

Breaking-in procedure

All race tyres enjoy an initial 'break in' to adjust for its life on the car. The procedure is simple and takes very little time to complete, however the advantages are many, as the tyre will then be far more consistent over the course of its life.

By bringing the tyre up to temperature over the first two laps much the same as you would your engine, it creates an even heat build-up over the complete carcass and tread surface of the tyre. It also allows for any deformations from transit or fitting to be smoothed out. Another important feature is that it allows the tyre to become accustomed to its "new life", allowing all the components to adjust to the demands of motor racing.

Increase the speed up to lap 3 at say 90% then lap 4-5 at 100% with lap 6 as the cool down lap (avoiding track pick up) and return to the pits. Many drivers use this system in qualifying, ensuring they produce their best times using the new "fresh" tyre.

Once back in the pits after the cool down lap, check the tyre pressures "hot" and reset to desired race pressure ('hot'), then allow the tyre(s) to cool to the ambient temperature of the day. The cycle is now complete.

What you will find is that the cooled air pressure is somewhat lower than when it was hot, this is effectively the "cold" pressure to start at to allow race pressures to be attained with a lap or two of warm up on a consistent basis.

To get a closer cold / hot ratio may require some refining, but using the same method as above is usually very effective. Naturally if you are using nitrogen, then the heat / pressure build-up is less say 2-3 psi, therefore it is easier to get this part of the sequence just right in a shorter amount of time.

The question or issue of weaving etc while doing the warm-up laps is personal choice, the advantages are by weaving and also accelerating and then braking it generates heat build up faster. The heat soak from the brakes can be a factor, the tread and carcass area can only generate so much heat build-up in this mode, but generally this should be exercised after the tyres are "broken in".

Heavy braking on cold tyres can also lead to brake lock ups and flat spotted tyres.

Test Day / Race Day Warm-Up Procedure

When initially entering onto the track the tyre will need to be:

- Bought up to temperature
- Clean up the tread contact area
- Allow air pressure build up

Most race tyres are available in various compounds therefore they will naturally come up to temperature at different rates, the softer compounds within a couple of laps of running, so possibly the real question is getting a handle on the rate at which it “comes on” and therefore minimising the fall off effect from possibly overheating the tread compound. This is as expected very dependent on the car, the track conditions on the day and the driving style. Trial and error is usually the best way to find this answer. Once the compound is “on” the grip levels increase dramatically.

During either breaking in or warming up of tyres, it does take a few laps for a cold tyre to come on. Some key areas to consider :

- avoid power sliding out of corners
- avoid heavy breaking

as both of these effects will damage the tyre whether with flat spotting of the tyres or the compound could “fall off” at a faster rate than desired.

Generally this style of warm up format should be used after the tyres are “broken in”. You're dealing here with bringing the tyre “on” for track work as opposed to the breaking in procedure of bringing a new tyre up to speed and operating temperature then cooling down.

If you have access to a pyrometer then the following spreads are what would be deemed ideal.

10 -15 C spread across the face of the tread area. RACE temperature is categorised as between 85 & 100 C depending on the ambient and track temperature of the day

Note that the inside of the tread face should be hotter than the outside due to camber and toe settings employed.

When taking pyro readings the real trick is to establish a measuring format then repeat that same format every time allowing the temperature data you collect in a controlled manner to show changes in set up of the suspension etc and/or the tyres in turn react. Keep in mind that a very slow “in lap” or a delay in returning to the pits will give a false set of data in regards to both pressure and tread temperatures.

Record all data for reference and always start with the “outside” tyres per track direction to ensure the loaded tyres are measured first. Clockwise track pyro the left hand side first, anti clockwise is right hand side first.

Generic / General Suspension Set Up :**Bias Ply construction :**

Front	Rear (if independent)
Castor : Driver feel, guide = 4 - 6 deg	N/A
Camber : 1.25 – 1.75 deg Negative	0.5 – 0.75 deg negative
Toe : 2 – 6 mm Toe OUT	0 – 3 mm Toe IN

Radial Construction :**RWD**

Front	Rear (if independent)
Castor : Driver feel, guide = 4 - 6 deg	N/A
Camber : 2.50 – 4.00 deg Negative	0.5 – 1.50 deg negative
Toe : 4 – 6 mm Toe OUT	0 -1 mm Toe IN

FWD

Front	Rear (if independent)
Castor : Driver feel, guide = 5-7 deg	N/A
Camber : 2.50 – 4.00 deg Negative	0.5 – 1.50 deg negative
Toe : 4 – 6 mm Toe OUT	0 mm Toe

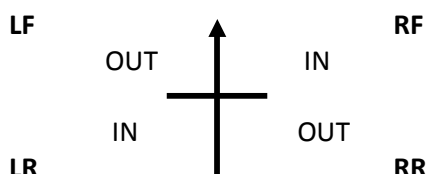
The settings should be seen as a starting point reference, the variations could be track length, average speed per lap, wet or dry track surface, short or long race, driver experience, day or night race etc

IMPORTANT NOTES :**Direction of Rotation :**

- a. Road Legal Race tyres (so called R Spec / DOT tyres)
If the tread pattern is directional or asymmetrical then fit the tyre according to the direction or "outside" , always follow these instruction as marked on the sidewall of the tyre
- b. Slicks and Wet race tyres

Every racing tyre has a serial number molded into one of the sidewalls. Once fitted to the car the rear tyre serial numbers should face to the right hand side, while the fronts face to the left hand side.

Look for a 8-14 character serial number (ie 5AXA MB01 A5R) Once identified, fit one up and one down for each axle, then place as follows :



Now all 4 tyres are running with all the internal components running in the same direction offering better longevity for the carcass.

Air Pressure :

Starting cold varies due to weight, category and HP of the vehicle, as a guide start with

Front @ 22 psi COLD and rear @ 20 psi COLD aiming for 28-30 psi HOT, bleed off as required at track hot temperatures to establish correct pressure when cold.

Fitment :

Always get an experience technician to fit your Dunlop & Goodyear racing tyres

NEVER EXCEED 35 PSI when inflating tyres for the first time. If need be, deflate, reposition the beads and inflate again, typically they "pop" at around 20-25 psi.

Definition of Sizing : All racing tyres have the size molded onto the sidewall ie 270 x 650-18, which describes the tyres nominally as follows :

270 = 270 mm of tread width (not the section width)

650 = 650 mm overall diameter

18 = 18.0 inch rim diameter code

It is important to remember that the tyre is an integral piece of the vehicles suspension, therefore as you adjust your air pressures the actual spring rate and damping of the tyre and in turn the overall suspension will change. As a guide, 1 psi of air pressure variation will change the vertical spring rate by approximately 25-30 lbs/inch.

Always use metal valve caps as the primary seal. The valve core is designed to hold pressure during adjustment. Steel caps have a rubber seal inside and can hold up to 80 psi whereas most rubber / plastic cap variety do not.

Always use high temperature valve cores as these are designed to take the heat soak that will occur during racing applications – high temp valve cores use a red band to distinguish them from normal valve cores.

Tyres should not be stored in high temperature areas, in direct sunlight, around welding areas, in overhead garages, or around high voltage electrical motors. Long term storage is not recommended, they will go off within 12-18 months unless in a climate controlled environment.

NO WARRANTY POLICY

Due to the conditions under which they operate, DMS Oz Pty Ltd makes no warrant and specifically disclaims any warranty either implied or expressed with respect to either Goodyear Racing Tyres or Dunlop Motorsport race tyres, tubes, safety spares and air containers and shall not be liable for any damages whatsoever, including, without limitation, consequential or special damages arising out of their use.

Both Dunlop and Goodyear Racing slick and wet weather tyres are designed and compounded solely for racing purposes and are not tested or labeled to meet any highway or road use standard, nor do they comply with any ADR requirements under the Road Transport Act. It is therefore illegal to sell for use racing tyres on any public road or highway.

The range of motorsport RLRT or "road and track" tyres, also known as DOT or R Spec tyres from both Dunlop Motorsport and Goodyear Racing are designed to meet all ADR and Road Transport legal framework and have full warranty as per the terms and conditions issued by Goodyear Tyre and Rubber Company or Dunlop Tyres.

If you require further information please contact

Bill McKenna

or

Dom Lepro

Ph : 08 8113 0600
Mobile: 0418 835 230
Email : bill@nttgroup.com.au

08 8113 0600
0418 833 747
dom@nttgroup.com.au

**DMS OZ PTY LTD
UNIT 7
49-63 VICTORIA ROAD
SMITHFIELD NSW 2164**

**NTT RACING PTY LTD
55 NORTH TERRACE
HACKNEY SA 5069**