

# TAUPO – 9-5 ENDURANCE EVENT

**Bruce McLaren Motorsport Park - Sunday, 17 January 2021**

**8.30am** Familiarisation Lap

**9.00am** Tracktime Starts

**1.00pm - 30 minute Pit Stop to allow for Refueling and Change of Direction Briefing**

## *Taupo's 9-5 Endurance – Event Regulations*

1. Event Managed by TMP's Race Director (all decisions will be final)
2. Temporary (red light) stoppages only for incidents, recovery, adverse weather
3. Safety Car periods for track inspection and personnel rotation with single file rolling re-starts
4. Every driver to wear wristband handed out at briefing
5. Drivers must hold a current NZ Driver Licence, or AASA, MSNZ or similar race licence
6. Full Recovery – RSQ4U – (observers at Siberia and in Chairman's Club)
7. Full Medical – NEMS
8. Safety light controls
9. End of day function included in fee
10. Garage included in fee
11. Every driver stopped at pit exit for helmet, harness, i/d check
12. Refueling allowed in garages – re-fuelers to wear driver gear – balaclava instead of helmet is acceptable, all refueling must include a fire extinguisher operator.

## **Minimum Vehicle Requirements**

- a. Basic Safety Cage or Safety Roll-bar, Padding on bars to protect head and limbs– if no AASA or MSNZ log-book or certification stamp or engineer's certificate, subject to TMP inspection
  - b. On-board extinguisher and mount
  - c. Helmet, overalls, balaclava, gloves, and shoes
  - d. Race seat, 5-point or 6-point harness
  - e. Transponders (as car-tracking devices) obligatory – available for hire at \$40.00. If withdrawing car and taking-out a replacement car, transponder to be transferred to new car
- Complex Conditions:
  - H&S policy is maximum 2 cars per garage.
  - Garage power supply is not to be used outside garages.
  - No trailers are to be parked in front of garages.
  - All pop-ups or competitor trailers and support vehicles are to be parked in allocated locations.
  - No petrol is to be stored in garages overnight.
  - Further compound conditions please [click here](#).

TAUPO

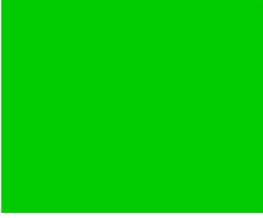
9-5 Endurance Track



**Note:** Track 5 turns to the right after Turn 8 then sweeps around to the left before joining with the Track 1 layout. It also has a chicane added halfway down Broadlands Straight.

## GENERAL RULES AND HELFUL NOTES

### SAFETY LIGHT

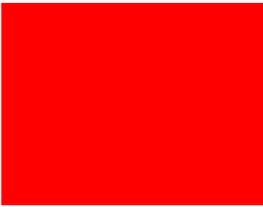


Green – Continuous Green lights means continue with driving.

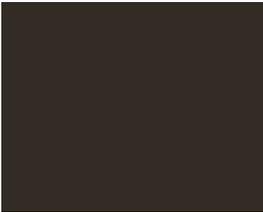


Yellow – Flashing Yellow means slow down, possible problem ahead of you. If the problem clears, Green light will resume.

Recovery Vehicle/yellow lights/flag means slow to 60kph for whole track, be prepared to drive around a stranded car – do not resume full speed until the recovery vehicle is clear of the track and solid Green light returns.



Red – Flashing or Solid Red means return to pits on this lap



If you have a BLACK Flag presented to you, return to pit lane where an official may wish to converse with you. It may relate to a problem with your vehicle.

### STOPPING ON TRACKS

Stopping on the circuit may cause a red flag and if an unnecessary stoppage occurs, your fellow drivers will not be happy.

However, if your car breaks down or you have an “incident” and cannot continue back to the pits, try to stop the car well off the track or as close to the barrier as possible.

This is best for safety and marshals can also recover your car efficiently. If it is safe to do so, get out of the car and move behind the barrier, unless told otherwise by a marshal.

**DROPPING OIL** – any doubt, get off the track

**FIRE** – if on fire, get onto the grass preferably near an extinguisher or marshal point and get out of the car

### OVERTAKING

With a mix of experience in variously powered and gripped cars on track days, overtaking— and being overtaken — can be difficult.

Firstly, there must be no overtaking in the riskier areas such as tight corners. Therefore, overtaking should take place safely preferably on the straights after passing the apex of the previous corner, where there is much less chance of a car spinning or going off the circuit.

The second rule, “lunging” at another car into a corner at the last second will not be tolerated and will result in a warning, with a second incident likely ending up in an early trailer time.

Most commonly, you must overtake on the inside line. This rule makes sense, as it ensures minimal opportunity for misunderstanding when overtaking occurs.

If you have a faster car behind, hold your line and do not move your vehicle to the other side of the track — if you are on a straight, do not sit in the middle of the circuit..

When you’re overtaking, make sure you’re fully past the other car before you reach the next braking zone. This is important, as if you’re only alongside or halfway along the car you’re overtaking, they may not have seen you. Then there is the possibility that they might turn across you into the next corner, resulting in unwanted contact.

## SAFETY EQUIPMENT



Balaclava and helmet.

A well-fitting helmet is a *must* for obvious reasons, so be sure, even if you hire one, that it fits snugly. The crown of your head should fit well in the helmet, with your cheeks squashed slightly by the cheek pads.

To check the helmet is a good fit, put it on and fasten. Then grab the chin piece and pull to the side—if the helmet rotates a lot, it is too big. Also try pushing two fingers up the back of the helmet from the base of your neck; if this is easily done the helmet is again too large.



A set of cotton overalls, and covered shoes. A pair of racing boots is a good idea as this will provide as much feel on the pedals as possible.



Gloves will help you grip your steering wheel, especially when the adrenaline is flowing and you’re sweating buckets.

## 9-5 CAR PREPARATION

As well as preparing yourself, it’s very important to prepare your car for a track day. Even though your car doesn’t require a WOF, or even road registration, it’ll require some checks and maintenance if you want it to last the entire day.

### WHEELS AND TYRES

Your car’s tyres are the only point of contact with the race circuit; therefore, it is extremely important that you take care of them and prepare them properly. Make sure they have enough tread to last the day and that the tread and sidewalls are in good condition; look for cracks or tears that may be troublesome once you’re driving quickly.

Ensure that the wheels are balanced, vibration on the track will have an adverse bearing on your driving.

It’s a good idea to have a second set of track day wheels and tyres that you can change during the day if necessary.

Before you head out on the track for the first time, check the torque of all the wheel nuts and make sure you continue to do so throughout the day, as they can become loose while lapping.

Finding the correct tyre pressures is important when doing track days—when you drive around the circuit continuously, your tyres will get warm and their pressure will rise, therefore, it's good to re-check your tyre pressures when hot.

Brakes are often the Achilles heel of road cars used on track days or first-time event days. You may think that you brake hard on the road, but this will be nothing compared to the continual heavy braking especially in an endurance event. It's recommended you fit a good set of quality race pads to your car and use a brake fluid that will sustain high temperatures as your brakes will be well used during the 9-5 Event.

If you're using new brakes and / or discs for the event, make sure they are correctly bedded-in before using them hard. If you rattle your car over our "Vallelunga" saw-tooth curbs, give the brakes a light tap before the next corner just in case the vibration has moved the pads away from the discs.

### **THE ENGINE**

Ensure that the engine oil is in good condition and filled to the maximum mark—your car will be cornering faster than ever before, and oil surge is possible which can cause pressure problems if the level is low. If the oil is old, have it flushed and changed. Remember to take some spare oil to the track day itself, so you can top up if necessary.

Before you head out onto the circuit, you must bring your engine up to temperature. Depending on the ambient temperature, simply start your car five to 10 minutes before you want to go out and ensure that the water temperature is in the normal range.

During the day, keep a very close eye on water and/or oil temperature—if the engine overheats, an alarm will usually appear. If you have an older car, you may not have an alarm so keep the water temperature below 90°C and the oil below 110°C.

### **GENERAL POINTS**

Now that you've taken care of the wheels, brakes, and engine, there are just a few more things to think about before you can enjoy your day.

Make sure there are no loose items inside the car—they will likely become dislodged when driving on track and could possibly get caught under a pedal, which is obviously not what you want.

Check your lights and indicators throughout the day. It's important that they're working whilst you're on track in case you need to move out of the way for a faster car.

Also, check your mirrors before you head out; it's poor event etiquette if you do not see a faster car behind and slow them down for a number of corners.

Be sure you check your fuel at regular intervals—you'll be amazed at how quickly you'll get through it.

### **TOOLS AND EQUIPMENT**

It's advisable to take plenty of tools, as you don't want a small problem to stop your running for the day.

Your checklist should include:

- spanners
- sockets
- screwdrivers

- torque wrench and wheel nut
- socket jack
- tank tape, jubilee clips, cable ties
- engine oil
- funnels (for oil and water)
- tyre pressure gauge
- foot pump

## DRIVING POSITION

The first thing you'll need to get right—before you even think about hitting your first apex—is your position in the driver's seat.

You should have the seat one or two notches closer to the pedals than usual so that you can depress the clutch fully while your leg is bent slightly.

You also need to have your body a little closer to the steering wheel than usual. You can change this by making your seat more upright or, if it's adjustable, by bringing the wheel itself closer to you.

Either is fine, but make sure that when you rotate the steering wheel by 90 degrees, you still have a decent bend in your arm. If your arm is straight and it feels like a bit of a stretch, you need to be closer to the steering wheel.



First, move your seat a notch or two closer to the pedals. Then adjust the seat back or steering wheel until you can rest your wrists comfortably on top of the wheel. When you're in position your seat should be more upright than usual and you should have a bend in your arm, even when the steering wheel is at 90 degrees.

## HOW TO HOLD THE STEERING WHEEL



You must hold the steering wheel at a quarter-to-three position—horizontally across the wheel. Luckily, the steering wheel is usually molded ergonomically to fit with your hands in this position.

Your hands should never move from this position. There should be no shuffling of the wheel...we're on a race circuit, not in a car park.

Make sure your thumbs are around the wheel, so that you're gripping it well which gives you the best stability. This is unlike how the police drive, with their thumbs on top of the wheel— this is *not* correct on the circuit.

When you keep your hands in the same position on the steering wheel and don't shuffle, you have a much stronger grip and can react to a slide much more quickly. It also allows you to be smoother and more fluid with your steering inputs, which is the correct way to drive on track.

Your hands should grip around the steering wheel as shown by the orange sections in the image, with your thumbs inside the rim. You should keep your hands in this position and do not shuffle the wheel.



### **GENERAL ADVICE FOR YOUR FIRST LAPS**

Driving in an endurance event is completely different from driving on the road or a 6-8 lap sprint of race day outing.

You must leave your ego at home—you're not going to break any lap records on your first few laps. Also, as drivers your team in running the full 8 hours will possibly complete more than 220 laps, over 4,000 corners and around 800kms. With a four-driver team that will be approximately 2 hours in the seat a 1,000 corners each and around 200 kms.

Take it easy on the first few laps very slowly. Learn where the circuit goes and watch your mirrors, and keep a watch out for faster, and perhaps slower cars and note those for future reference during the day.

Also, you want to not to have to think consciously about your inputs to the pedals, steering, and gear changes so take the first few laps to get in a rhythm of automatic actions. Instinctively knowing where you are on the track, and what gear you are in, or need to be in allows you to glide through your laps with ease.

### **TRACK VISION**

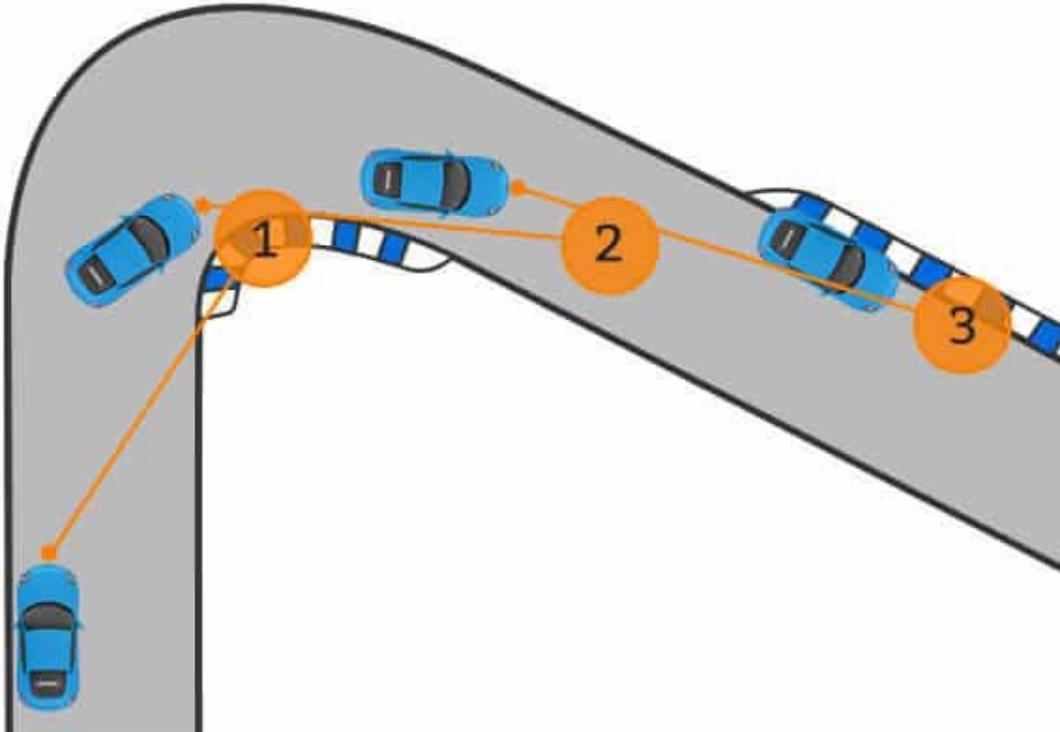
Quite often, drivers have poor driving vision because where they are looking is too close and too focused with respect to where they currently are.

When you're driving on a track, you'll be generally driving at faster speeds than you would on the road. Therefore, you'll arrive at corners faster and must move your vision substantially further ahead than would seem natural.

There are five phases to a corner: approach, braking, turn-in, apex, and exit.

Your vision should always be one step ahead of where your car is. For example, when you're braking, you must already be looking at the apex (the clipping point for the best racing line on the inside of the corner). This gives you more time to judge the speed and turning point for the curve.

Once you're at the apex, it's then time to look up and ahead for the exit, so you can judge when to get on the throttle and how to take the best racing line.



1. While in the braking zone, look towards the apex so you can gauge speed and turning.
2. At the apex, look out towards the exit of the corner.
3. Once you've passed the apex, look for the exit and beyond.

### THE RACING LINE

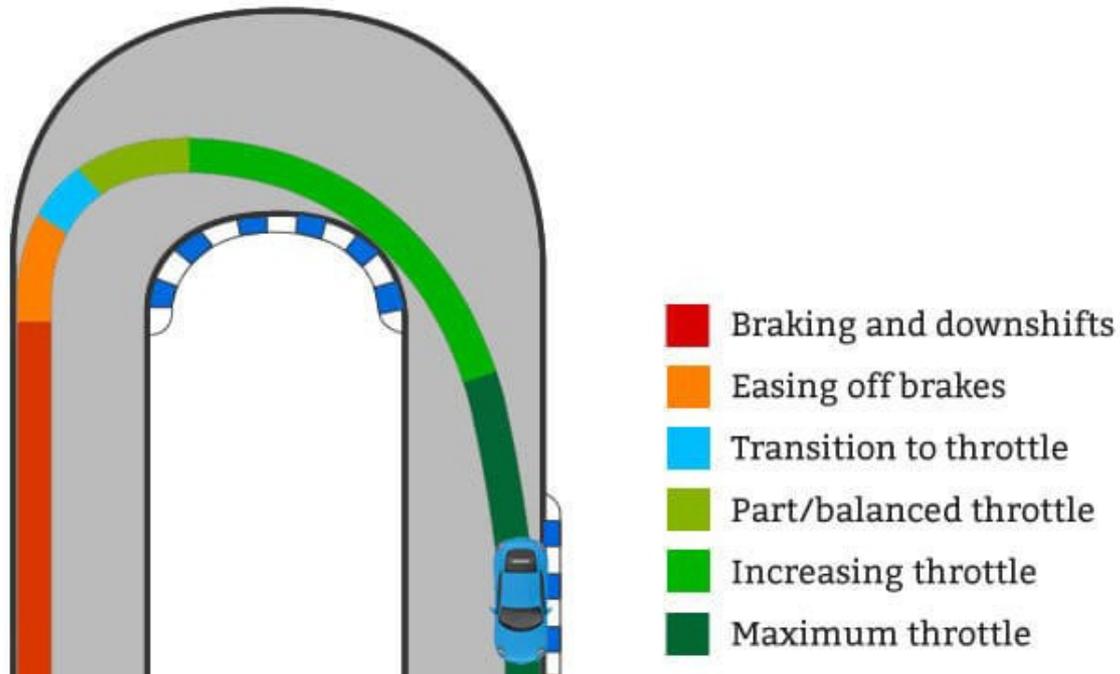
Professional drivers make racing lines look easy as they seamlessly glide their cars from the outside to the inside and back to the outside of the course. However, carving out a smooth and fast line is not a simple exercise and only comes with experience and seat time.

The diagram below shows an overly simple corner, but for the purposes of explanation, it's perfect.

The idea is to drive the corner with an arc as open as possible—therefore allowing you to carry as much speed as possible. The right-hand hairpin corner shown should be approached as far to the left-hand side of the track as possible before turning the car and aiming for the apex on the inside of the corner.

You should then release the steering as you allow the car to push out to the left-hand side of the course again.

As well as the racing line, it explains the various stages of the corner: braking, easing off the brakes, transitioning to the throttle, part/balanced throttle, increasing throttle and finally maximum throttle. The most important points are when you ease off the brakes and get back on the throttle, where all movements must be silky smooth and progressive.



As mentioned, this diagram is overly simple however, you'll be driving many corners in a row that affect each other in turn and your lines may change during the day, make a mental note of what feels the most smooth and effortless lines and concentrate on those throughout your time in the driving seat .

### HOW TO BRAKE ON TRACK

Braking is important for obvious reasons! The biggest issue with beginners' or non-racetrack experienced drivers' braking is usually that the pressure is not consistent through the braking zone; they usually brake lightly and then ramp up the pressure as they get closer to the corner.

From the moment you press the brake pedal to when you begin to release the brakes, your pressure should be consistent. If you do not want to give your brakes a really hard time, then don't use them at 100% of their capacity, but keep the pressure consistent and adjust your braking point accordingly.

In the bigger deceleration zones, where you'll be downshifting more than one gear, this is where a reference point is recommended.

A reference point can be, amongst other things, a change in the asphalt, the start of an entry curb, a sponsor's banner on the barrier, or a braking distance sign for the corner itself. It doesn't matter what it is, just that it won't move lap-to-lap or session-to-session.

Using a reference point means you know exactly where you braked on the previous lap and, if you feel comfortable to, you can brake a little later on the next. It's just important that you're conscious of where you're braking and how close to the limit you feel.

At the end of the braking zone, it's important that you release the brakes smoothly, and remember to do this in a straight line. If you release brake pressure too quickly, or once you've started steering, you'll unbalance the car.

### HOW TO STEER ON TRACK

Once you've got the braking done, and the car is at the correct speed for the approaching corner, the next thing to think about is your steering and line into the curve.

So, before you turn, your vision should already be at the apex, so you'll have a good idea of where you're heading.

It is very important that, as you turn the car into the corner, you do so in a smooth and controlled style. As with much of driving quickly, the best technique is calm and smooth, rather than aggressive and jerky.

So, turn the car smoothly into the apex, gently loading up the outside tyres with an increasing steering angle until you have the correct trajectory and can clip the apex.

Once you've reached the apex, you should already be looking towards the exit—once again, this will help you gauge the best racing line for corner exit. As with turning into the corner, your turn out should be silky smooth and precise, using all the road that's available.

### **THROTTLE AND ACCELERATION**

It is just as important to be smooth with braking and steering; however, being smooth is possibly the most important aspect of applying the throttle.

It does depend on how powerful your car is, and how much grip it has, but it is always the best practice to be as smooth as possible.

Your car's tyres only have a certain amount of grip, if this grip is being used-up completely by cornering (lateral forces), there's no room for acceleration (longitudinal forces).

So, before you can begin accelerating out of a corner, you must begin to reduce the steering angle.

The simplest way to think about this is to imagine that there is a piece of string from the position of your left hand on the steering wheel to the top of the accelerator pedal.

Now imagine you have 90 degrees of steering angle, you're off the throttle pedal completely, and the string is taut. To accelerate, you must release the tension on the string, which is possible only when you reduce the steering angle. This means that as you open up the steering more, you can accelerate more.

This concept continues proportionally until the steering is completely straight and it's possible to use 100% of the throttle.

### **GEAR CHANGING ON TRACK**

Changing up the gears isn't too difficult; the changes should be fast, but not rushed.

If you're driving a car with a "normal," synchromesh gearbox, you will have to take your time changing gears, as it's physically impossible to change quickly.

Downshifting is where things get more difficult. Initially, especially when you first head out on track, simply make sure you reduce speed enough before you shift down a gear. If you downshift too early, you run the risk of over-revving and blowing your engine. You will also risk locking the rear wheels.

Once you have more experience on circuit, you can try the more advanced technique of "heel- and-toe" This is where, while braking and downshifting, you match the engine RPMs to the wheel speed.

For example, if your speed is 100kph when decelerating and changing from 5th to 4th, the engine must have higher RPMs in 4th than in 5th. To match the RPMs, the driver taps the throttle with his heel, and continues to brake with the toes between the gear changes.

### **UNDERSTEER, OVERSTEER, AND UNDERSTANDING GRIP LEVELS**

Understeer and oversteer are the basic principles to understand when trying to find your limits and those of your car.

Both handling characteristics are understood in their literal form: understeer is when the car doesn't turn enough and oversteer is when the car turns too much—both involve a loss of grip at either end of the car.

When your car has understeer, you'll feel the steering go light as the front tyres slide across the circuit, squealing as they go. Oversteer can be caused by braking and turning at the same time as you enter a corner, or pressing the throttle too harshly on exit, causing wheel-spin and reduced traction.

If you feel the rear of the car sliding, it's important to react quickly, applying opposite lock (sometimes known as counter-steering) to stop the car from spinning.

How fast can you go around each corner is what you may learn during the course of the 9-5 event and you may well find your car's limit around each corner and how to maximise the speed you carry through it.

Carrying the maximum speed through each part of the corner smoothly does much to advance the objective every driver has of reducing lap times.

Take it easy and build up your speed gradually until you feel how much grip there is and how much speed you can carry through a certain corner.

If you build your speed gradually you will reduce your chances of an accident significantly.

For example, if the maximum speed you can take through a corner is 80kpm it may improve a more productive and smoother result driving through the corner starting 20% lower at say 65kph.

Then try to increase your speed by 1-2kpm through the corner each lap, this approach allows for cornering adjustments to be made more easily and lessens the possibility of spinning the car.

increasing speed by 4 or 5 kph each lap heightens the chances of going much too fast through the corner and increases the possibility of loss of control.

Build up speed gradually and you will spend more time on the track, cover more distance, conserve energy, reduce wear and tear on your car and avoid unnecessary contact with other cars.

#### **AND FINALLY**

It's the easiest thing in the world to spend the day thrashing around the circuit, unconsciously driving in the same, almost out-of-control, manner.

Some drivers go hard early and may be quick in the morning, but rarely keep the same pace all day. The drivers who do a better job are the ones who start slow, build up their speed, and by early afternoon, they're quicker, safer, and more consistent than their over-confident counterparts.

The 9-5 event offers so much to the drivers who start their day with an end in mind and work through various stages to achieve that end goal. If you are part of a 4 driver team and intend driving a series of 30 minute sessions, track your times in each of those sessions Set lap time and session time goals or even number of laps per session and see if you can improve or maintain a smooth equilibrium.

Above all else enjoy your day, drive with in yourself and remember, our BMMP signature, ***“when on the track (or in the pits) treat other drivers as you would wish them to treat you”.***

Any questions, please feel to call us on 07-376 5033, or email, [admin@bmdp.nz](mailto:admin@bmdp.nz)