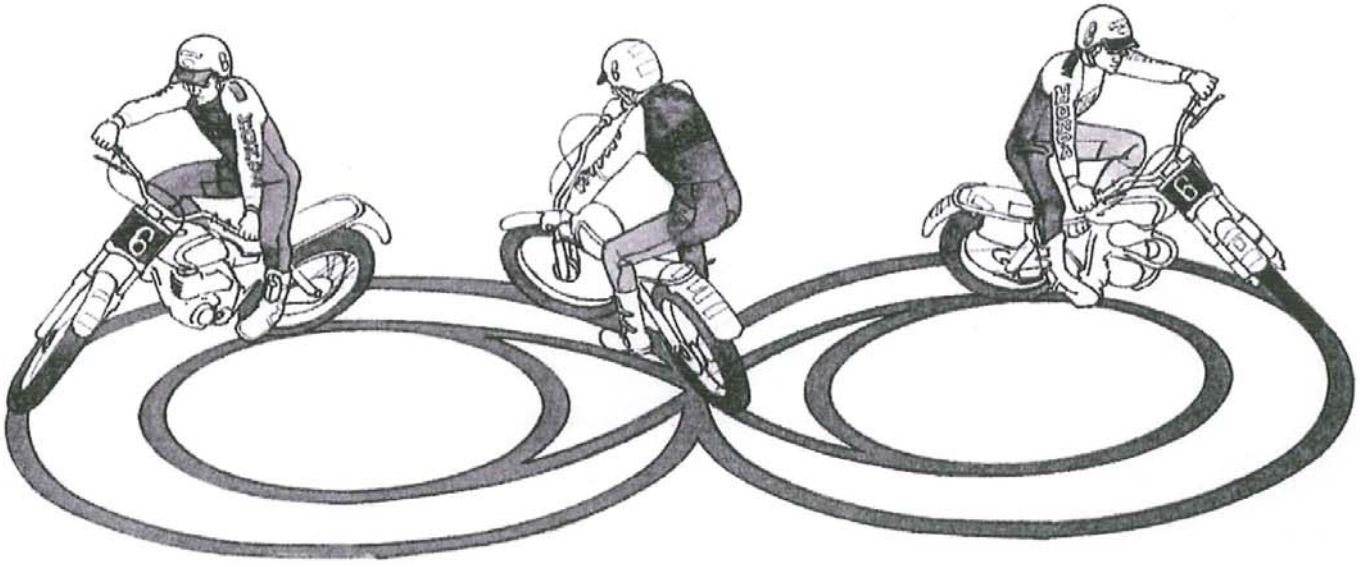
Turns

Lean your bike into the turn and keep your body centred over the bike at all times.



Tight Turns

A very good technique to practice turns is to sit two rocks on the ground at a set distance apart and do a figure "8" around them.



Tight Turns

Use the clutch and rear brake to accomplish tight turns. Practice balancing the clutch against the rear brake. Don't use the front brake unless you have to, as a sudden application of the front brake will throw you off balance. You should be able to make a very slow full lock turn by using the clutch and rear brake.

A very good technique to practice turns is to sit two rocks on the ground at a set distance apart and do a figure "8" around them. Once you can do this move the rocks closer together until you are doing full lock turns to get around the rocks. Do this exercise on flat ground and then on a camber.

OBSTACLES

There are basically three different techniques used to get up or over an obstacle. These are:

1. Basic
2. Punch
3. Splatter

You will find that the nature and size of obstacles in trials sections will vary immensely, however the techniques to negotiate them are the same. The amount of traction available will also determine how you attack an obstacle. As mentioned before, you will need to be proficient in the use of throttle, brakes and clutch. You will also need to develop the skill of "unweighting" which will be explained later.

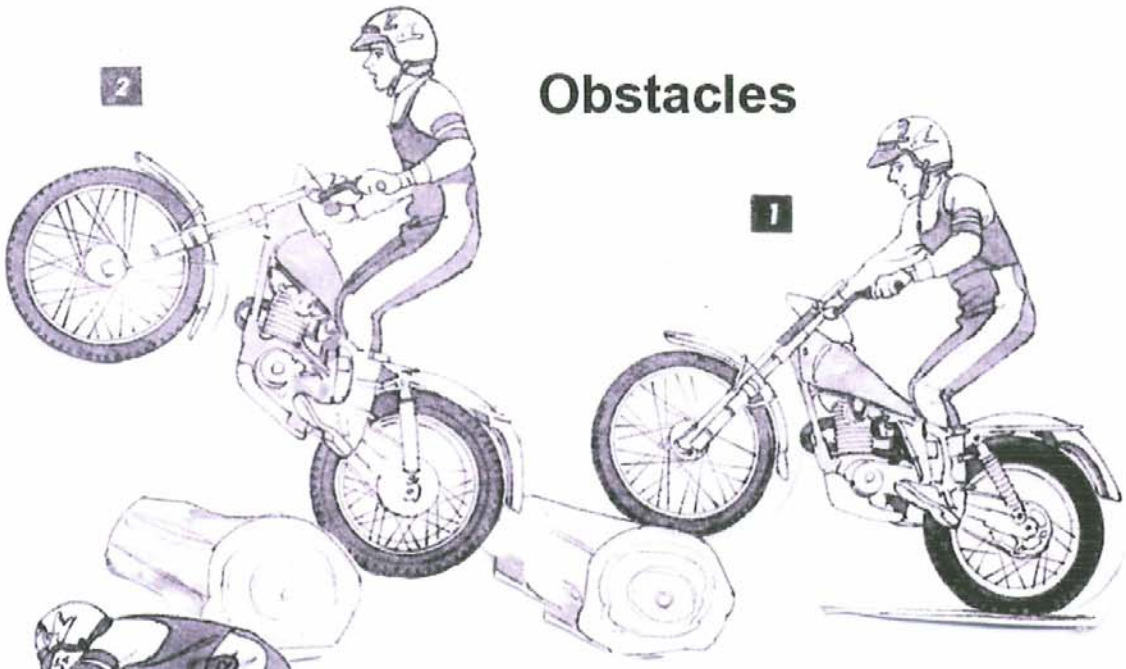
Basic Technique

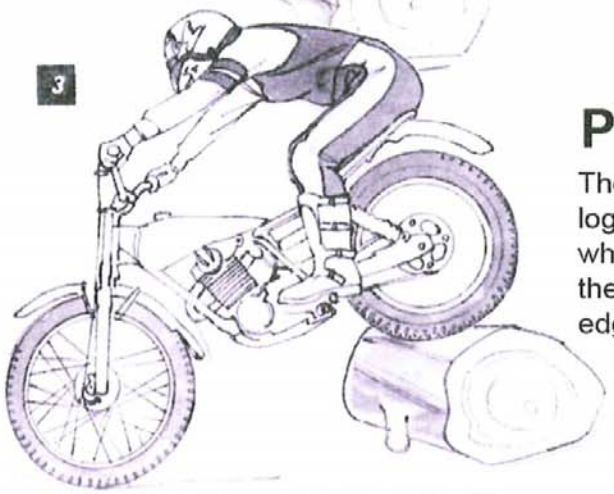
This is used to ride up a basic bank or step that is not undercut.

- You must always have your weight centred over the bike.
- You will need to get all your momentum before you actually hit the bank; this is important especially when there is very little traction.
- As the front wheel is rolling up the bank back off the throttle and use the momentum to coast up*.
- As you roll over the top of the bank slowly roll the throttle on and continue with the rest of the section.
- When riding on adverse cambers always keep your weight on the outside foot, this will help to push the wheels into the slope.
- Before you learn the next two techniques you must first learn how to unweight the motorcycle.

***NonStop Tip:** It is important to get the back wheel on top of the bank. Note that a 4-stroke engine will slow immediately when you throttle off.

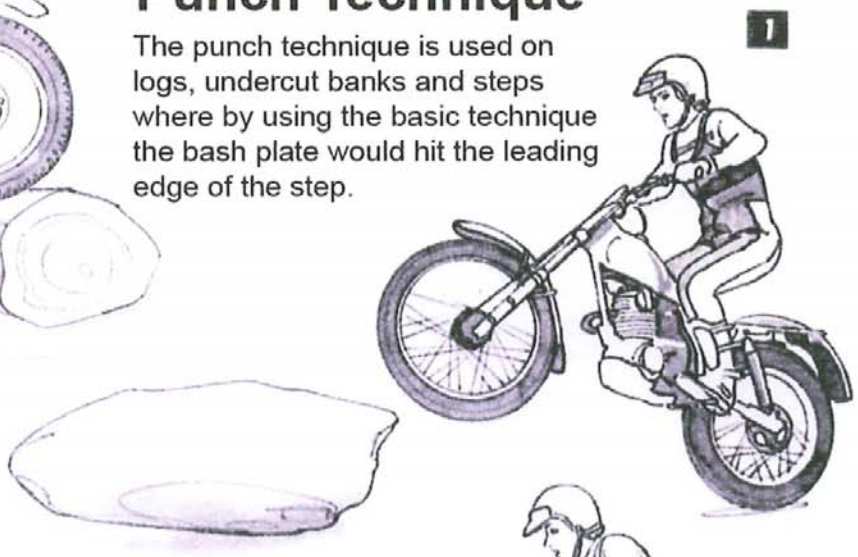
Obstacles

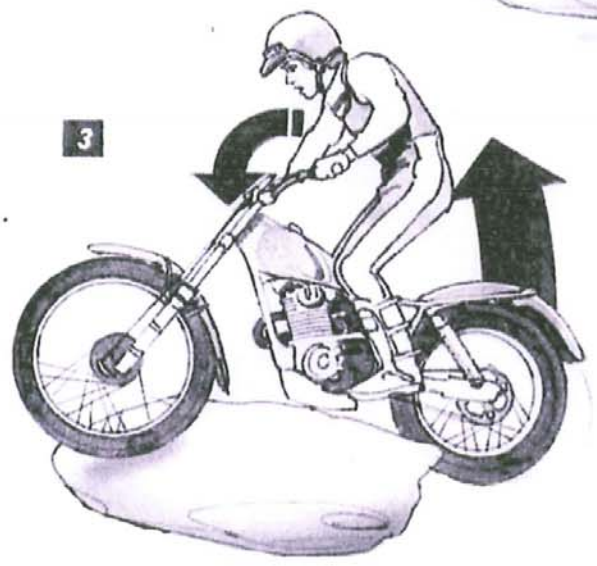


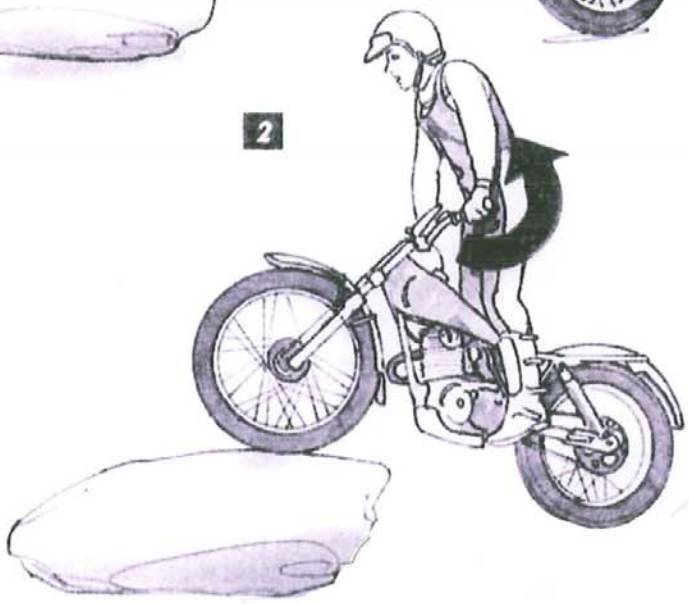


Punch Technique

The punch technique is used on logs, undercut banks and steps where by using the basic technique the bash plate would hit the leading edge of the step.







What is Unweighting?

In broad terms, unweighting is the technique of jumping upwards as your rear wheel is near or strikes an obstacle. When standing normally on the footpegs most of your weight is placed upon them and in turn upon the frame, suspension and wheels of the motorcycle. To unweight is to relieve momentarily the weight placed upon the motorcycle, in order that it may climb an obstacle free of this weight. There are varying degrees of unweighting, but basically you can totally unweight or unweight with pressure.

Total Unweight

Total unweighting is used for bunny hops or splatter technique.

1. Load the rear suspension with your knees bent.
2. Spring upright quickly causing the rear wheel to leave the ground and so that your feet leave the pegs.
3. You can grip the frame with your legs as you near the end of your upright spring to gain more height with the rear wheel.

This technique is useful for jumping onto or over obstacles. For example, if you are faced with a small slippery log you could jump over it so that the rear wheel will not slip on it.

Unweight with Pressure

This is the most common form of unweighting. Unweighting with pressure is used for undercut or vertical steps and logs.

- You should adopt the same movements as for total unweighting, but leave your feet on the pegs applying slight pressure. This is so that you can absorb some of the shock of hitting the obstacle and maintain traction with the rear wheel.
- The amount of pressure can be varied by altering the speed of your upright spring. You will need to practice to judge when to unweight in any given situation.

Punch Technique

The punch technique is used on logs, undercut banks and steps where by using the basic technique the bash plate would hit the leading edge of the step. This technique is also known as the double blip technique.

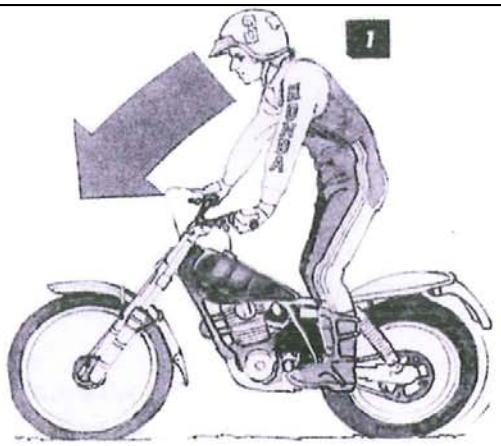
1. With the first blip you lift the front wheel and punch it into the leading edge of the step or log. As a general rule you should lift the front wheel the same distance away from the obstacle as the height of the obstacle.
2. eg. for a step 500mm (20") high you should lift the front wheel 500mm away from the step.
3. The second blip of the throttle or clutch drives the rear wheel up onto and over the obstacle.
4. Simultaneously, for an undercut step or log, you need to unweight with pressure. This unweighting will allow the rear wheel to miss the undercut at the base of the step.

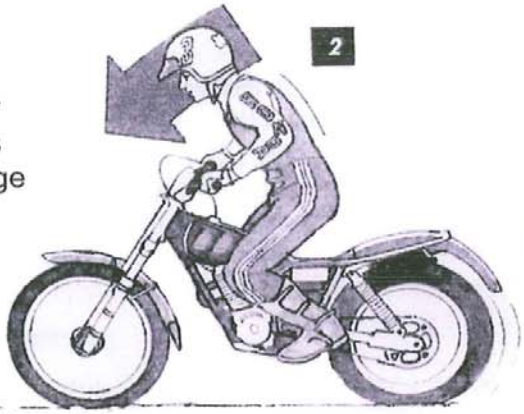
Splatter Technique

The splatter technique is used for large undercut banks or steps, normally where you have a "launcher" in front of the obstacle.

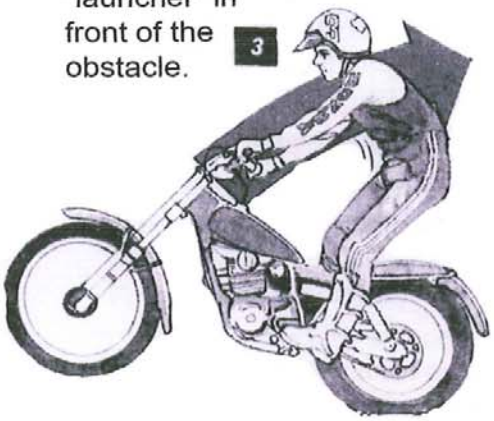
1. Get to your required speed before you hit the lifter, by building revs and slipping the clutch.
2 You should be in a crouching position, pulling back on the handle bars, as your front wheel reaches the lifter to put yourself into a wheelie position at this point the clutch should be totally engaged.
3. As you hit the lifter with the rear wheel you need to totally unweight the bike and pull back on the handlebars to bring the bike into a vertical position. As you leave the ground disengage the clutch.
4. The front wheel should be above the height of the step, and the rear wheel should hit within the top half of the step (depending on the size of the step).
5. As the rear wheel splatters into the obstacle the forward momentum will bring the front wheel down onto the top of the step preventing loopout.
6. When the front wheel has landed, slowly release the clutch, roll on the throttle and continue with the rest of the section. Easy!

Splatter Technique



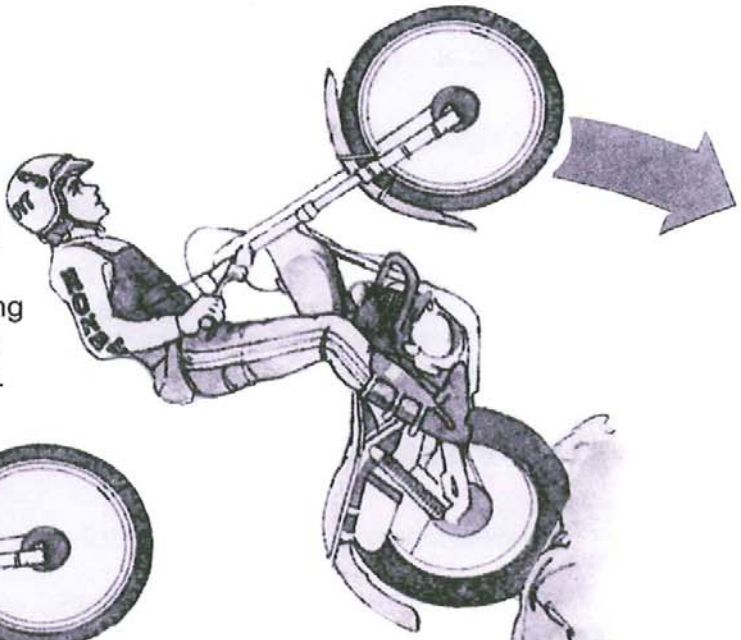


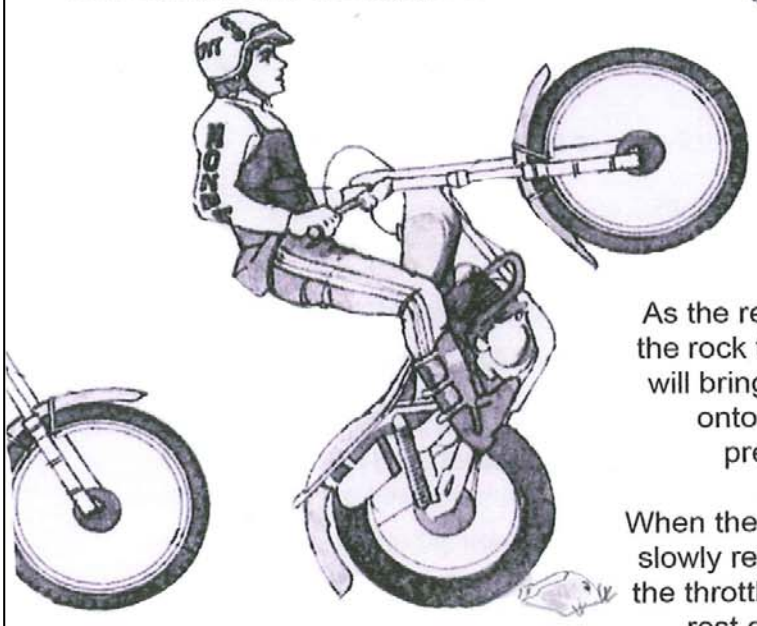
The splatter technique is used for large undercut banks or steps, normally where you have a "launcher" in front of the obstacle.



You need to get the required speed before you hit the lifter, by building the revs and slipping the clutch. You should be in a crouching position, pulling back on the handle bars, as the front wheel reaches the lifter to put yourself in a wheelie position. At this point the clutch should be totally engaged.

As you hit the lifter with the rear wheel you need to totally unweight the bike and pull back on the handlebars to bring the bike into a vertical position. As you leave the ground disengage the clutch.





As the rear wheel splatters into the rock the forward momentum will bring the front wheel down onto the top of the step preventing loopout.

When the front wheel has landed, slowly release the clutch, roll on the throttle and continue with the rest of the section. Easy!

HOPPING THE WHEEL SIDEWAYS

The use of the hop will enable you to turn your bike in confined spaces and negotiate turns that are not possible using conventional methods. Before you attempt to learn to hop you must be able to use the brakes, clutch and throttle of your bike with precision. Moving the bike sideways is basically a coordination of movements. If your coordination is out, this manouevre will be difficult to perform satisfactorily. By the same token, if your suspension is not set up correctly you will also find it hard to perform the move. When riding a trial you should only use hops when they are necessary because they zap your energy. It is also very easy to lose your balance and therefore lose points.

To hop you need to:

- Adopt a balanced stationary position, engine running, engaged in gear and clutch in. Front and rear brakes applied.
- The rear brake should be applied firmly. This stops the bike jerking forwards or backwards.
- Now you are ready to perform the manouevre. Try to relax - being tense will make your task more difficult.

Hopping the Front Wheel

A. Lifting

With the bike in the horizontal position, handlebars straight and both brakes applied firmly:

1. Push down on the bars to compress the front suspension;

2. Once the suspension has compressed and is starting to extend, pull back on the handlebars to lift the front wheel. (Remember to keep you rear brake firmly applied).

3. As you pull back on the handlebars you can also blip the throttle and pop the clutch in the same instant as the front suspension begins to extend This will have the effect of helping you to lift the front wheel off the ground.

B. Moving

A motorcycle is a static object - it will not move by itself. You must move your body first, and then bring the bike back underneath you.

- As the front end comes up, position your body either to the left or right depending on which way you wish to hop. Then bring the bike back underneath you. This can be done by applying upwards pressure to the handlebars on the side to which you wish to turn.
- The further you wish to hop the bike the more rider input will be required. If you are performing a series of hops a rhythm will develop. You should always start from a balanced position and finish in a balanced position.

Hopping the Rear Wheel

- Basically the same technique is used to move the rear wheel. You must have the front brake firmly applied, but no rear brake at all until you land. This is so that if you are off-balance you are ready to do a couple of little front wheel hops to regain your balance.
- You must flex your knees, compress the rear suspension and vigorously jump upwards to unweight the rear end.
- As the rear suspension rebounds the rear wheel should lift off the ground.
- Position your body to the left or right and bring the bike back underneath you. When moving the front end around you have the handlebars to hold onto and apply the force necessary, but with the back wheel you will need to move the bike with your legs.
- To help with extra lift you can tuck your toe under the rear brake pedal.

Points to remember:

- Keep your brakes applied whilst hopping.
  - Front wheel hops - both brakes applied at all times;
  - Rear wheel hops - front brakes only until you land then rear brakes
- Flex your knees when compressing the suspension, and straighten them as the suspension extends.
- Move your body first, then the motorcycle.
- Use the power of the engine to help you move the front wheel.
- Hopping is strenuous - don't use it to turn unless you have to.

Practice Exercise

Use this technique for target practice. Place some wooden (plywood, chipboard) squares on the ground. Lift your wheels in the above manner and place them on and off the squares. Don't worry if you find it easier to hop one way at first; with practice you will be able to hop left and right with ease. If you are having trouble try practicing on a slight slope, as it is harder to hop on flat ground. Once you have learnt the basic hops, try hopping the front wheel onto an obstacle then off again.

THE NOSE WHEELIE TURN

Once mastered, the nose wheelie turn is very useful for aligning and turning your bike in a confined space. The technique is generally only used when there is good traction. It's great for downhill turns or in drop-off situations, as the downhill angle of the bike makes it easier to use momentum and braking to lift the rear wheel.

1. Select a gear and ride along in a straight line, keeping your arms straight and weight forwards.
2. Push down on the handlebars to load the front forks.
3. Pull in the clutch and apply the front brake firmly. Make sure the front wheel is pointing straight ahead to avoid skidding the tyre.
4. As the front brake is applied, shift your weight further forward and unweight the footpegs. The rear wheel should now leave the ground.
5. As the rear wheel lifts, shift your weight back to control the amount of lift. If the bike feels as if it will "endo" release the front brake and move your weight right back.

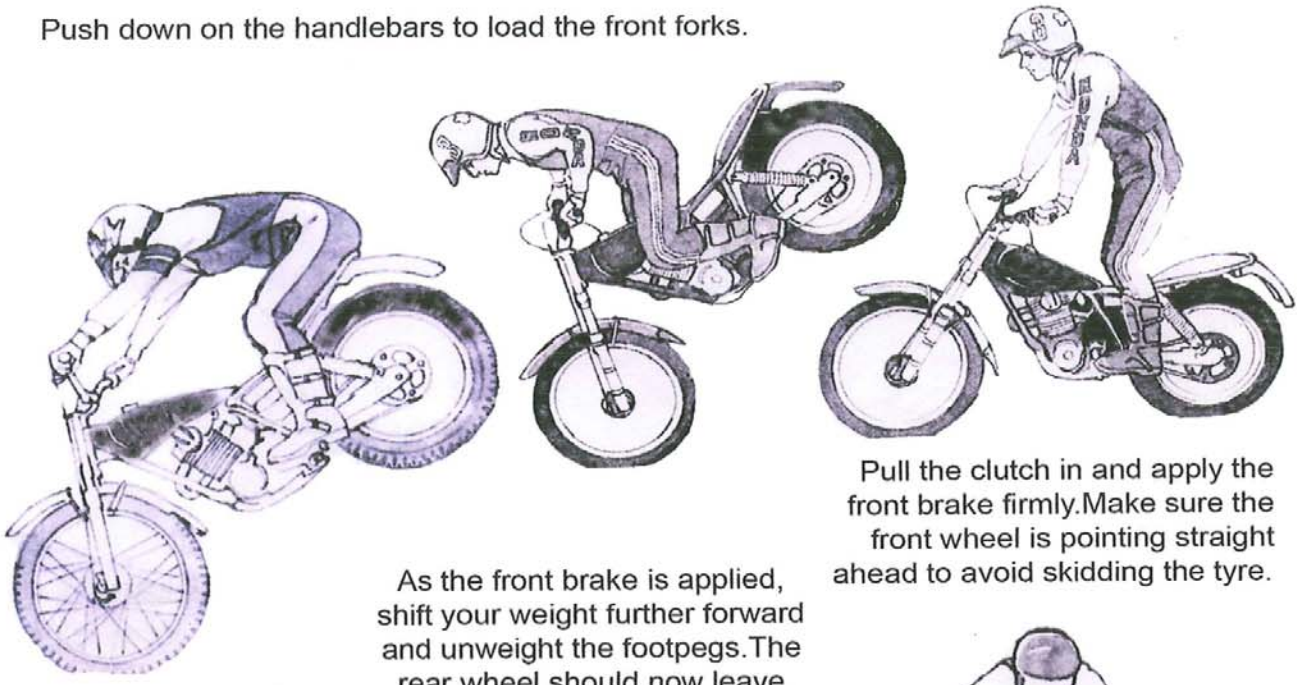
This technique can be quite daunting for a novice and consequently you will probably find at first that your rear wheel won’t lift enough. If this is the case it will be caused by one of a combination of three things:

- You didn't push down on the handlebars and move your weight forwards (the front wheel will skid);
- You didn't unweight the pegs sufficiently;
- You didn't apply the front brake hard enough or you didn't have sufficient momentum.

The Nose Wheelie

Ride along in a straight line, keeping your arms straight and weight forward.

Push down on the handlebars to load the front forks.



Pull the clutch in and apply the front brake firmly.Make sure the front wheel is pointing straight ahead to avoid skidding the tyre.

As the front brake is applied, shift your weight further forward and unweight the footpegs.The rear wheel should now leave the ground.

As the rear wheel lifts, shift your weight back to control the amount of lift. If the bike feels as if it will "endo" release the front brake and move your weight right back.

The Nose Wheelie Turn

You can now begin to swing the rear wheel left or right as it is in the air by moving your body first, then bringing the bike back underneath you.

As the wheel comes up, position your body by swinging your hips in the direction you wish to move the wheel and steer in the same direction.

As the rear wheel lands you should find yourself in a balanced position with the handlebars turned in the direction to which you wish to turn.

Moving the Rear of the Motorcycle

After you have learnt how to lift the rear wheel using braking, momentum and weight distribution, you can now begin to swing the rear wheel left or right as it is in the air. This is accomplished by a similar technique to hopping the rear wheel. Move your body first, and then bring the bike back underneath you. The amount of body movement and rear wheel lift will determine how far you can move the rear wheel. In effect the bike will pivot on the steering head.

1. Lift the wheel in the manner previously outlined.
2. As the wheel comes up, position your body by swinging your hips in the direction you wish to move the wheel. If necessary you can push the bike with your legs to assist movement.
3. Steer in the direction that the rear wheel is heading.
4. As the rear wheel lands you should find yourself in a balanced position with the handlebars turned in the direction to which you wish to turn. At this point you may either straighten the bars and continue the section or perform a couple of front wheel hops to negotiate tighter turns.

Practice Exercise: for hopping the rear wheel

This manouevre is easier to learn and practice when the front wheel is lower than the rear. (eg. when you are dropping off a small step). Find a small step in your practice area. Make sure that good traction is available at the bottom of the step. Ride off the step and apply the front brake while the rear wheel is still on top of the step. Lift the rear wheel and swing the rear of the bike around until it lands on the lower side of the step. Don't forget to practice swinging the bike in both directions!

PRACTICE EXERCISES

Flat Turns

- Circles and figure 8's
  - with clutch out;
  - slipping clutch and rear brake.
- Stopping intermittently
- All of the above but on a slope

Balance

- Balance recovery – counterbalance with leg out
- Balance with front wheel against wall or object
- Balance with front wheel on wall or object

Hops

- Hop front wheel left/right:
  - on flat ground;
  - uphill and downhill;
  - onto obstacle and off again.
- Hop rear wheel left/right

Nose Wheelies

- Slow speed nose wheelie (straight line)
- Slow speed nose wheelie moving rear wheel left/right
- Ride along obstacle, drop front wheel off, nose wheelie and move rear wheel left/right

Practice Sections

- Set up hard section and try to clean it
- Set up easier section and work on basics
- Study different lines then try them

Remember-

- Don't practice what you do well all the time;
- Concentrate on things you find difficult;
- Keep it fun and vary it!

Non Stop Off Road Academy Coaching Manual

As MNZ Moto Trials Commissioner, I would like to endorse the Non Stop Academy's new "Off Road Coaching Manual" and recommend the said publication to ALL who are contemplating or already riding two wheeled motorcycles off the bitumen. The techniques and tips will be valuable to a wide variety of riders and, although biased toward Moto Trial, the chapters on speed related disciplines will appeal and it should be remembered that many riders who achieve the Moto Trials 'skill set' also become fast in the dirt.

Jim Henderson
MNZ Commissioner

Contributors

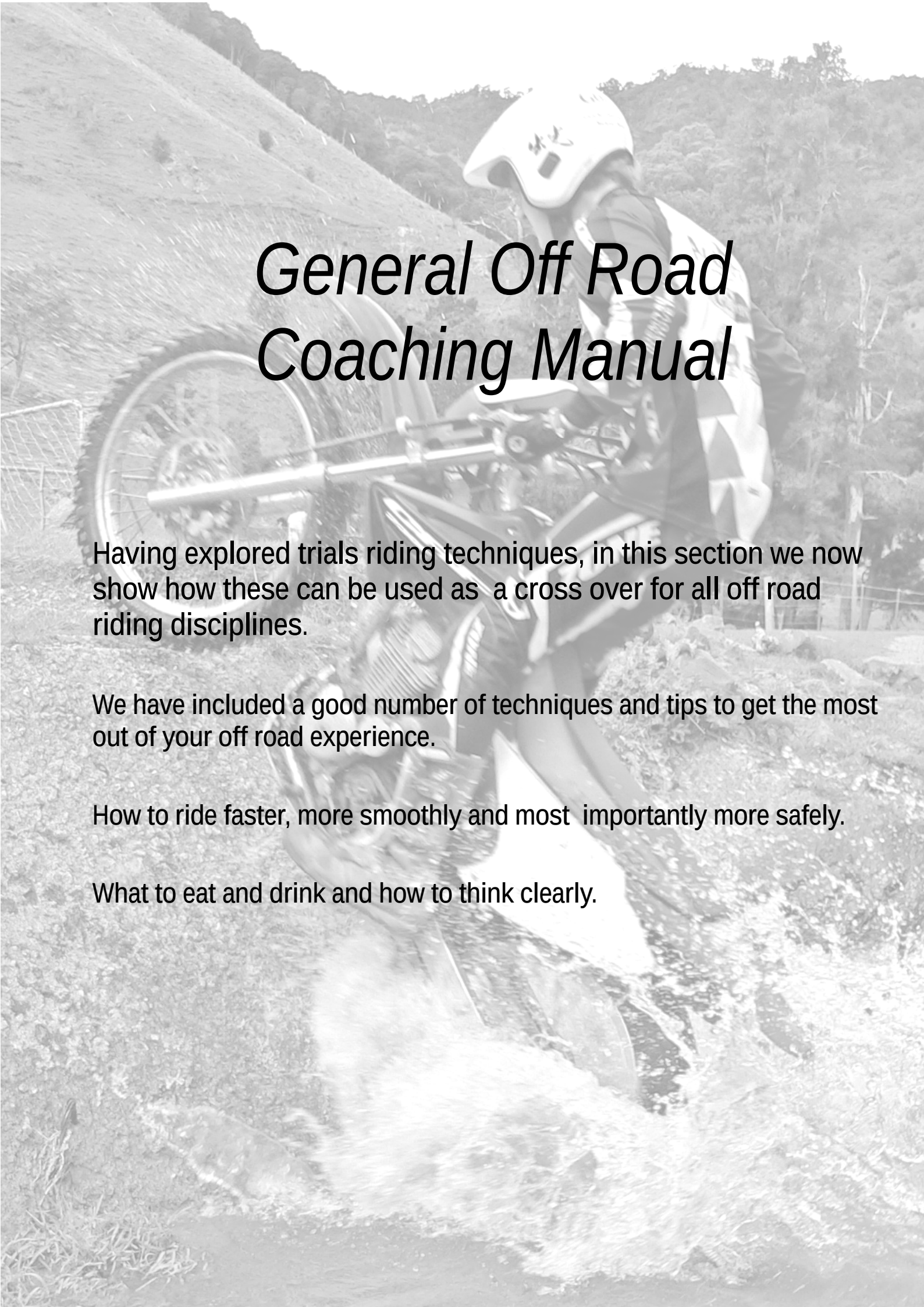
Allan Oliver (retired Blue Wing Honda South Island Manager)

Craig Mills (Vice president, Nelson Motorcycle Club & MNZ South Island Trials Coordinator)

Alan Duthie (President, Pioneer Motorcycle Club)

Thank you to everyone else who has inspired this version of our manual.

We plan to continue updating the manual from feedback received with a printed version run annually - so get your suggestions to us at : ride@nonstopadventure.co.nz



General Off Road Coaching Manual

Having explored trials riding techniques, in this section we now show how these can be used as a cross over for all off road riding disciplines.

We have included a good number of techniques and tips to get the most out of your off road experience.

How to ride faster, more smoothly and most importantly more safely.

What to eat and drink and how to think clearly.

Section Two

General Off Road

Contents

INTRODUCTION

Riding dirt bikes is challenging but at the same time exciting! There is nothing quite like the adventure of getting on a dirt bike and tackling new challenges developing new skills that help take you to the next level, while exploring new terrain or your favourite track and riding area.

However to get the most from your riding, there are a few things you should know.

This Manual contains information to help improve your riding, whether you are a casual weekend trail rider or a serious competitor seeking National titles.

GENERAL INFORMATION

Safety first

PREPARING YOURSELF

Always wear the correct safety equipment, whether you are seriously competing, practicing or just having a fun ride around. Well fitting riding gear is all important.

The minimum requirement would have to include approved: helmet, boots, gloves followed by goggles and body armour, riding shirts, pants and knee pads as necessary.

We get a lot of pleasure from riding our bikes, but be aware that motorcycles can be annoying to others & be seen as contributing to spoiling our environment. If you stick to the following recommendations, you will be helping to make sure we have places to ride in the future;
Occasionally we can be our own worst enemy and for some of us, self preservation doesn't come high on our priority list, so the team at NonStop recommends you take on board the following points.

- Always get permission before riding anywhere.
- Make sure your bike has a good muffler that keeps your bike quiet.
- Try not to damage any terrain.
- Do not ride in residential areas.
- Please be environmentally aware by taking all your rubbish home & cleaning up after yourself.

If riders think of others that are not as passionate as we are for our unique form of recreation, then this will go a long way to assisting our clubs and governing body to portray a positive image on our behalf.

Remember that it takes a long time to get really good at riding, but if you use the techniques in this manual, you will become a better rider in a shorter time & with a lot less falls.

TO JOIN A CLUB OR COMPETE

For advice on your local club or motorcycle competition call Motorcycling New Zealand at 07 828 7852, fax 07 828 9828 or write to Motorcycling New Zealand PO Box 253, Huntly or visit their website www.mnz.co.nz

BIKE SET UP

You do not need to have the latest, most expensive bike, but it does need to be set up well. Poor bike set ups badly affect your riding technique & safety.

Please note that these tips are general for all off road riding and bike set up; however, there will be many personal preferences and small variations required for individual tastes.

We have included in the trials section of this manual some more specific tips for trial bike set up. As always there can be a cross over with all off road disciplines.

Handlebars

The handlebars should be a little wider than your shoulders and should be in good shape. Narrow handlebars tend to cause instability of the front end. The cross bar & main beam of your handlebars should form a direct line with your forks when you look down from above. You need to have your bars positioned so that they do not obstruct your legs & knees whilst you are cornering. Have the bars in line with your forks this will make it easier to use the 'elbows up' riding style that top riders use. I would recommend bar width to be around 800mm.

Levers

Levers should be set up so that when you are sitting or standing on the bike in the 'Attack positions' your arm & wrist form a direct line with your handlebar & lever. This lever angle Is about 30 degrees dipped from being directly forward of your bars. Having your levers lowered helps keep your elbows up.

Lever Mounts

You need to have your lever mounts on the bars slightly movable so that they pivot if you crash, rather than snap.

Lever Freeplay

You should be able to pull your clutch & brake levers in about 5-10mm before they start working. This avoids 'riding' the clutch & helps prevent fore-arm pump.

Grips

You need to glue and lock wire your grips on to avoid them slipping during a ride. Many people use grips with no pattern on the top side to avoid blisters. Replace grips when worn.

Rear Brake & Gear Shift

Both should be adjusted so that they sit parallel with the foot-peg & the ground. The brake should be adjusted to work when it has been pressed down one cm.

Tyre Pressures

Running tyre pressures too low means you run the risk of getting a flat tyre. If the pressures are too high, your rear wheel will spin & not get traction. You should run 11 psi (pounds per square inch) in the rear tyre and 14 psi in the front. On a wet day, drop pressure to 8 psi in the rear and 11psi in the front. On a hard/rocky track keep your pressures higher to prevent compression punctures.

NonStop Tip: Trials tyres are the exception –see Trials Section of the Manual

Suspension

Off-road riding is all about humps and hollows so having your suspension set up correctly is vital, even more so if you are competing.

Suspension Sag

You need to set your suspension so that it sags a certain amount when you sit on it. On a full-sized Motocross or Enduro bike the bike should sag 25mm under it's own weight & 95mm when you sit on it. Use a measurement between the rear axle bolt & the seat bolt to see if your sag is correct.

Fork Height

The amount of the top of the forks poking out of the top fork mount affects the bike handling. Having a lot of the fork showing means the front of your bike is lowered
which makes the bike turn more quickly, but be more unstable at high speeds over rough ground. Having the top of the fork level with the top fork holder raises the front of the bike, making it more stable, but turning slower.

Foot-pegs

The angle of your foot-peg is vital to riding well. Foot pegs sag down on the outside after a lot of use. The footpegs need to sit up higher on the outside when viewed
from the front or behind. To do this, take your foot-peg off & put a dab of weld on the bottom inside of the peg.

BODY POSITION

Correct body position is the foundation of riding well. Just like if you started to build a motorcycle, you would start with the frame, so too when learning to ride better, you start with your frame - your body.

Consider your back as a part of the frame of the bike and your arms and legs as suspension. There are two basic body positions to use for off-road riding;

The Standing & Seated Attack Positions.

1. Standing Attack Position

- Rough ground
  Stand crouched on the bike with knees slightly bent
- Up hills
  Crouch into the bike. Grip seat with knees if needed.
- Downhills
  Elbows up so arms are in line with forks. The steeper the gradient move your body further back.
- Sweeping corners
  Head above the handle bar
- Jumping
  Looking ahead

2. Seated Attack Position

Cornering & Starts

- Sit as far forward as possible
- Crouched & leaning slightly forward
- Elbows up so arms are in line with forks
- Head 3 hand widths above handle bars
- Grip seat/tank with legs
- Two fingers on hand controls
- Looking ahead

NonStop Tip: When traction is not available, slip your backside back towards the middle of the seat. This adds weight to the back tyre. Keep your head above the bars to keep some traction on the front end.

General Body Position Tips

Double your suspension - “stand up”
Getting central takes the strain off the body & keeps even traction front & rear
Always grip with the knees
Relax your hand grip on the handle bars when possible
Always look ahead

BODY MOVING

A motorcycle is a rider active vehicle, meaning that you have to move your body around to control the bike. Not moving, or moving the wrong way, can ruin traction, upset the suspension and tire you out more quickly. Learn to move around the bike and you are starting to discover safe, smooth and fast riding.

Standing to Sitting

It is really important to **move smoothly between standing & sitting** so that you keep your body weight balanced on the bike.

-To move from the seated attack position to the standing attack position, simply straighten your legs until you are standing on the bike with slightly bent legs.
-To move from the standing attack to the seated attack position, sit & **slide forward in the same motion** until you are sitting as far forward on the seat as possible.

NonStop Tip:
Your head & shoulders remain in the same position whether you are standing or sitting. Only the position of your legs & bottom changes. Your head should be the length of your forearm away from the handlebars at all times. Elbows are always up for strength & stability.

Centres of Gravity

You have an imaginary point in your body around which your weight is evenly distributed. This point, called your Centre of Gravity (COG), is just in front of your stomach. Likewise your bike has a similar point around the middle of the engine. Controlling a motorcycle has a lot to do with where the two COG’s are in relation to each other. The closer a rider can put their COG to the bike’s COG, the more stable, controlled and balanced he/she will be. This is why most top riders crouch over their motorcycles with their **head centered over the handlebars.**
A common mistake made, especially by off-road riders, is that riders sit too far back on their machines. This means their COG and weight is rear of the motorcycle’s COG. This means the rider overloads the rear suspension, strains their forearms and back muscles **(leading to forearm pump)** and uneven traction on the tyres.

Braking, Cornering and Accelerating Forces

In order to counter accelerating forces the rider will move their COG forward. To counter decelerating forces the rider moves their COG back. This applies to both braking/accelerating and uphills/downhills.

Get Low
A rider crouched low over their bike is less likely to be thrown sideways in a corner. By crouching low, the pendulum effect is decreased.

Weighting the Footpegs

Transferring the rider's weight from left to right on the footpegs assists in steering the bike, especially at speed, and minimizes the loss of control of the front end.
On hillsides, in order to get maximum traction, the rider should transfer their weight to the outside footpeg.

CORNERING

Cornering is where a race is won or lost. It's much easier to go fast in a straight line. Time saved = places gained.

Technique

- Enter corner in standing attack position on the line giving best 'flow' around the corner
- Brake as hard as you can before entering the corner.
- Change down gears. Choose a gear that will get you part way down the next straight
- Just before the middle of the corner, sit smoothly into the seated attack position
- As you sit, apply the gas smoothly in one motion
- If bumpy terrain ahead stand up as soon as possible after exiting the corner to assist suspension

Cornering Practice Activities:

- Slow first gear circles
- Figure 8's
- Barrel racing
- Stand up cornering
- Weaving in & out of cones

Rutted Corners:

- You need to be very accurate
- It is vital that you line the rut up so you enter in a flowing way
- Lean with the bike, rather than leaning the bike below you
- Get your inside leg up high so it does not drag on the ground

Cornering Lines: In general, try to take wide entries into corners, especially flat and bermed turns. This means you make the corner as flowing as possible and can accelerate sooner.

Tips

- Remember to get the bike leaned over before you sit
- Remember sit just before the apex (middle) of the corner!

JUMPING

Air time is exhilarating and one of the many reasons people ride bikes but if you want to ride fast and safely, there is more to learn about jumping than just air time.

Technique

- Most jumps are approached in the **standing attack position**.
- Choose a smooth spot on the jump to take off from.
- Make sure the bike is in the 'torquey' part of the power band as you hit the jump face
- Grip the bike firmly with your legs
- Give the **throttle** a little blip as you take off.
- Do not push or pull on the bike as you take off.
- Let the suspension compress & rebound naturally
- To lower the front end of the bike while in the air engage the clutch and rear brake
- To lower the back end of the bike while in the air open the throttle
- Always look ahead

Do not attempt a jump if you are not confident. When learning jumps start small!

CROSS COUNTRY SKILLS

Muddy/Boggy/Sandy Ground

Pick a **good line**, which offers the most traction. Enter the muddy ground in the standing attack position, but **leaning back** so your front wheel doesn't dig in. Keep up plenty of revs & try to maintain some speed & **momentum.**

If you get stuck, jump off quickly & push with the bike in first gear revving low.

Downhills

- Look for a good smooth line at the top.
- Shift your **weight as far back** as possible.
- Use both brakes to slow down.
- **Grip the bike tight** with the insides of your legs.
- Keep the engine running.
- Let the brakes off for a second if you cross a tree root or really slippery section.

Uphills

- For Motocross hills, stand up, look ahead and attack the hill. Stay in the standing attack position.
- In a trail situation, try to pick a good line when you are well away from the hill
- Change down gears when the revs die and or use a some slight engaging of the clutch to help keep the revs up
- Always look ahead

If you get stuck on a hill

Pull the rear of the bike around until the bike is lying across the hill with the seat closest to the top of the hill. Get on the top side of the bike, because it is easier to lift from the top, then lift the bike up. Either push the bike to the bottom or remount and ride the bike down.
(Be mindful of other riders).

TRAIL RIDING

NonStop Tip: The Trials section of this manual has some great tips on correct technique that will help you negotiate the obstacle that you will encounter on the trails.

Use the **crouched standing attack position** & always **scan the trail 20m ahead** so you can pick the best lines & **react** to logs, banks & other riders. Roll the throttle on smoothly around corners & maintain momentum.

To cross logs, lean back, wheelie the front end over, close the throttle & shift your weight forward to ease the back tyre over the log. Drop t pressures to 11 psi if the trail is really slippery. Consider using heavy duty tubes, a pipe guard (2 stroke) & hand guards.

FITNESS TRAINING

Riding a dirt bike takes a lot of physical effort. You need to develop endurance in your legs, arms and back (basically all muscles) as well as get aerobically fit (breathing). So you really should do some form of fitness training.

Some good activities include:

- Riding your motorcycle
- mountain biking
- road cycling
- swimming
- running

Other really fun activities that improve your fitness for riding include:

- kayaking
- waterskiing
- wakeboarding
- surfing

The most specific form of training you can do is to actually ride/race your bike.

Off the bike activities will help you to get fit, but can never replace riding your bike. You need to spend at least 50% of your training time on the bike.

MOUNTAIN BIKING provides an excellent workout for the legs & cardiovascular system, but does not work the upper body that much, (unless you are carrying your bike through rough terrain or biking downhill on rough terrain)!

Try to do some fitness training at least 3 times a week for between 30 to 60 minutes. Push yourself to a point where you feel uncomfortable, but not in pain.

NUTRITION... fuelling the body!

Understanding nutrition is not difficult. It is simplest to **think of your body as a motor, which requires fuel, a spark and a cooling system.** The best fuels for your body are Carbohydrates such as bread, potatoes, cereal and fruit. Look at the following comparison between an engine and the human body.

FUNCTION	ENGINE	BODY
ENERGY	PETROL	CARBOHYDRATES
START & MAINTAIN FUNCTION	SPARK PLUG	PROTEIN & VITAMINS
STRUCTURE/HOLD TOGETHER	FRAME	MINERALS
LUBRICATE & COOL	OIL & COOLANT	WATER

Just as your motorcycle will not run well on poor quality fuel, your own body will not perform well if any fuel source is inadequate.

Eat

- Eat regular small meals containing mostly carbohydrate food: potato, fruit, bread, cereals, noodles, rice and pasta.
- Avoid fatty foods
- Avoid milk based food prior to riding (stomachs can get upset)
- Try to eat on the day you ride, even if it is just a banana or three.

Drink

- Drink heaps, especially for endurance events and on hot days
- Drink water, fruit juice or a sports drink (diluted 50%)
- Eat and drink after the event to fill up your energy reserves for a quick recovery
- Protein is important for post event recovery.

Special Notes on Fluids- Avoiding Dehydration!

The biggest nutritional problem many people face is a lack of fluid, leading to dehydration.

During intense exercise, up to 3 litres of fluid can be lost per hour. It only takes a loss of one percent of body weight caused by fluid loss before performance is impaired. The symptoms of dehydration (a lack of fluid) include head aches, starry vision, cramp, disorientation and exhaustion and can become very serious resulting in a stroke or even death. You ***do*** need to drink before you are thirsty!

Nutritional Myths

- A LACK OF SALT CAUSES CRAMPS! Possibly in a very few cases this is so. Normally it is either repetitive muscular action or a lack of fluid that causes cramp.
- YOU ONLY NEED TO DRINK WHEN THIRSTY! Wrong!! Thirst is felt after fluid is required.
- CASUAL RIDERS DO NOT NEED CORRECT NUTRITION. Wrong again!! Recreational riders have just as much need for correct nutrition as the world champions, because they are often not as fit!

TRAINING THE BRAIN

Your mind plays a huge role in how you performance. Your mood, your concentration, thoughts etc have a big influence - either positive or negative.

Keeping Calm, Cool and Collected Before the Big Event

Many riders get anxious before a competition, especially a major one. The symptoms of being too nervous include feeling weak and tired, sweating, adrenaline flowing and treating those around you unfairly. The following are some effective methods of calming down so you can perform well.

- Affirmations; positive self talk
- Changing fear into excitement. The physiological symptoms of fear are very similar to the symptoms of excitement. Tell yourself “I am excited by this challenge”!
- Downplay the importance of the event. Pretend the event has no more riding on it than a club day out.
- Remain busy. Check your bike, prepare your gear, walk the track.
- Play familiar relaxing music

Concentration

Maintaining concentration is one of the most important psychological aspects of performing well at your chosen sport.
Following are methods of maintaining concentration on riding.

HERE AND NOW: Put your entire thoughts into the immediate challenge. Nothing else. Just the next 2 seconds riding ahead.

SELF TALK / KEY WORDS: Use words like attack, focus, smooth to help you concentrate on your riding.

Mental Toughness

A lot of sports psychology comes down to MENTAL TOUGHNESS. This is the ability to control your own mind & remain positive & focused no matter what happens. You need to become a mentally tough individual. Get inside your head. Once you can achieve a consistent, positive never-give-up, 100% effort attitude you will then be able to perform at your best.

Positive Thinking and Visualisation

Before going over a good size obstacle, around a deep rut or over a jump, imagine yourself doing it perfectly. Fill the mind with the right picture and often the body will follow through. Think negatively and you will fail.

SUMMARY

Riding dirt bikes as a sporting activity ranks right up there with the best. The excitement that is on offer, the adrenalin pumping or simply the freedom of exploring new terrain keeps us involved in the sport of off road riding. Hopefully with the help of this manual you have gained some valuable tips on how to ride better and certainly with more control. We wish you many years of safe and enjoyable riding.

" Proud to be involved in Off Road Motorcycling in NZ"

Team NonStop

Many thanks to all our supporters including:

NON STOP Adventure

IHATOVE

GOLDPINE "your outdoor timber specialist"

printhouse

enza ™

HQ HIREQUIP Ask Us First

Waimea Weekly Always someone you know

tasman district council lifestyle

DOWELL WHOLESALE CARS

mtf vehicle finance

HONDA

montesa

NOVUS AUTO GLASS The Windscreen Repair Experts

出光 IDEMITSU IHATOVE TRIAL

NZ IHATOVE NON STOP ADVENTURE TRIAL

NGK SPARK PLUGS

TRIALS NARITA

BLACKS FASTENERS

NELVAC Home Services Ltd Stephen Oliver Owner / Operator

GINELLI Performance Bikewear

Fulton Hogan

Taylors CONTRACTING CO. LTD. BRIGHTWATER NELSON Phone 542 3150

IHATOVE SINCE 1977 A SPORTING HOLIDAY IN THE HIGHLANDS

THE BENCHMARK OF CONTRACTORS ADCOCK & DONALDSON

SCORPA LA LIBERTE DE ROULER

MOTORCYCLING MNZ NEW ZEALAND

D.I.D Racing Chain

PIONEER MOTORCYCLE CLUB

KIWI RIDER Since 1984

ALLIED Concrete

THE HELLTEAM.COM

We would also like to acknowledge the many other local Nelson companies who have assisted with the supply and transportation of materials used at the NonStop trials park.