MICHELIN® Pilot® Sport Cup

THE ULTIMATE MICHELIN® "STREETABLE" RACING TIRE.
FOR SERIOUS RACING ENTHUSIASTS ONLY.

MICHELIN
A better way forward


MICHELIN

If you're considering MICHELIN® Pilot® Sport Cup tires, chances are you know a thing or two about racing. That's because MICHELIN® Pilot® Sport Cup tires are designed for on-track performance. The tires are DOT-approved for street use, yet specialized in nature and designed for performance vehicles like the Porsche GT3 and BMW M3 CSL. Tires are a considerable investment, and Michelin would like to congratulate you in advance for choosing the MICHELIN® Pilot® Sport Cup tire — our ultimate "streetable" racing tire.

FOR SERIOUS RACING ENTHUSIASTS ONLY

This brochure has been developed to assist you in getting the best performance out of your MICHELIN® Pilot® Sport Cup tires during a given race or track session. This information is general in nature, and numerous variables such as track conditions, car setup, and driver preference will play an important role in determining the optimum race configuration for your car. Setup information contained in this brochure is for your consideration only and is provided as a convenience to assist you with your new tire purchase. It is up to you to determine the best setup for your vehicle application, driving style and track conditions.

MICHELIN® PILOT® SPORT CUP FEATURES AND SPECIFICATIONS

MICHELIN® Pilot® Sport Cup tires are competition-oriented summer tires designed specifically for serious performance enthusiasts. Utilizing our extensive motorsports experience, MICHELIN® Pilot® Sport Cup tires feature a racing-bred tread compound optimized for on-track performance. They are designed to deliver extreme cornering power, leading to fast and consistent lap times, even through repeated heat cycles.

STREET LEGAL, COMPETITION READY.

A DOT-approved competition tire, the MICHELIN® Pilot® Sport Cup tire offers extreme cornering grip and consistent lap times.

BENEFIT	FEATURE & ADVANTAGE
Consistent Performance — Lap After Lap	A race-inspired tread compound results in enduring performance characteristics in both wet and dry conditions, with consistent lap times over the entire life of the tire.
Powerful Performance Cornering	An asymmetric tread design utilizes a semislick outer tread and a wet-styled inner tread design to help deliver powerful wet and dry cornering, promoting high performance confidence.
Race-Like Reflexes	The high-tensile steel cords and polyamide belt package help provide enormous support for the tread and crown areas for consistently powerful cornering capability and quick steering responses.

NOTE: These comparisons are among MICHELIN® Performance Sport tires.

TEMPERATURE VS. PRESSURE

A tire's pressure is dependent on its temperature. If the tire temperature increases, the air pressure in the tire increases as well. For every 10°F increase in temperature, the tire will gain approximately 0.7 psi.

This ratio is extremely important to keep in mind when setting tire temperatures. A good rule of thumb is to choose a cold starting pressure, set at the beginning of the day, with tires that have not been exposed to direct sunlight. At the same time, set the pressures in all of the tires that you plan to use that day. This becomes the baseline.

ROAD RACING (psi)
Front: 25 cold; 32 hot
Rear: 28 cold; 36 hot
Note: If your road-racing hot pressures are too high, start with slightly lower cold pressures.

AUTOCROSS (slalom)
32–36 psi hot (front/rear)
Note: Though autocross hot target pressures are the same as those for road racing, you may need to start at a higher cold inflation pressure to compensate for the lower pressure gains in autocross racing.

ROAD
OE pressures (Consult your vehicle Owner's Manual.)

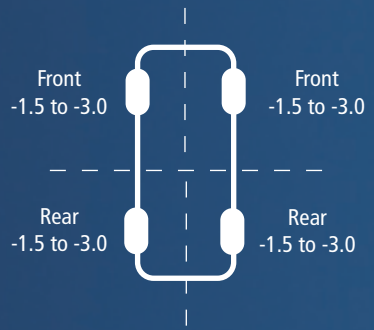
RAIN
For both autocross and road racing, you may need to increase tire pressure 6 – 10 psi over cold, dry pressures. Vehicle and driving style are important factors, so some testing may be necessary.

CAMBER RECOMMENDATIONS

When considering a race vehicle's optimal camber settings, a number of factors come into play, such as track layout, suspension geometry, aerodynamic downforce and maximum speed on the track.

When it comes to setting the camber, you cannot precisely say in advance what the ideal setup will be. The only way to determine this is to run the car, then measure tire temperatures and pressures.

Our experience has shown that most cars using MICHELIN® Pilot® Sport Cup tires on most road courses should use camber settings as stated in the chart on the right as a guideline.



Typical Road Course Camber Setup

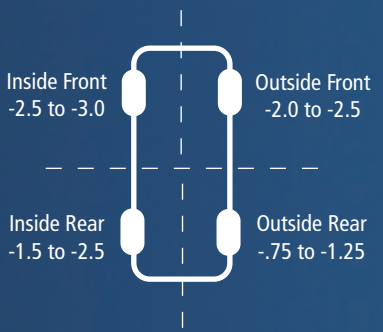
But, when competing on tracks with a pronounced bias for turns in only one direction (e.g., Lime Rock and Road Atlanta), it may be advantageous to run less negative camber on the inside wheels.

Also, when driving on a track that requires more hard braking, your car may benefit from less negative camber. This should improve straight-line braking, but will typically result in a slight loss of ultimate grip in the middle of the corners.

For combination road-course ovals with sections of high banking, or "rovals," the camber settings must be significantly reduced because the track's banking dramatically increases the load on the tires. In this case, use the chart on the right as a guideline.

ROAD COURSE AND ROVAL ALIGNMENT

Negative camber should be targeted between 1.5 and 3 degrees (with a maximum of 4 degrees) on road courses. Some camber split may be desirable on combination road-course ovals (rovals). Caution should be taken here. Use the charts on the right side of this page as guidelines.



Typical Roval Camber Setup


OAKLEY
FLYING LIZARD
motorsports

TEMPERATURE

The "sweet spot" of the MICHELIN® Pilot® Sport Cup tread compound is in the range of 160 – 220ºF. Adjust the suspension setting of your vehicle and the tire pressure for maximum performance. Use a quality, calibrated contact probe pyrometer. Noncontact infrared devices are not recommended, as they take only surface temperatures, which cool at a much quicker rate and are not reliable.

Note: Test with one axle at a time. Do not change too many variables at once.

HEAT CYCLING

Heat-cycled tires may be slightly more consistent than non-heat-cycled tires, and on some vehicles, we have noted a marginal improvement in lap times (around 0.1 to 0.2 seconds in a 38- to 40-second autocross environment) as well as in tire wear. Keep in mind that the improvement is not always obvious.

SHAVING

MICHELIN® Pilot® Sport Cup tires are manufactured with 6/32" center tread depth. Michelin testing shows that a shaved tire at 3.5/32" offers slightly more dry grip from the start of the tire's competition life. The time differential between a shaved and heat-cycled tire and a full-tread depth and heat-cycled tire is around 0.5 – 0.6 seconds on a typical 35- to 38-second autocross course. Your results may vary.

Note: Though the fastest lap times will likely be achieved through shaving and heat cycling the MICHELIN® Pilot® Sport Cup tire, you must decide if the time benefit is worth the loss of tread life.

READING THE MICHELIN® PILOT® SPORT CUP TIRE

Reading the pressures and temperatures of the MICHELIN® Pilot® Sport Cup tire is one of the only sources for objective data on how your car is handling. By combining this data with the input you obtain from driving, you can decide the best route to getting the best performance.

Collecting data

On most road courses, a minimum of six hot laps should be run before considering any changes based on temperature and pressure readings. This is because it takes a certain amount of "energy input" for tire pressures and tread temperatures to stabilize. Taking readings before the tires have reached stable operating conditions is not recommended and may lead you to miss the ideal setup. After a hot lap session, temperatures should be taken at three points across the tire with a contact probe pyrometer; start at the inside shoulder of the tire, move to the center, then finish at the outer shoulder. Readings on the outboard sections of the tire should be taken about 1 1/2" from the shoulder. Taking temperatures too close to the "corner" of the shoulder will give an inaccurate reading. Due to heat dissipation, time plays a critical role in collecting the most accurate data. It is recommended that you begin with the outside rear tire and be sure to focus on the tread temperatures first.

LEFT FRONT					RIGHT FRONT				
Cold Pressure	Hot Pressure	Outside	Center	Inside	Inside	Center	Outside	Hot Pressure	Cold Pressure
25 psi	32 psi	195° F	201° F	195° F	185° F	182° F	173° F	31 psi	25 psi
			Average = 197° F		Average = 180° F				
LEFT REAR					**RIGHT REAR**				
Cold Pressure	Hot Pressure	Outside	Center	Inside	Inside	Center	Outside	Hot Pressure	Cold Pressure
28 psi	34 psi	186° F	183° F	195° F	189° F	189° F	180° F	36 psi	28 psi
			Average = 187° F		Average = 186° F				

Above is an example of the minimum data that you should collect from each run — with some sample comments added:

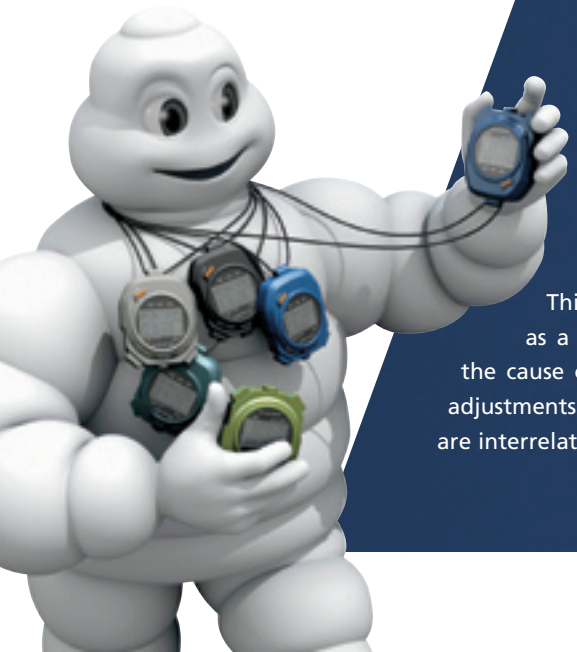
Working with the data

There is a wealth of information that can be gained from one set of hot laps. In most cases, when a car is set with the proper camber and pressure settings, the outside shoulder temperatures should be about 10°F lower than the inside shoulder temperatures. And the center temperatures should be similar to slightly cooler than the inside temperatures.

Note: MICHELIN® Pilot® Sport Cup tires are designed to operate at pressures ranging from 32 psi to 36 psi hot. A cold pressure of around 25 psi (front) and 28 psi (rear) should be a good starting point, which can then be fine-tuned to your car's setup and your driving style. You should never go below 20 psi cold, to avoid any risk of bead unseating.

Diagnosing the problem

The chart on the previous page shows example readings of a set of tires that completed a hot lap session before being measured. Let's assume the driver was complaining about understeer. Looking at the left rear temperatures and pressures of the set of tires, you might be tempted to add 1.5 psi or 2.0 psi to the left rear tire — after all, the tire pressure is on the low side of recommended hot pressures, and the tire temperature is lowest in the center, indicating the pressure is too low. Furthermore, it should help the understeer in right-hand corners. However, a little additional analysis shows that there is another problem with the car. By looking carefully at the left front temperatures, we see that there may not be enough negative camber in that position because the outside temperature is equal to the inside temperature.



The solution

The most logical solution for this situation is to slightly increase the negative camber of the left front wheel and rerun the car without changing the tire pressures. This should increase the grip at the left front tire, reducing the understeer. This in turn will reduce the work going into the left front tire, lowering its temperatures and pressures. Increasing the grip on the left front tire will put more stress on the left rear tire, increasing its temperatures and pressures, thus bringing the entire car into a better balance.

This example demonstrates that incorrect tire pressures can be the result of vehicle setup, as well as a cause of handling problems. Careful analysis is required to determine whether the pressures are the cause of, or the result of, a classic setup problem. In general, tire pressures should be one of the final adjustments made to a car's setup, used for very fine-tuning. Remember, any adjustments that affect car handling are interrelated, and tire data should be collected after each change is made to the car. Never skip this step.

Vehicle Set-up

Car Number	Session	Ambient Temp	Track Temp	Day / Time

LEFT FRONT

Temperature

Outside	Middle	Inside

COLD P.S.I.	HOT P.S.I.

RIGHT FRONT

Temperature

Inside	Middle	Outside

COLD P.S.I.	HOT P.S.I.

LEFT REAR

Temperature

Outside	Middle	Inside

COLD P.S.I.	HOT P.S.I.

RIGHT REAR

Temperature

Inside	Middle	Outside

COLD P.S.I.	HOT P.S.I.

Change/Alignment _____

Guide to High Performance Handling

Adjustments	Decrease Understeer	Decrease Oversteer
Front Tire Pressure	Lower	Higher
Rear Tire Pressure	Higher	Lower
Front Tire Section	Larger	Smaller
Rear Tire Section	Smaller	Larger
Front Wheel Camber	More Negative	More Postive
Rear Wheel Camber	More Positive	More Negative
Front Wheel Caster	More Positive	More Negative
Front Springs	Soften	Stiffen
Rear Springs	Stiffen	Soften
Front Anti-sway Bar	Soften (Thinner)	Stiffen (Thicker)
Rear Anti-sway Bar	Stiffen (Thicker)	Soften (Thinner)
Weight Distribution	Move Rearward	Move Forward

TIRE TROUBLESHOOTING TIPS

Below is a partial list of things to consider for troubleshooting handling issues. Keep in mind that it is up to you to determine what changes to make to a car and when.

Chasing car setup. If you seem to be chasing your setup, consider increasing the number of hot laps between setup changes. Tires should be up to operating temperatures and recommended hot pressures before making changes to the setup.

Pressure as a "quick fix." Tire pressure should never be used as a "quick fix" for a car's handling problem. It should be considered only for fine-tuning vehicle performance. Therefore, changing away from the recommended hot pressure should be the last adjustment, not the first.

Excessive shoulder wear. Adjust static and/or dynamic camber (the camber "gain" of the suspension geometry) to reduce loading on the affected shoulder.

Straight-line instability. Check for incorrect toe (especially rear) or rear axle out of square. Consider increasing front tire pressure or adjusting brake bias if instability occurs under braking.

SAFETY CONSIDERATIONS*

Never race on an underinflated tire.

We strongly discourage “soaking” of tires. It can be hazardous to the person soaking the tires, the environment, and the tire itself. The additional complexity and components in radial tires put the product at risk when solvents are used in an attempt to “soften” the tread area of the tire.

We strongly discourage pressure bleeders. A bleeder is another item that can fail. With a proper pressure management program, you can obtain repeatable and correct hot pressures without the risk of additional components.

Always inspect each tire thoroughly, prior to and immediately following each use.

Take the time to get familiar with your new MICHELIN® Pilot® Sport Cup tires.

*These suggested practices are intended for experienced, knowledgeable racing enthusiasts only.

Dimensions	Service Description	Sidewall	Product Code	Rim Width Range (inches)	Section Width on Measuring Rim Width (inches)	Overall Diameter (inches)	Tread Depth (in/32nds)	Rev/Mile at 45 mph	Max. Load (lbs@psi)	Original Equipment Fitment
225/40ZR18	(88Y)	BSW	87503	7.5 - 9.0	9.2 on 8.0	25.1	6.0	834	1235@51	
235/40ZR18	(91Y)	BSW	53827	8.0 - 9.5	9.5 on 8.5	25.4	6.0	819	1356@51	
265/35ZR18	(93Y)	BSW	60480	9.0 - 10.5	10.9 on 9.5	25.2	6.0	831	1433@51	
285/30ZR18	(93Y)	BSW	81118	9.5 - 10.5	11.4 on 10.0	25.1	6.0	834	1433@51	
295/30ZR18	(94Y) C1	BSW	80852	10.0 - 11.0	12.1 on 11.0	25.2	6.0	833	1477@51	Dodge OE Viper ACR
235/35ZR19 DT	(87Y) N1	BSW	07299	8.0 - 9.5	9.5 on 8.5	25.5	6.0	817	1201@51	Porsche OE GT3 Facelift
235/35ZR19 DT	(87Y) N0	BSW	08291	8.0 - 9.5	9.5 on 8.5	25.5	6.0	815	1202@51	Porsche OE 997 GT2 / GT3
235/35ZR19	(87Y) *	BSW	88851	8.0 - 9.5	9.5 on 8.5	25.5	6.0	816	1202@51	BMW OE 3-Series M3 CSL E46
245/35ZR19/XL DT	(93Y) *	BSW	94325	8.0 - 9.5	9.8 on 8.5	25.8	6.0	807	1433@50	BMW OE 3-Series M3 E90
265/30ZR19 DT	(89Y) *	BSW	65562	9.0 - 10.0	10.7 on 9.5	25.3	6.0	822	1279@51	BMW OE 3-Series M3 CSL E46
265/35ZR19/XL	(98Y) *	BSW	15839	9.0 - 10.5	10.7 on 9.5	26.3	6.0	790	1653@50	BMW OE 3-Series M3 E90
305/30ZR19/XL DT	(102Y) N0	BSW	54909	10.5 - 11.5	12.3 on 11.0	26.3	6.0	790	1873@50	Porsche OE 997 GT3
305/30ZR19/XL DT	(102Y) N1	BSW	07839	10.5 - 11.5	12.3 on 11.0	26.3	6.0	792	1874@50	Porsche OE GT3 Facelift
325/30ZR19 DT	(101Y) N0	BSW	92516	11.0 - 12.0	13.0 on 11.5	26.7	6.0	778	1819@51	Porsche OE 997 GT2
345/30ZR19	(105Y) C1	BSW	06610	11.5 - 12.5	13.8 on 12.0	27.2	6.0	765	2039@51	Dodge OE Viper ACR
245/30ZR20/XL DT	(90Y)	BSW	02423	8.0 - 9.0	9.8 on 8.5	25.8	6.0	805	1323@50	
315/25ZR20/XL DT	(99Y)	BSW	26244	11.5 - 12.5	13.2 on 12.0	26.4	6.0	788	1709@51	

MICHELIN® PILOT® SPORT CUP TIRE AVAILABLE SIZES

UTQG Rating: 80 AA/A

Service Description Key: * = BMW, N0, N1 = Porsche, C1 = Chrysler/Dodge

XL = Extra Load
DT = Different tread

1. The sizes shown are average design values for tires measured on specified measuring rim widths. Some tires may vary from this value by +/-3% of the section height (affecting overall diameter), and +/-4% of the section width.

2. Section width varies approximately 0.2" (5mm) for every 0.5" change in rim width.

WARNING: Serious or fatal injury may result from tire failure due to underinflation or overloading. To ensure correct air pressure and vehicle load, refer to vehicle owner's manual or tire information placard on the vehicle. Serious injury or death may result from explosion of tire/rim assembly due to improper mounting. Only tire professionals should mount tires and they should never inflate beyond 40 psi to seat the beads. Before mixing types of tires in any configuration on any vehicle, be sure to check the vehicle owner's manual for its recommendations.

DANGER: Never mount a 16" diameter tire on a 16.5" rim.

DANGER: Never mount a 17" diameter tire on a 17.5" rim.

Inflation pressure increase must not exceed the maximum pressure branded on the tire sidewall. When a customer requests a replacement tire with a lower speed rating than the original equipment tire, you must clearly communicate to him or her that the handling of the vehicle may be different, and that its maximum speed capability is limited to that of the lowest speed-rated tire on the vehicle. Exceeding the lawful speed limit is neither recommended nor endorsed.

For high-speed driving, additional inflation pressure and possibly reduced tire loading and/or upsizing is required. In the absence of specific recommendations by the vehicle manufacturer, use the following guidelines based on those in the European Tyre and Rim Technical Organization Standards Manual.

RACE TO WIN. RACE TO LEARN.

Dedication to competition has long been an important part of the Michelin philosophy. Our racing heritage dates back to 1891, when our tires helped Charles Terront and Pierre Jiel-Laval capture a victory in the Paris-Brest-Paris bicycle race. Since that first triumph, we have been committed to designing tires that perform at the highest level and meet the increasing demands of our customers. Through obsessive engineering, we design and produce some of the best tires for the top racing series around the world. And, like the best drivers in the world, our validation comes from MICHELIN® tires crossing the line first.

But our dedication doesn't stop at the finish line. At Michelin, we constantly take what we learn on the world's most demanding racetracks and use that knowledge to develop even more advanced tire technologies. Chemically superior rubber compounds. Computer-optimized tread designs. Optimal internal tire structures. Technologies that we put to use developing the MICHELIN® Pilot® Sport Cup tire and that you bring to life on the track.

1913 Michelin wins the Indianapolis 500 with Jules Goux in a Peugeot.

1923 André Lagache and René Leonard triumph at the first 24 Hours of Le Mans with MICHELIN® tires.

1965 Michelin introduces its radial tire to the racing world with the XAS® tire.

1973 Michelin wins the first World Rally Championship with an Alpine/Renault.

1978 Six months after Michelin's F1 debut, Carlos Reutemann scores the company's first win in the Brazilian Grand Prix.

1979 Ferrari driver Jody Scheckter becomes the F1 world champion and his team wins the Constructor's Championship while riding on MICHELIN® tires.

1983 F1 driver Nelson Piquet becomes the world champion on Michelin rubber.

1984 After proving its capabilities by winning 14 of the 16 races in F1, Michelin decides to withdraw from the top racing series.

1993 Michelin-shod Peugeots take the top three spots at Le Mans.

1994 Michelin wins a seventh-straight title in the World Rally Championship.

1996 Michelin-shod Porsches are victorious in the GT1 and GT2 categories at Le Mans.

1998 Michelin takes overall victory at Le Mans with a Porsche GT1 and tops the GT2 category with an Oreca Viper.

2000 With the announcement of a return to F1 in 2001, Michelin tests more than 3,000 tires and covers more than 6,200 miles.

Oreca Vipers take the top two spots in the GTS category while running on MICHELIN® tires at Le Mans.

Oreca Vipers, on Michelin rubber, take top honors at the Rolex 24 Hours of Daytona.

2001 In the first season back in F1, Michelin and BMW/Williams find the top of the podium four times.

2002 The Peugeot 206 takes an astonishing eight wins before securing the top spot in the WRC on MICHELIN® tires.

Michelin found victory lane twice in a hard-fought F1 season.

2003 In the third season back in F1, Michelin-shod cars are victorious six times. MICHELIN® tires take the top 10 spots at the historic 24 Hours of Le Mans.

2004 MICHELIN® tires win the 12 Hours of Sebring and the 24 Hours of Le Mans ... again.

2005 Michelin celebrates an unprecedented racing season with championship titles in Formula One,™ World Rally Championship, American Le Mans Series and the 24 Hours of Le Mans.

2006 Michelin teams once again capture the F1 driver and constructor championships; the MotoGP championships and win every championship in the American Le Mans Series while sweeping the top 13 places at the 24 Hours of Le Mans.

2007 A first for a tire manufacturer, Michelin completed its first perfect season in the American Le Mans Series competition. Michelin also secured an unprecedented 10th consecutive win at the 24 Hours of Le Mans.

2008 Michelin won the American Le Mans Series Championship Grand Slam (Manufacturer, Team, Driver and Tire Championship in all four classes) for the third consecutive season. Michelin won their 11th consecutive 24 Hours of Le Mans and 10th consecutive Twelve Hours of Sebring and Petit Le Mans

This brochure has been developed to assist you in getting the most out of your tires during a given race or track session. This information is general in nature, and numerous variables such as track conditions, car setup, and driver preference will play an important role in determining the optimum race configuration for your car.

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Mixed Sources
Product group from well-managed forests, controlled sources and recycled wood or fiber
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A better way forward