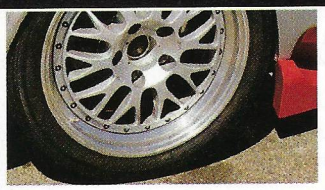
Porsche 911S

Part 22: Baby needs new shoes



Shaquille O'Neal is a big guy—7 ft 1 in. and 330 lb. How he manages to sprint down the basketball court, zigzag around his opponents and then stop dead in his tracks for a two-pointer is mind boggling. Of course, he wears a size 22 basketball shoe. A size 22! That's a lot of rubber against the hardwood.

Our Project 911S weighs a shade over 2,100 lb. It sprints down the straightaway, weaving in and out of its competition, at about 150 mph. And the amount of rubber it puts to the road? Not much more than what Shaq stands on.

That's it. About two square feet of tire...total. Heading toward a 90-degree left-hander at a buck-and-a-half suddenly makes that minute patch of real estate very, very important. And given the extreme conditions in which the tires are asked to work, it makes their feat that much more astonishing.

When the S ventures out from the pits, it carves its way across the tarmac on Pirelli P Zero racing slicks, the same tires used in both the European Porsche Super Cup series and the Ferrari Challenge. As anyone involved in motor sports will agree, slicks are the way to go.

Before the Project 911S's transformation into a serious racer, it ran on high-performance street tires, the same rubber used by most of the cars competing in the S's current R5 class. The reason I can slap on a set of slicks while my competition must roll on street treads is that the Porsche Owners Club uses a point system to keep the grid evenly matched.

The system allows drivers to modify their cars in a variety of ways, but in the case of the Project 911S, with all other components being equal, I opted for slicks while my competition spent their allotted points on engine displacement. In fact, my 2.7-liter motor is alone in a mob of 3.0- and 3.2-liter screamers.

Is it worth swapping horsepower for adhesion? It is a difficult comparison, the classic oranges to apples situation where the performance parts list differs from my opponents. That said, what I can relay is from recent experiences at the track. If the S is five car lengths behind, say, an R5 class-prepared Carrera diving into Turn One at Willow Springs International Raceway, by the time we are exiting the corner, Project 911S swoops in on the Carrera and fills its rearview mirror.

The 3.2-liter has a slight edge in horsepower over the 2.7-liter, but its greatest advantage is its low-end torque generated by the engine's longer stroke.

BY MITCHELL SAM ROSSI
Photos by the author

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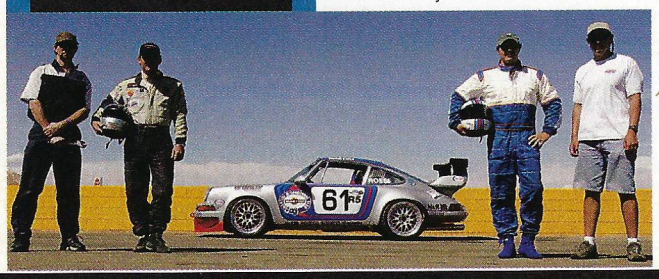
Eke out another 100 horses from the motor, reduce the car a few more pounds, tune the suspension a tad better, it really doesn't matter. If the tires aren't smooching terra firma with enough passion, you'll soon find your car and the roadway heading for a messy divorce.

To make a relative comparison—relative being the opportune word as no racer reveals his engine's true horsepower or torque numbers—the stock 3.2-liter flat six from a 1984-89 911 Carrera generates 231 bhp at 5900 rpm and 209 lb-ft of torque at 4800 rpm. The 2.7-liter motor of the 1973 911RS—a close match to the project car's motor—produced 210 bhp at 6300 rpm and only 188 lb-ft at 5100 rpm.

Why talk torque in a story about tires? Because velocity through a corner is dependent on entry speed. With Pirelli race rubber, the



S is able to enter a bend much faster than a street-tire-equipped car. This also means that whatever braking is needed on the approach can be done later and with less force.

If the Carrera must slow from 150 mph to 110 mph to navigate the corner and the S needs only to drop to 120 mph, that 10-mph difference becomes an incredible advantage.

The car's Pirelli P Zeros are sized at 245x645x18 D6 up front and 285x645x18 D5 at the rear (the D rating being the rubber compound with which the tires are made; D5 is the harder of the two).

Obviously, the rear of a 911 is heavier than the front. This rearward mass promotes more friction and, hence, higher temperatures. The rubber compounds were specifically chosen to ensure that all four tires reach their optimal working temperature evenly. For the P Zeros, the prime temperature is between 180- to 200°F.

Per the Pirelli technician's instructions, the P Zeros were inflated cold to 27 psi and 25 psi, front and rear, respectively. The number may look reversed for a 911, but that is because of their different compounds. With the front suspension set at a negative 3.5 degrees of camber and the rear adjusted to negative 3.0 degrees, the operating pressure is 31 psi. At Willow Springs it usually takes three practice sessions to increase, and subsequently bleed off, the growing pressure until the tires stabilize.

Choosing the right competition wheel around which to wrap the racing slicks was critical. As I have stressed throughout the Project 911S series, racing is a dangerous hobby. Although the S is only a club racer, venturing out on the track is taken as seriously as it were running in the American Le Mans Series or the Porsche Cup. Put another way, weekend racing isn't the same as a flag football game at the company picnic. It is the Super Bowl. Every time you step out on the field, you have to don your helmet and shoulder pads.

Thus, when searching for the S's racing wheels, I didn't shop at the local discount auto warehouse. I looked at my competition, I talked to the pros I knew, and I did my homework. At the end, it was a clear choice. BBS had the experience, the reputation and, mostly, the quality I wanted.

The S rides on BBS's lightweight, aluminum alloy, three-piece modular competition wheels. By using modular wheels, I was able to build 8.5x18- and 9.5x18-in. rims with the exact offset needed to squeeze the maximum amount of rubber under the 911's narrow fenders.

There are, of course, a myriad of so-called competition wheels on the market. But when building a race car that has a 150-mph potential, it is suicidal to scrimp anywhere, especially on the wheels. Again, club events are not powder puff games.

BBS's magnesium wheels can be found on Indycars, GT racers and even the Le Mans prototypes. The aluminum alloy wheels are the footwear of many spec-series racers, including those running the Porsche Cup and Ferrari

Proper Footwear

The Porsche-designed Fuchs forged aluminum alloy wheel debuted on the 1967 911S. The fully anodized starburst style with black paint filling the surface between the spokes has become a somewhat unofficial trademark for the 911.

Manufactured in a variety of sizes and offsets, Fuchs are now collectors items and are not just for the diehard restoration clan. I have friends who own just one 911 but have squirreled away several sets of these wheels. It is understandable, of course, as no other wheel looks as correct on the 911 as the originals.

Hoping to keep the Project 911S's vintage look, I purchased a set of 7x16- and 8x16-in. Fuchs at a local swapmeet. These second-hand, or perhaps twenty-fourth-hand, wheels were in dreadful condition, straight and true, but scratched, faded and downright ugly. Luckily, one of the best refurbishing shops for Porsche alloys is in Southern California.

Wheel Enhancement, of Culver City, not only reconditions used Fuchs but its showroom displays an array of Porsche factory rims along with aftermarket wheels from BBS, HRE, Kinesis and others.

The shop can either match the original paint scheme or reproduce the 1974 layout, where the centers were completely black with the only the outer wheel rim showing the anodizing. Wheel Enhancement can also customize the wheel colors as was done by the factory for several 911 models. They can also polish the alloys to a near chrome-like finish.

The wheel house has its own version of the Fuchs finish called "rough and clear" anodize. This is similar to the classic style except that a rough anodized finish replaces the original black-painted background. "It just gives somebody a different look," said John Brown, the shop's owner. "Something outside the normal designs."

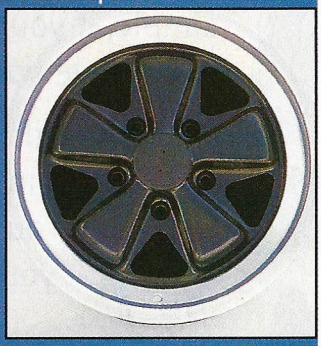
To ensure the beauty of the Fuchs, maintenance is important but surprising simple. "Avoid wheel chemicals," Brown said. "And never clean the wheels when they are hot."

Cleaners with caustic ingredients have a tendency to streak the anodizing, Brown warned, leaving the finish a milky color, while abrasive polishes will remove the finish altogether. "We recommend simple soap and water and possibly a light coat of clear wax," he said, noting that the wax helps shield the anodize from foreign material such as brake dust and road grit. When the Fuchs do pick up dirt and debris, Brown suggested a standard tar and gum remover, which will not harm either the painted or anodizing.

Sitting on its newly refurbished Fuchs, Project 911S may not look as aggressive as when it wears the BBS/Pirelli slicks combination, but it looks right. Right for the Martini&Rossi livery, right for the early 911 racing era.

Unfortunately, it also looks just right for a local CHP officer to pull over and inspect. It has not happened yet, but there are a lot of weekend jaunts ahead. —*MSR*

The Classic or early wheel anodized with black paint between spokes.



Later wheel anodized with black-painted center.

Rough and clear anodizing.

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Challenge competitions.

BBS builds its products from a proprietary blend of aluminum, magnesium, titanium and a variety of other metals. The factory uses this special aluminum alloy in both its wheel centers and rim halves.

During manufacturing, the rim blanks are strengthened through a patented technique called "rim-rolling." Operating at high temperatures, the blank is compressed on a specialized rolling mill. This crushing action increases the component's fatigue strength by 10% over the original casting.

For quality control, the wheels are X-rayed for imperfections and defects throughout the manufacturing process. After the wheels are assembled with titanium bolts and a thread-locking compound, they are again scrutinized by BBS specialists to ensure every wheel meets the company's standards.

As the Project 911S's BBSs are strictly for racing, I needed a secondary wheel set. Early on in the project, I was determined the S would not end up a dedicated track car. Although it may be surprising, and somewhat ludicrous given the Martini&Rossi livery and 12-in. numbers on the doors, the S is still street legal. Exchange the open exhaust for a toned-down muffler, affix the license plates and off I go.

For road tires, ultra-high-performance Pirelli P Zero Cs were chosen. Z-rated and DOT-approved, their aggressive design makes them highway triathletes; wet, road or track, the Pirellis accommodate all three. There is a compromise, of course, as no tire can do everything perfectly.

With the P Zero Cs, Pirelli knew exactly who their clients would be. These are not tires for the family mini-van. They are performance tires. High levels of adhesion, both wet and dry, and high-speed stability are the tire's emphasized characteristics.

A weak point with all performance tires is wear. "Good Grip—Bad Wear" should be a Newtonian Law, although I found the law is less pronounced with the P Zero Cs than expected.

Running sizes 225x50xZR16 and 245x45xZR16, front and rear, respectively, the S gets an occasional highway jaunt to keep the brake fluid flowing and the fuel-injection system pumping. Knowing these excursions would only be occasional, tire wear was not a concern. Still, those weekend blasts reveal the P Zero Cs to be incredibly responsive in both performance and endurance.

A critical test will be during the summer season, when I plan to enter the S in several autocross events, most of which are held in the local baseball stadium parking lot.

Like the BBSs, there was only one choice when it came to street wheels—Porsche's five-spoke Fuchs wheels. While the 911S was originally equipped with 6x15-in. alloys, the enhanced fender arches allow for 7x16 in. up front and 8x16 in. at the rear. This particular size combination was first offered by Porsche on the 1977 911 Turbo.

The forged aluminum Fuchs are considered to be one of the best wheels ever made and arguably the finest ever offered by an automobile manufacturer as standard equipment. They are exceedingly strong yet lightweight.

So that's it. With wheels and tires for both the street and track, Project 911S is now complete. Top to bottom, front to rear. After all, there is no need to test the new winglet that I recently fastened to the A-pillar drip rails. Or the new front splitter, or the new battery box insert or the latest.... Well, I guess that is the curse of project cars. There is just no fun in ever completing them.