

THE PERFECT FIT

PIRELLI AND TOP AUTO MANUFACTURERS JOIN EFFORTS TO CREATE THE PERFECT FIT BETWEEN SPECIFIC CAR AND TIRE BY JOE SAGE

Few brands have the rarified reputation of Pirelli, and probably none other has their panache (or "brio" in italiano). This comes from racing heritage, from OEM heritage, from its Italian flair, even from the famous Pirelli calendar girls...but above all, it comes from product.

Tire engineering is fascinating. We all hurtle down the highway with two or three tons of inertial force, confident that our vehicle's steering, brakes, electronic stability control and our own presumed skills behind the wheel—as well as a protective steel cage, belts and airbags—are a formidable barrier against catastrophe. Yet it really all comes down to four very small contact patches of rubber compounds against the road.

We joined Pirelli in Las Vegas recently for a

look at their latest P Zero™ range, starting with an evening presentation. Four elegant Italian supermodels opened the show, cruising gracefully down the fashion runway, when suddenly a heel gave way, triggering an unfortunate stumble and impending fall. Nobody wants that. Not on the runway and not on the road. As 40 concerned journalists started out of their seats to help, they realized it was all a dramatically entertaining part of the show, demonstrating the importance of a contact patch. As surely as the loss of that quarter-square-inch of heel could have sent all that beauty and science toward a potentially devastating crash, so could the wrong tires on your car.

Tire engineers are a tireless bunch. Every pattern, every sipe, every groove has a purpose, and

collectively each tire is geared toward a certain type of use. And even to a certain general type of car. And in many cases to its position on the car, left or right, front or rear.

But Pirelli is taking this all a step further with the new P Zero—engineering each tire to a specific brand and model of car. Once you think about it this way, the alternative starts to feel no more appropriate than a one-size-fits-all pair of pants.

Through the Pirelli Perfect Fit strategy, P Zero OEM-marked tires have been engineered in close collaboration with specific vehicle manufacturers, each the result of years of dedicated research and development for each car's unique characteristics and technical requirements.

The new P Zero comes in three variants, each tailor-made for specific cars, applications and performance levels. For luxury sedans, the P Zero pattern has been adapted with a deeply grooved external shoulder to better absorb road surface impact and boost comfort levels. P Zero for sports cars has a less sculpted tread pattern favoring dy-



Pirelli P Zero



amic performance. And P Zero Corsa has a more aggressive tread design related to P Zero motorsports slick tires.

The new P Zero assures maximum stability at the highest speeds through its new F1 Bead technology, directly derived from Pirelli's Formula One efforts. An especially rigid compound within the bead area provides even distribution of force for quick precision steering without loss of lateral grip, for predictable linear performance even in the most aggressive maneuvers.

The tires have been given a flatter footprint—an Extended Range Profile—for more even wear and a longer life.

Dynamic as they are on dry pavement, the new P Zero has paid special attention to wet conditions, with deeper channels and more tread pattern grooves, for a ten percent increase in water expulsion, thus more resistance to lateral aquaplaning, also contributing to safer wet braking.

Transverse grooves are arranged in an irregular sequence, to disrupt percussive air noise by distributing sound over various frequencies, contributing to a quieter cabin. Peace is also produced by the Pirelli Noise Cancelling System, which deals with noise generated inside any tire cavity by air compression vibrations, which are transmitted to the wheel, the steering, the suspension and inside. Pirelli's system uses a polyurethane sponge layer inside the tire carcass as a dampener, reducing noise by two to three decibels, with no loss in performance characteristics.

The new P Zero also reduces fuel consumption with a 15 percent improvement in rolling resistance, achieved through new computer modeling, weight reduction and over 80 percent new high silica content materials.

These are run-flat tires, engineered to get you to a repair or replacement within 50 miles at

KEEP RIGHT >>



speeds up to 50 mph. They also include Seal Inside technology to prevent air loss from a puncture of up to 4mm. The seal created in such an incident permanently blocks the hole after your hazard is removed, ensured by a protective film applied inside before remounting. Such punctures are responsible for 85 percent of flat tires.

Our classroom time was quite convincing, but if you want to find out what a set of new Pirelli P Zero tires will do for your car, pop on a set and take it for a spin. Or do what Pirelli did—pop 'em on two fleets of supercars and Cup cars and take them to the track. And put another fleet of performance sedans on a flooded autocross course.

We headed to Dream Racing, a five-star Pirelli-sponsored driving experience at Las Vegas Motor Speedway, about 13 miles north of Las Vegas, to really put the P Zero to the test.

Las Vegas Motor Speedway has a 1.5-mile tri-oval racetrack with 20-degree banked turns and seating for over 130,000 fans. Inside that is a flat 1.1-mile road course with eleven turns and an 1100-foot straightaway, which is where we would drive our supercars and Cup racers.

Different track setups let us experience the grip, handling and performance of the new P Zero on a rarified stock lineup including the Audi R8, Ferrari 488, Lamborghini Huracán Super Trofeo, Lamborghini Aventador SuperVeloce, Mercedes-AMG GT, Pagani Huayra and Porsche 911—a lineup tailor made for high style and high speed.

Between our supercar and Cup racer track sessions, we drove Dodge Charger and Tesla Model S sedans on a very wet slalom course and skidpad, pitting their high power—and emergency braking—against slick conditions when each is outfitted with a set of Pirelli P Zero All Season Plus tires.

In all cases, we focused on our controls, we focused on the track, we nailed the straightaways logging speeds routinely above 180 mph and hitting 193 mph on our fastest run. Never once did we pause to think about those four little contact patches and how they were doing. Throughout it all, they performed like the champions they are designed and engineered for. ■

Successfully competing in motorsport since 1907, Pirelli is exclusive supplier of the Superbike World Championship, many single marque championships around the world, and sole supplier for the Formula One World Championship since 2011. As Pirelli's halo product, P Zero has achieved a rich heritage and over 1,000 homologations since its introduction 30 years ago.

Founded in Milan in 1872, 145-year-old Pirelli specializes in the high end, premium market. With a commitment to Italian research and development, Pirelli has 20 tire factories in 14 countries—including a US plant in Rome, Georgia—and a commercial presence in 160 countries.



Pirelli
P Zero
Corsa



Italian engineering, flight-tested

BY JOE SAGE

Italian design—concept, styling and engineering—is well known and highly coveted worldwide. From illustrious automotive brands such as Alfa Romeo, Ferrari, Fiat, Lamborghini and Maserati, to fashion and decor, the brands are universally revered. (It was obvious the old Soviet Union

was on its last legs when it was revealed that Mikhail Gorbachev would travel to top choice Italy when he needed top quality suits.) And Italy manufactures aircraft, including stunning fighter jets.

To get a broader feel for the engineering culture behind Pirelli P Zero tires (see feature), in an over-the-top super trifecta of powerful engines and speed, our cool-down lap after hours of high speed driving at Las Vegas Motor Speedway had us moving straight from supercars to helicopters to jets.

We took a short walk from the paddock to an impromptu helipad, where we boarded an ECOStar EC-130, an Airbus-built single-engine helicopter powered by a Turbomeca Arriel 2B1 turbine engine with dual-channel FADEC digital engine control system and back-up control box, powering an auto-

matically-varying three-bladed Starflex main rotor matched to an enclosed Fenestron anti-torque, low-noise tail device. These aircraft, with a top speed of 155 knots (178 mph), have the largest cabin of any single-engine helicopter in their class, can carry over a ton, and have a ceiling of 15,655 feet (they are also adapted by EMS for medevac). Our six-passenger version is operated by Mavericks Helicopters, the craft's largest single operator in the world, who offer tours of Las Vegas, Hoover Dam and the Grand Canyon. Ours was a fast and low flight of some 30-35 air miles through rugged terrain from Las Vegas Motor Speedway (13 drive miles north of Las Vegas) south-south-east toward Lake Mead, then southwest to Henderson Executive Airport (20-25 drive miles south

Pirelli turned us loose for a flight south of Las Vegas in two SIAI-Marchetti S.211A fighter jets (in the back seat) to further absorb the connections among velocity, aerodynamics, style and control—all elements also inherent in the equally advanced Italian engineering of Pirelli P Zero tires.



of Las Vegas).

Here we met a team of NATO and commercial (or both) pilots, who would take us on a demonstration ride-along flight in the SIAI-Marchetti S.211A sweptwing fighter jet, a fully aerobatic version of the S.211 fighter jet trainer. There are about 60 of these jets in the world.

The airframe uses extensive structural bonding and composite materials—Kevlar, Nomex and carbon fiber composites. There are five hardpoints that can be armed with a range of weapons, photo and reconnaissance pods, or auxiliary fuel tanks. The S.211 has been in service with Singapore, Philippines and Haitian Air Forces (and is still in active use in the Philippines).

Powered by a single 2500-lb-ft JTI 5D-5C Turbofan engine from Pratt & Whitney of Canada, the SIAI-Marchetti S.211A can climb 5100 feet per minute, has a ceiling of 40,000 feet, and has a speed of 414 knots (475 mph) at an altitude of 25,000 feet. Dive speed is 400 knots (460 mph) and acceleration limits are +6g or -3.0g, with a load factor of +7 at 3.5g.

We would do all of that except the weapons part (or probably the 40,000 feet part).

After a briefing on the aircraft and the nature of our flight, we were fitted with flightsuits, flight helmets and oxygen masks, and headed out on to the tarmac. These are two-seat trainers, and we would be in the rear seat. Trained in the sequence of very specific steps involved, we climb up and in and are strapped in among the instruments and told to keep our legs and arms clear of the pedals and stick. We taxi out in tandem with a second jet. Takeoff is side-by-side, wingtip-to-wingtip.

Our flight took us east and southeast, throughout Nevada's southern tip, where Arizona, California and Nevada meet, along the Colorado River below Hoover Dam—though all of the above definitions are rendered somewhat meaningless during heavy aerobatics. The river, the sky, the mountains and rocks—all quickly alternate positions above, below and/or straight ahead of us.

The commonality is clear. We have dropped straight to earth, done barrel rolls and wingtip-to-wingtip maneuvers at over 400 knots, with total confidence in not only our highly skilled NATO pilot, but also our superbly engineered aircraft. We never gave one second's thought to our safety and security being in their hands.

We had driven 185-193 mph in a variety of supercars and Cup racers at Las Vegas Motor Speedway, on new Pirelli P Zero tires, and it was the same thing—total confidence, with never one second's thought to our safety and security being in the hands of Pirelli engineering. And that's just as it should be for anyone enjoying their time at the controls. ■

