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GO

GOOD YEAR

***RACE TRACK
USER MANUAL***

for Eagle F1 SuperSport RS and Eagle F1 SuperSport R



Eagle F1 SuperSport RS

Eagle F1 SuperSport R

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INTRODUCTION

Goodyear is a global brand that stands for leading innovation and superior performance, meeting the most demanding consumer and car manufacturer expectations. Goodyear, as a brand, inspires you to do more and discover the world of possibilities. It is not just about what the tire does, but more about what the tire enables you to do.

Goodyear's flagship performance tires, the SuperSport range, deploy innovative technologies and compounds that enable significant improvements in braking distances and lap times without neglecting more intangible elements of the driving experience, such as feedback during turn-in, under braking and approaching breakaway. Two of our SuperSport tires provide the extra performance needed when driving on race tracks: **The Eagle F1 SuperSport R and Eagle F1 SuperSport RS.**

Please visit our website for further information



EAGLE F1 SUPERSPORT R



The Eagle F1 SuperSport R features increased grip levels and steering precision on and off track. Grip levels are enhanced through use of a high-friction compound that provides exceptional dry grip levels, while excellent cornering stability is ensured by bridges in the tread pattern's outside groove reducing deformation of tread blocks under extreme cornering forces. Steering precision and feedback have also been further enhanced by optimizing the tire's contact area for more consistent pressure distribution.



EAGLE F1 SUPERSPORT RS

The Eagle F1 SuperSport RS is Goodyear's most race-focused tire, designed to push the limit on track while remaining road legal. A highly specialized racing-originated compound provides ultimate grip and performance levels in dry conditions.



OBJECTIVE OF THE BOOKLET

With this guide, Goodyear wants to help you to get the maximum performance out of your Goodyear Eagle F1 SuperSport R and RS and to understand their safety aspects:

- Never forget that tires are an integral part of vehicle performance
- Always adapt your driving style to the conditions - especially in unclear or dangerous road conditions where special care is required.

**THE FOLLOWING
INSTRUCTIONS
ARE EXCLUSIVELY
FOR USE ON
THE RACE
TRACK**

**DRIVE
SAFELY!**

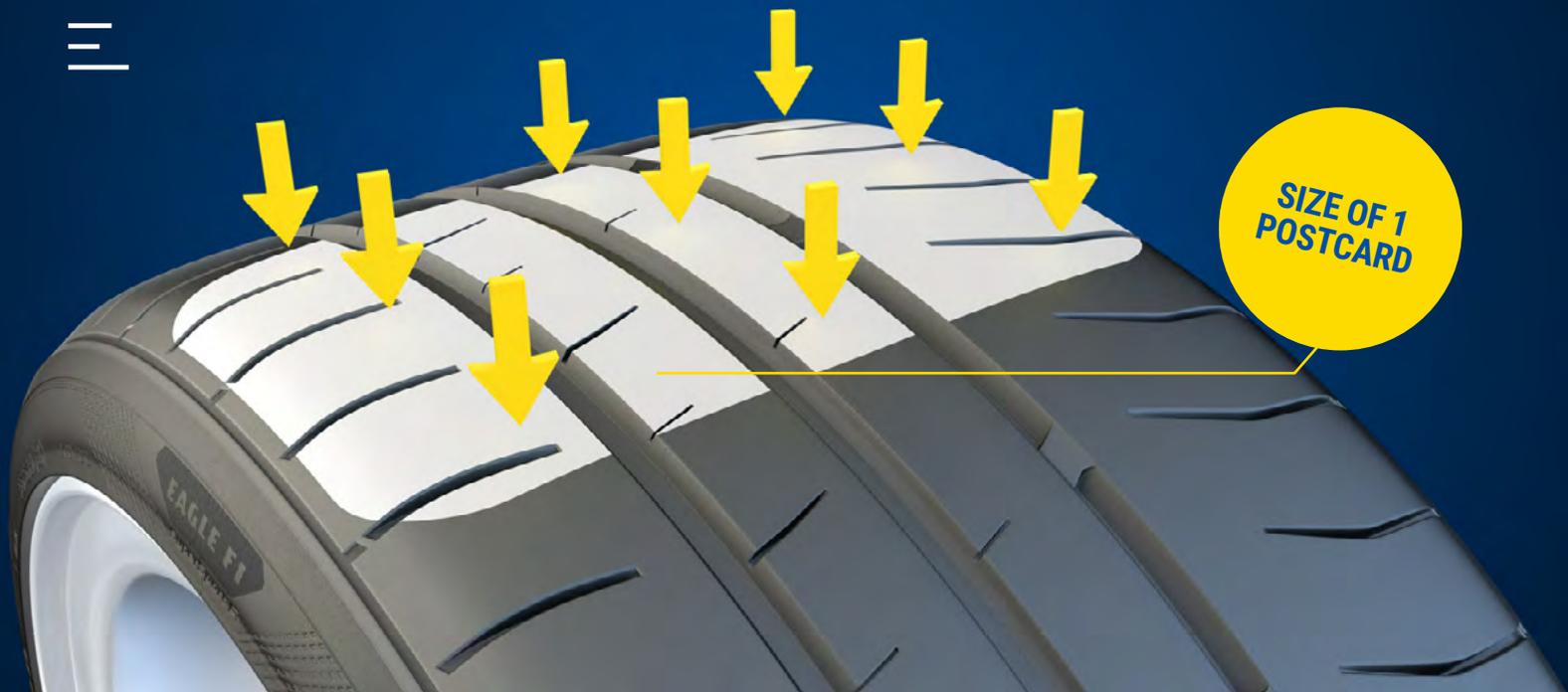
Please also adhere to the instructions of the respective racetrack operator as well as recommendation by vehicle manufacturers. Always apply the recommended tire pressure. Even if road legal, tires that are designed for Race-track usage in dry condition have to be considered as "semi-slick" tires due to their limited capability on wet roads which pose an increased risk of aquaplaning. To prevent aquaplaning, driving in wet condition should be avoided as much as possible, and in such event, vehicle driver should exercise extreme caution, ensure all available driving assistance systems are activated and adapt a speed so that vehicle traction and steering control are maintained.



PHYSICS OF TIRES

EAGLE F1

SuperSport R



CONTACT AREA BETWEEN TIRE AND ROAD

The tires give the contact surface to the road in the size of 4 postcards. A whole range of forces are transmitted via this contact surface. Engine power, braking forces, lateral forces and the vehicle weight as well as dynamic forces such as compression or load changes. This results in immense friction work, especially under race track conditions.



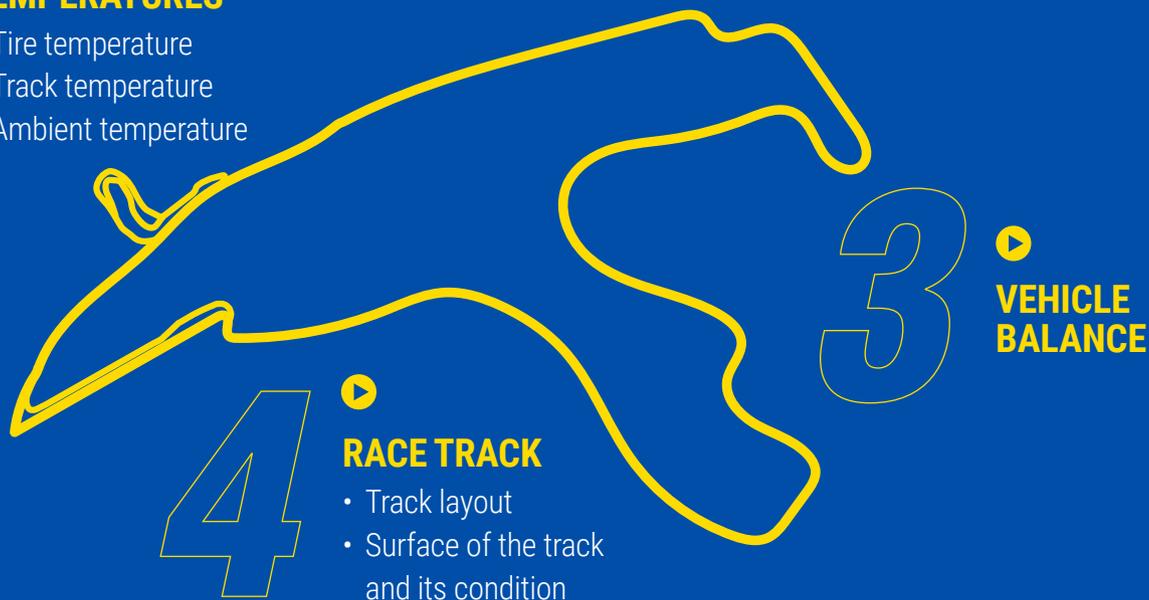


FOUR PARAMETERS INFLUENCE THE TIRE AND ITS CONTACT AREA WITH THE ROAD SURFACE IN A VERY SPECIAL WAY.

All the parameters are interdependent

- 1** **TEMPERATURES**
- Tire temperature
 - Track temperature
 - Ambient temperature

- 2** **TIRE INFLATION PRESSURES**
- Cold pressure
 - Hot pressure



In the next section, we will explain the relationships between those 4 essential parameters.

BASICS OF TIRE PRESSURE

AND TEMPERATURE INTERCONNECTION





Tracking ambient temperature



AMBIENT TEMPERATURE

If the ambient temperature drops, the tire pressure also drops (for example, overnight). If the ambient temperature rises, the tire pressure also increases. It is therefore important to record the ambient temperature and to document it if necessary.

ASPHALT TEMPERATURE

Just like the ambient temperature, the asphalt temperature also has an influence on the tire inflation pressure. If the asphalt temperature is higher than the ambient temperature, the tire inflation pressure increases disproportionately during driving. If the asphalt temperature is lower than the ambient temperature, the tire inflation pressure increases disproportionately during driving.

Measuring track temperature



IMPORTANT!
THE ASPHALT TEMPERATURE CAN DIFFER CONSIDERABLY FROM THE AMBIENT TEMPERATURE (FOR EXAMPLE, IN STRONG SUNLIGHT)



Extremely hot brake disc

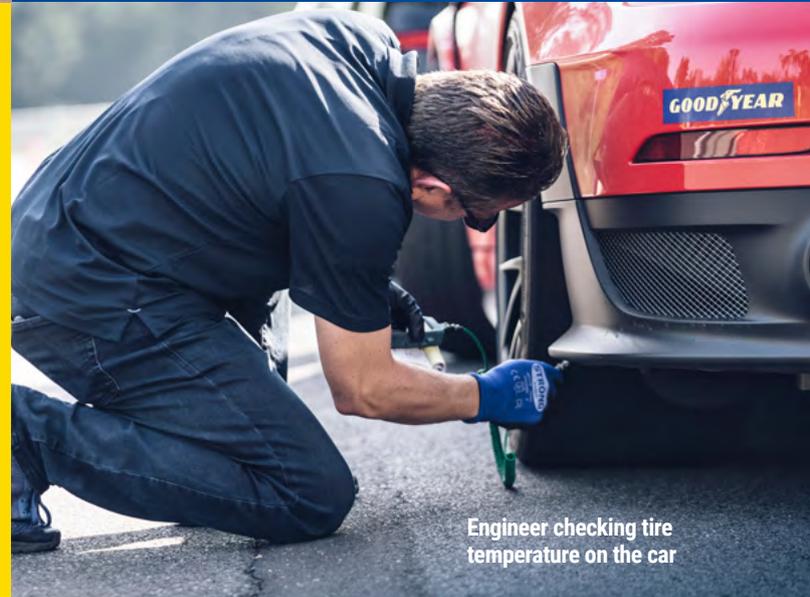


BRAKE TEMPERATURE

The temperature of the brake discs also has a considerable influence on the rim temperature and thus on the air temperature in the tire, again with direct influence on the tire inflation pressure.

TEMPERATURE DEVELOPMENT VIA DRIVING STYLE

Driving style has a considerable influence on the dynamics in the contact area between tire and road and thus also has a direct influence on the tire temperature. Primarily the tread temperature is influenced, but also the internal temperature of the tire and thus the tire inflation pressure during driving.



Engineer checking tire temperature on the car



RACE TRACK

The layout and asphalt of a racetrack have a considerable influence on the tire.



Long fast curves put more stress on the tire and the tread than short slow curves.



Aggressive rough surfaces put more strain on the running surface than smooth surfaces.



Tire loads cause changes in both tread temperature and wear

Especially at the beginning of a trackday the surface is often dirty. Sports tires with tread compounds that are similar to those used in motor sports, collect this dirt immediately - pickup.

Pickup has a negative influence on grip and vehicle balance as well as wear and tear.



TIRE HANDLING



**WE RECOMMEND THAT
YOU USE A TIRE PRESSURE
GAUGE WITH A MEASURING
ACCURACY OF +/- 0.05 BAR.**

The surface temperature of a tire often is more influenced by the road and air temperature than the internal temperature of the tread and usually differs considerably from the temperature inside the tread when measured whilst stationary. The internal temperature of the tread also has an important influence on the overall grip of the tire.

To document your data, you can use a small notebook or a tire measurement pad, which you can usually obtain from your Goodyear specialist.

Usually, the tread temperature is measured with an electronic measuring device with measuring tip by piercing the inside of the tread. We do not recommend measurements with an optical temperature measuring device, as the measurements are often negatively influenced and thus falsified by cooling down due to approaching the pit lane. If you want to know your tread temperatures and their distribution, we advise you to have this done only by a specialist (for example a Goodyear technician).



COLD AND HOT TIRE PRESSURES

Cold inflation pressures (start) and hot inflation pressures (after driving) differ. Before driving on a race track for the first time, always set the cold pressures recommended by the vehicle manufacturer for your specific vehicle. Ideally, document the ambient temperatures when setting the cold pressures and the outside and asphalt temperatures when driving on the race track. Take enough time to bring your vehicle, brakes and tires to operating temperature until you have found your driving rhythm. Then measure the hot pressure at the next stop and document the measured values



When the tires/rims cool down, the cold pressures may drop below the recommended inflation pressures. This increases the risk of tire damage when driving on track again.



When riding on race tracks, always bring your tires up to operating temperature before applying maximum load to the tires (e.g. no driving over notches; no maximum speed when passing through compressions)



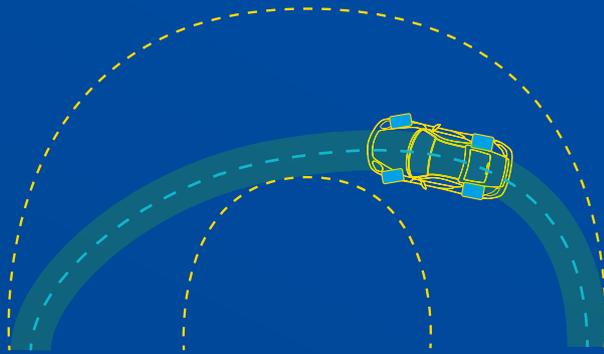
Never drive on public roads with too low tire pressures - increase your cold inflation pressures to the recommended values of the vehicle manufacturer after race track rides!



Documentation of temperatures and pressures will allow you to better understand your tires' behaviour, race track conditions, influence of weather conditions and thus give you a better understanding of how to get the maximum out of your tires.



VEHICLE BALANCE



GOOD BALANCE

The vehicle can be steered neutrally (constant steering angle) through the curves without excessive steering angles, neither towards the inside of the curve nor towards the opposite side (no counter-steering). The tire temperature is relatively well distributed between FR and RR (left and right side).

Keep the filling pressures as constant as possible throughout the day (daytime temperature development / change in distance).

Keep tire wear in mind - the balance and performance can deteriorate slightly towards the end of the run.

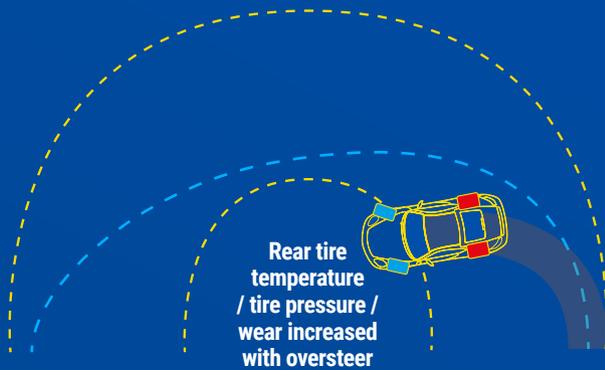


GRIP LEVEL TOO LOW

The vehicle can be steered neutrally (constant steering angle) through the curves, but the vehicle has a noticeably lower levels of grip. This causes higher steering angles both when turning in (understeering) and when accelerating out (oversteering).

The hot pressures are higher (more than 0.2 bar) compared to the vehicle manufacturer's recommended fill pressures.

Reduce the hot pressures to the level of the vehicle manufacturer's recommended

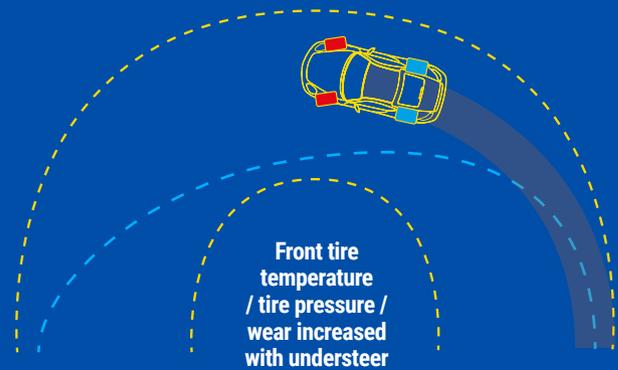


OVERSTEER

As a rule, the rear tread temperature and thus the tire inflation pressure will increase in relation to the front tread temperature.

It is possible that the wear on the rear increases in relation to the wear on the front. It may also be necessary to adjust the driving style. (E.g. the stronger steering of the car can be used as advantage. Use a more pointed line at middle of curve and accelerate stronger at curve end).

The balance of hot pressures between front and rear can be easily changed. In this case we recommend a slight reduction of the rear hot pressures by 0.1 bar and a simultaneous increase of the front hot fill pressures by 0.1 bar.



UNDERSTEER

As a rule, the front tread temperature and thus the tire inflation pressure will increase in relation to the rear tread temperature.

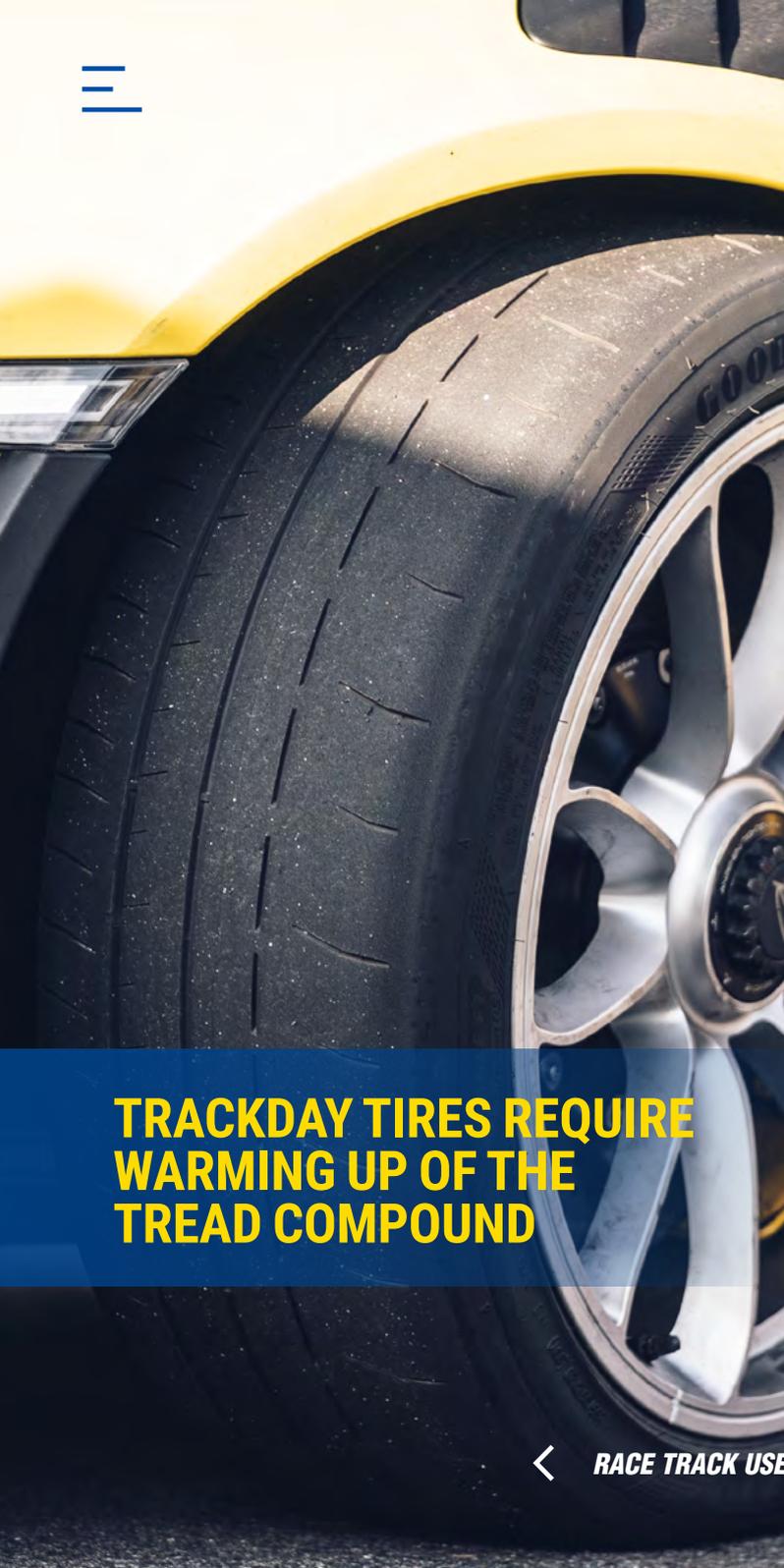
It is possible that the wear on the front increases in relation to the wear on the rear. It may be necessary to adjust the driving style. Due to the reduced (in) steering ability of the vehicle, a slightly rounder line can be used in the area of the curve entrance up to the middle of the curve.

The balance of hot pressures between front and rear can be easily changed. In this case we recommend a slight reduction of the front hot pressures by 0.1 bar and a simultaneous increase of the rear hot pressures by 0.1 bar.



TREAD COMPOUNDS

AND PATTERN DESIGN



TRACKDAY TIRES REQUIRE WARMING UP OF THE TREAD COMPOUND

TREAD COMPOUNDS AND THEIR WORKING TEMPERATURE WINDOW



Each type of tread compound has an optimal working temperature window, i.e. a temperature range in which it achieves the highest level of grip. For example, the optimum temperature for winter tires is in the range of winter outside temperatures, for normal HP summer tires it is in the middle of the double-digit °C range, while for trackday tires this is usually in the higher double-digit °C range for tread compounds. Depending on the outside temperature, trackday tires therefore require a so-called warming up of the tread compound. This is usually done by increasing the performance level (by some for instance steering or braking maneuvers) over a few kilometers but not “overstressing” the tires, i.e. not creating excessive slip.

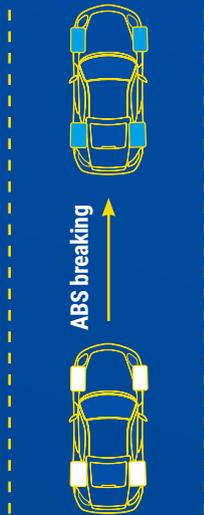




THREE OPTIONS TO WARM-UP YOUR TIRES

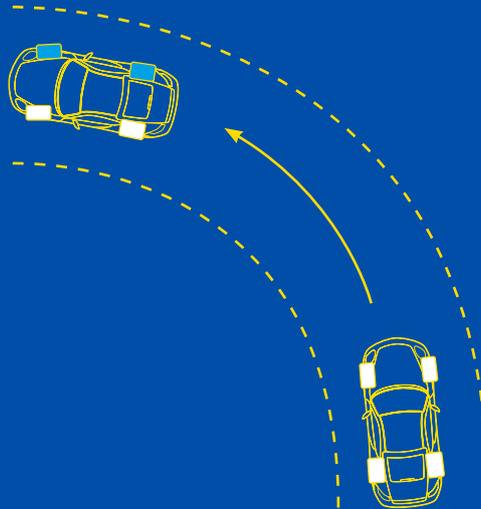
 tires not warm yet

 tires warming up



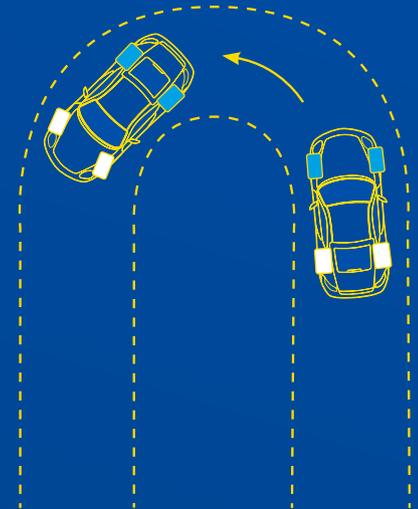
STRAIGHT LINE BRAKING

Straight line (ABS) braking helps to warm-up all 4 tires



CORNERING BIG RADIUS

Big radius corners help you to warm-up especially the outside (loaded) tires



CORNERING SMALL RADIUS

Small radius corners at the entry help to warm-up especially the front tires, whilst from center to exit it helps you to warm-up especially the rear tires



Watch Out: If you reach the upper end of the temperature window, the tread rubber compound will begin to show signs of overheating in the worst case. This then leads to a reduced levels of grip and increased wear. The early stages of overheating can usually be felt when after a few fast laps with increasing or good grip levels the grip level suddenly decreases again. If this happens, we recommend that you reduce the performance slightly to bring the tire back into its optimum temperature window.



PATTERN DESIGN

In contrast to normal consumer tires, the patterns of the Eagle F1 SuperSport R/RS are optimized for dry performance. They have a higher contact percentage, which means that with the same tire width, more rubber has contact with the road surface. At the same time, this type of tire is provided with a lower new tread depth, which in turn increases the tread stiffness. All this improves response and steering precision and allows the use of ultra-sport tread compounds.



Eagle F1 SuperSport RS

Eagle F1 SuperSport R

**ALL THESE FEATURES PRIMARILY OPTIMIZE THE DRY GRIP
AND IMPROVE THE DRY DRIVING PROPERTIES.**

WET CONDITIONS & AQUAPLANING

In wet conditions, the aquaplaning ability of such tire variants is reduced. In the interest of safety, the speed must always be adapted to the road conditions.



TRACK CONDITION

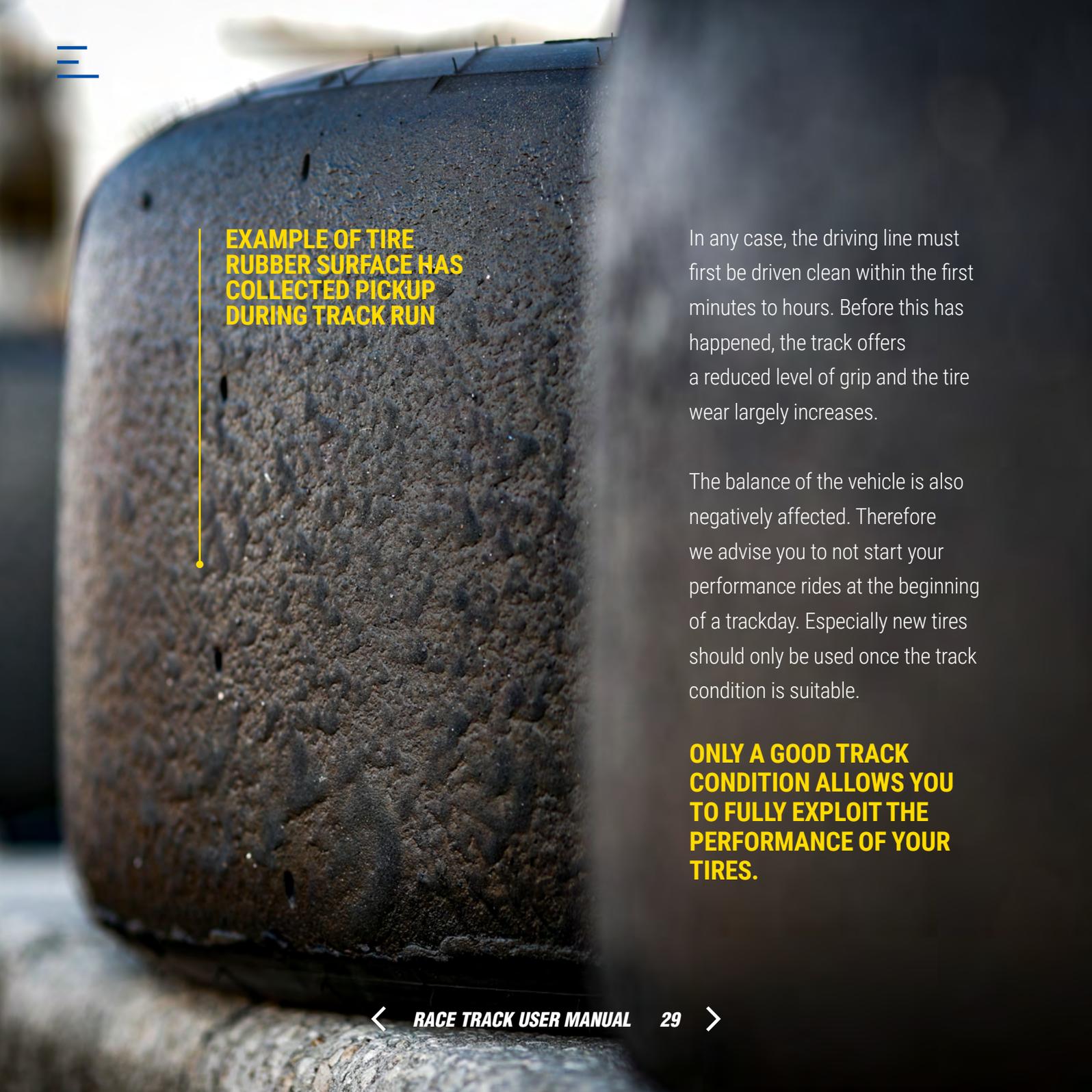
RUBBER IS LEFT
ON THE TRACK
FROM PREVIOUS
RUNS





THE FIRST INDICATION OF TRACK CONDITION IS OFTEN WHICH VEHICLES HAVE DRIVEN ON IT PREVIOUSLY.

For example, vintage cars often lose small amounts of oil, which can already lead to a considerable loss of grip. Motorcycles use a sharper driving line than cars, which means that the wear and tear of the motorcycle tires usually flies onto the driving line of the cars. This is collected as a pickup from car tires and leads to a loss of grip.



**EXAMPLE OF TIRE
RUBBER SURFACE HAS
COLLECTED PICKUP
DURING TRACK RUN**

In any case, the driving line must first be driven clean within the first minutes to hours. Before this has happened, the track offers a reduced level of grip and the tire wear largely increases.

The balance of the vehicle is also negatively affected. Therefore we advise you to not start your performance rides at the beginning of a trackday. Especially new tires should only be used once the track condition is suitable.

**ONLY A GOOD TRACK
CONDITION ALLOWS YOU
TO FULLY EXPLOIT THE
PERFORMANCE OF YOUR
TIRES.**

