# OBSERVED TRIALS COACHING MANUAL

The Observed Trials Coaching Manual is adapted from a manual originally compiled by Peter Mathieson (downundr@accesswa.com.au) for the 1994 Western Australia Trials Training Course.
The author acknowledges use of the book "Observed Trials" by Bernie Schreiber and Len Weed.

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# Introduction

Welcome to the Observed Trials Coaching Manual. Hopefully the information presented here will go some way to improving your trials riding skills. Some of it has been sourced from what some people would consider the "bible" as far as observed trials riding is concerned - "Observed Trials" written by former World Champion Bernie Schreiber. This book is an absolute must if you are interested in studying trials riding techniques.

*"It is important to realise that a school has never turned a beginner into a champion - it has never happened and I don't believe it ever will. What is important is that you learn and apply correct techniques and perhaps most important of all is that you understand why you have failed an attempt at an obstacle or section, and to take the necessary steps to rectify it. Should you then succeed you must realise that it was not through luck but through the careful application of the correct technique."*

*- Thierry Michaud, many times champion of France and World Champion in the mid to late Eighties.*

Observed trials is a complex sport so don't feel disheartened if you have some difficulty at first.

Finally, don't lose sight of the reason you started riding trials. Wasn't it to have fun? It is a fact that some riders will never make it to National or even 'A' grade level, but don't let it bother you! Enjoy your sport at a level at which you feel comfortable, and alway 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 competition, however it will not perform satisfactorily unless it is set up. Tricks can be performed on a badly set up bike, however you will find it a lot easier on a correctly set up bike. Set up and maintenance of your machine will also reflect in your results in trials. The following information is intended only as a guide, but we feel that it is a useful source of info for all trials riders.

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

If any of these are incorrectly adjusted you will have trouble controlling your machine precisely. Trials is a precision sport.

## *Throttle*

- Check that it is secured correctly on the handlebar and that it snaps shut by itself when released.
- The cable should have the absolute minimum of play. 5mm of play will translate to a delay when you twist the throttle. Make sure that the cable is secured and routed 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 routed 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 routed 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.

## *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!

- Most bikes have a cable operated clutch. Ensure the cable is in good condition and well lubricated.
- 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 proper 2 stroke motorcycle gearbox oil. 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 of standard width and straight. Bent handlebars cause an uneven stance on the bike.

**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, turn and steps. Not as good for drop offs, down side of logs, etc.

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

**Lever Positioning**

- Levers should be slightly lower than horizontal.
- You should easily be able to reach and operate clutch and brake with your index finger.
- 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 manoeuvres 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:

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 you 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 bearing are in good condition and correctly adjusted
- check linkages - ensure all bearing 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!!

## 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 - | dry 7 - 8 psi | wet 5 - 6 psi |
| Rear- | dry 5 - 6 psi | wet 4 - 5 psi |

## Safety Clothing

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

## Practise

It goes without saying that practising intensely will improve your riding. Practise 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 truly 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.

### *Practise Partners*

Try to avoid practising alone, particularly if you are new to the sport. Novices crash a lot and sometimes a freak accident will leave you stuck under the bike or too injured to go for help. If you must practise alone avoid risky riding. Work on the basics instead.

There is a bonus to practising with your mates - whatever they try to do so will you and you will indulge in a little friendly revelry. If you are a newcomer you will learn a lot by practising 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 Practise Error*

*Don't practise what you like; don't practise what you do well.*

Practise 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 practise it. The people who mark out trials are not usually known for marking out things that you do well. By practising what you find difficult or what you lose points on, your trials sections will become much less daunting.

# 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.

## 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.

## 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.

# 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.

## *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.

## *Practise Balancing*

The beauty of balance practise is that it can be done at any time - even in the shed at night. 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 practise you should be able to stand there for extended periods without losing your balance. Don't worry if you can't balance straight away as it takes a lot of time and persistence to learn the art. You will improve your balance enormously if you practise for a few minutes each day. Bored with balancing? Try balancing while listening to music or watching trials videos to occupy your mind!

# 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 compete 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. Practise this technique until you are familiar with the effect it has on the bike.

### Tight Turns

Use the clutch and rear brake to accomplish tight turns. Practise 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 practise 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 you back off the throttle and use the momentum to coast up the bank.
- As you roll over the top of the bank you slowly roll the throttle on and continue with the rest of the section.

Before you learn the next two techniques you must first learn how to unweight the motorcycle.

### 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 practise to judge 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 "lifter" in front of the obstacle.

1. You need to get all your speed before you hit the lifter.
2. 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 pull the clutch in.
3. 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).
4. As the rear wheel splatters into the obstacle the forward momentum will bring the front wheel down onto the top of the step.
5. 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 manoeuvre 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 manoeuvre. Try to relax - being tense will make your task more difficult.

## Lifting the Front Wheel

With the bike in the vertical 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 your rear brake firmly applied).
3. As you pull back on the handlebars you can also blip the throttle and the clutch in the same instant as the front suspension begin to extend. This will have the effect of helping you to lift the front wheel off the ground.

## Moving the Front Wheel

A motorcycle is a static object - it will not move by itself. You must move your body first, 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 in 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.

**Practise Exercise**

Use this technique for target practise. 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 practise you will be able to hop left and right with ease. If you are having trouble try practising 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 dropoff 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 wont 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.

## 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, 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. When the rear wheel lands you should find yourself in a balanced position with the handlebars turned in the opposite 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.

**Practise Exercise**

This manoeuvre is easier to learn and practise when the front wheel is lower than the rear. (Eg. when you are dropping off a small step).

Find a small step in your practise 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 practise swinging the bike in both directions!

# Practise 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 - snapping legs 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

## Practise 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 practise what you do well all the time;
- concentrate on things you find difficult;
- keep it fun and vary it!