

Project 911S

Part 20: And in conclusion...well, sort of

By Mitchell Sam Rossi

PHOTOS BY ROB HALLSTROM AND LES BIDRAWN

There are only three sports: bullfighting, motor racing, and mountaineering; all the rest are merely games.

—Ernest Hemingway

The first day on the track for Project 911S was not spectacular. Anti-spectacular would be more accurate. Actually, it sucked. Mind you, the poor performance had nothing to do with the car, its preparation or its equipment. It had everything to do with the driver.

In my own defense, the day was cold, windy and interrupted by an occasional bout of rain that thwarted any serious sprints around the high-desert racing circuit of Willow Springs International Raceway in Rosamond, Calif. Yet, while I would like to blame the weather for the miserable showing, I cannot. The trouble was inside my helmet.

In theory, an early lightweight 911 equipped with the competition components of this project car, along with its potent 2.7-liter mechanically injected motor and aggressive racing rubber, should have easily circumnavigated Willow Springs in about a minute and a half. Similar

cars have done so repeatedly with a few slipping below the 90-sec. barrier. I could not, however, crack the 1:37 blockade.

Make no mistake, road racing is incredibly demanding, not only on the equipment but on the competitor as well. Unlike most sports, there are no huddles in which to catch your breath, no time outs, no seventh-inning stretch. The contest

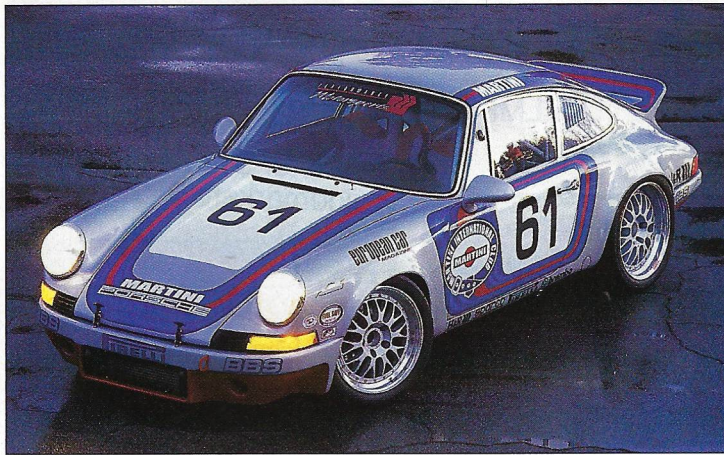
car is often at its limits inches from others which are moving with the same velocity along a narrow, twisty roadway specifically designed to screw you.

Thus my dilemma. The car was prepared. I was not. After spending 2 1/2 years building the 911S racer, I was somewhat hesitant to probe its boundaries. Let me rephrase that: I was terrified

to test its limits for the simple reason of not yet knowing exactly where those limitations lurk.

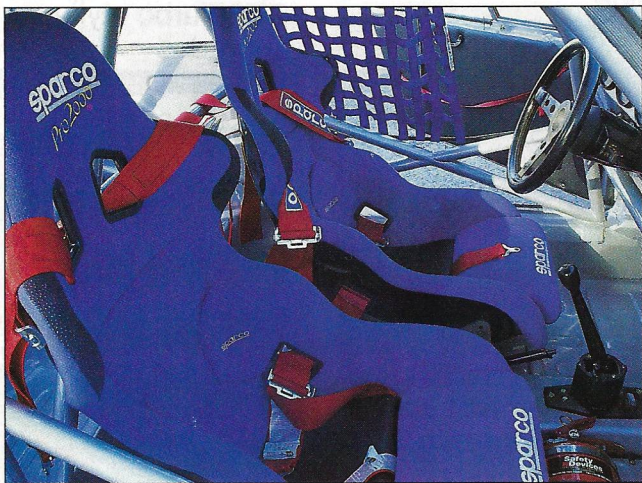
There was also the fact that the photographs of the S in its dashing livery had not been taken nor had I written the 20th installment. The thought of lobbing the car into a cement safety wall or missing a shift and churning the valve stems into spaghetti prompted my automatic gag reflex.

Prior to running the car on what is affectionately known as Willow Spring's "Big Track," I did have the chance to shake the S down at the facility's smaller road course, the Streets of Willow Springs. Speeds at the Streets rarely top 100 mph, and the spillways are broad with nary an obstacle in sight. Here, I was far more comfortable driving the project car closer to the edge.

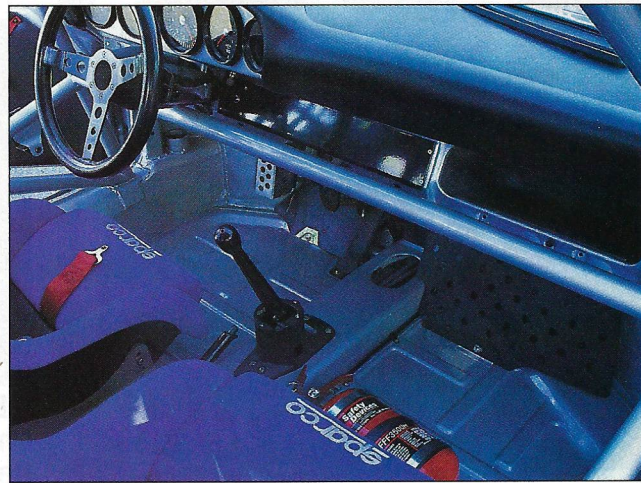


is not over in 3 seconds or at the end of a quarter mile. Nor is the track a smooth oval where the greatest demands on the driver is to keep his right foot extended and turn left.

Driving a GT-class race car, even in practice, requires total concentration 100% of the time. You have to be committed to the moment, as the

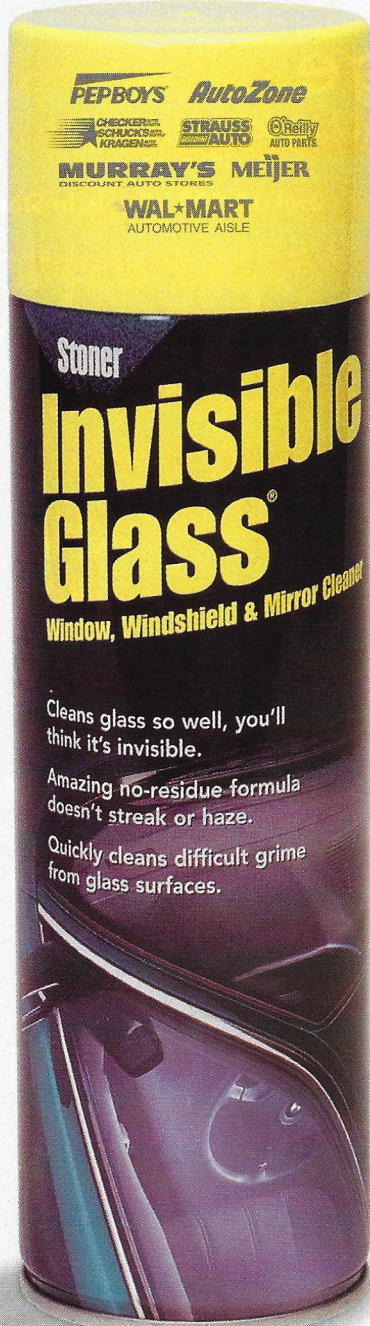


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All business: With weight being critical, the cockpit of the project car was stripped to the bare minimum.

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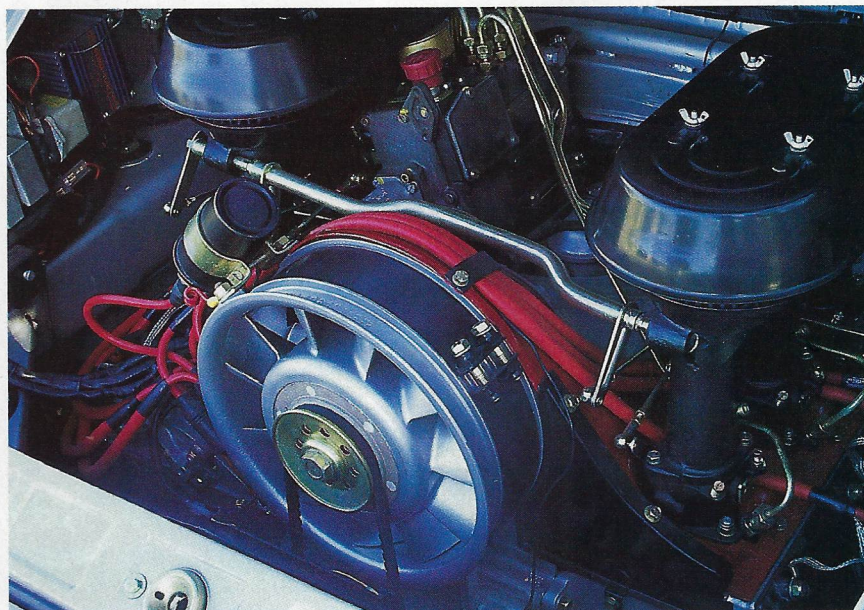
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Project 911S

Participating in one of the short-track events held by the local Porsche Owners Club, the car managed to generate times only a few ticks off the fastest laps of the day and kept the class leader with-in striking distance.

But it was not the car's actual times that were important. It was the handling. The combination of H&R Springs, Bilstein shocks and 935-style components from E.R.P. functioned perfectly. This true 911 racing suspension far surpassed the car's original torsion bar setup. It was simply point and shoot as the car negotiated the tightest corners flat and steady.

From the engine bay, the 2.7-liter revealed a personality similar to the original 2.2-liter. Unlike



Generating nearly 70 hp more than the original 911S motor, the Project Car's 2.7-liter flat six spins easily to a 7200-rpm redline.

Porsche's larger displacement motors, torque is not a strong point of the new engine. This lack of off-the-line grunt became apparent when accelerating onto the track's front straightaway, which is preceded by a tight, 90° bend.

Stabbing the accelerator while still uncoiling the steering wheel had a molasses-like effect on the S, at least until the tachometer needle nudged the 4000-rpm mark. Even then the horsepower took its time ascending the powerband. Not until the mid-4000s did the new six-cylinder distinguish itself from its precursor. While the 2.2-liter would have continued a steady climb to its 7200-rpm redline, the 2.7-liter felt as if it had gulped down a six-pack of Red Bull energy drink and suddenly freaked on the surge to the spark plugs.

I have driven many turbocharged Porsches. Mind you, I am not making a power comparison here, but the speed differential between low rpm and high was startling. Below 4500 rpm, the S was as mild mannered as Clark Kent, but above, the three-piece suit and black-framed glasses were ripped away in favor of a red cape.

Of course, the engine cannot be given full credit for the car's surprising surge. Weight is a key factor here. A lot of racers throw fists full of money into the engine compartment hoping to find more speed. Dollars are better spent, however, on reducing mass.

In stock form, the 1970 911S carried a weight to power ratio of 12.5 lb per each horse. In comparison, a 911T of the same vintage was 18.0:1. Weighing in at about 2,000 lb and producing a conservative 250 hp at the flywheel, the ratio for the project car is about 8 lb per pony, which is somewhere in the vicinity of a 1998 993 Turbo S.

As covered in earlier articles, to bring the car's weight down the undercoating was sandblasted away and its interior accouterments were removed. For further savings, all the glass, save the windshield, was substituted with Plexiglass replacement pieces from Spektr Products. The front wing windows incorporated small rotating bubble vents to draw in fresh air while the rear quarter window

replacements were louvered, an innovation taken from the factory's lightweight 911R.

Plexiglass door windows replaced the originals and use leather draw straps instead of mechanical door regulators. This too was used on the factory's lightweight 911R. Even the glass in the H1 headlights was swapped out for plastic counterparts, though this was done more for durability against track debris than for weight.

As for the front windshield, this was kept stock for two reasons. First, while a Lexan front windshield would have saved about 16 lb, I wanted to keep the DOT safety glass for driving on city streets. The second reason was expense. A standard 911 glass windshield is about a third of the cost of a Lexan shield, which, after a season of running amidst a pack of racers with gummy tires, tends to be so badly pitted that it has to be replaced. The glass window holds up substantially better.

Another weight-saving piece, and one that aided greatly in streamlining the airflow over the car, was the flush rear window assembly from Performance Products. The 911's stock rear window does not rest flush with the roofline but is recessed beneath small slots used for ventilation. The flush-mount Plexiglass window utilizes a plastic frame installed in the area previously taken by the original

Project 911S History

September 2000

Part 1: The first steps in going from derelict to race car

October 2000

Part 2: A green 1970 911S coupe

November 2000

Part 3: Starting at the front with suspension

December 2000

Part 4: And now the rear suspension

January 2001

Part 5: Fitting bigger brakes for faster laps

February 2001

Part 6: Paint and interior

March 2001

Part 7: Balancing the chassis

April 2001

Part 8: Going racing

May 2001

Part 9: Phase II, the engine

June 2001

Part 10: Induction and exhaust systems

July 2001

Part 11: The transmission

August 2001

Part 12: Removing the undercoating

October 2001

Part 13: Strengthening the chassis

February 2002

Part 14: Body and paint

March 2002

Part 15: Safety equipment

October 2002

Part 16: Upgrading the braking system

November 2002

Part 17: Going with the flow for better cooling

January 2003

Part 18: The ultimate suspension setup

March 2003

Part 19: The good, the bad & the mulligans

July 2003

Part 20: The end results

glass and rubber seal. The frame is secured to the roof with aluminum rivets, and the flat Plexiglass replacement window is then fastened to the frame with 14 screws.

An added benefit is that the window can be easily removed for cleaning. This may sound trivial, but with the S's rear seat area fortified by a maze of rollcage bars, it would otherwise take a contortionist or a 3-year-old to slip through the labyrinth to clean the window.

Of course, even if a car is endowed with umpteen horsepower, feather lightness, exceptional agility and Hans Stuck behind the steering wheel, it means little if the tires do not adhere to the pavement. Okay, maybe it wouldn't matter so much if Stuck was actually behind the wheel, but he wasn't, I was, so choosing the correct rubber was critical for getting the most out of the 911S.

When I first purchased the car in 1978, it was running on Pirelli CN36 tires, which happened to be the tire company's first standard production steel radial and one of my all-time favorite tires. In its present form, the S required more than casual street shoes to keep it fused to the road. Thankfully, Pirelli is still a leader in tire technology for both high-performance and competition rubber.

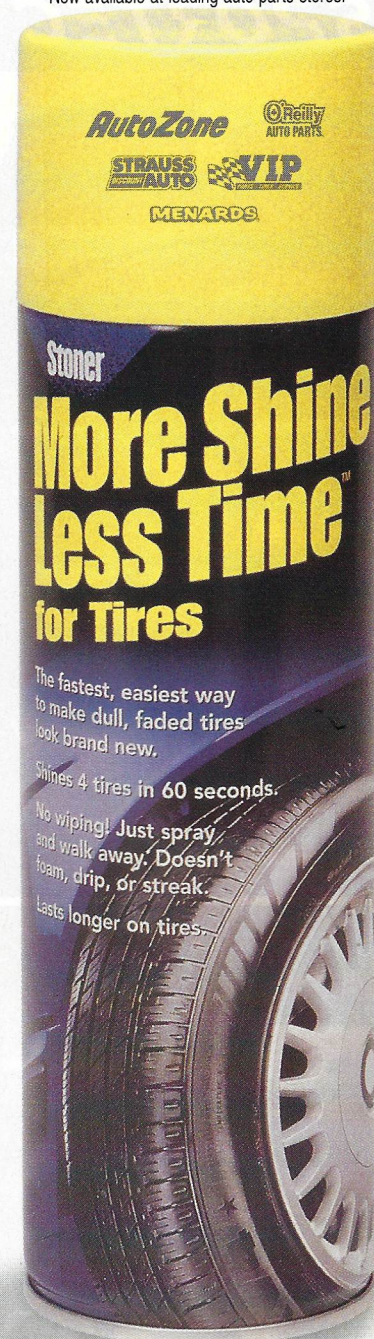
For the track, a race car needs slicks. While tread design may determine the correct street or rally tire, with racing slicks the key is to choose the right tire compound to match the event's conditions, i.e., track surface, ambient temperature and the distance the race is scheduled to run.

As the project car was to be tested in mid-winter—albeit a California winter where the temperatures hover around 60°F—the tire compounds suggested by the Pirelli technicians were a combination of their D5 and D6 tires.

The D6 compound requires less friction to reach its optimal temperature, and thus was assigned to the relatively light end of the car. In comparison, the D5 compound needs more input from the chassis and suspension to bring the rubber up to operating conditions. Obviously, a lot of friction is generated at the rear tire patch of a rear-engine car, so the D5 compound reached its preferred adhesiveness at the same rate as the front compound.

The Pirelli slicks, sized 245/645-18 front and 285/645-18 rear, were wrapped around 18-in. lightweight three-piece modular competition wheels from BBS. Tested under the most rigorous conditions,

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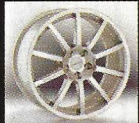
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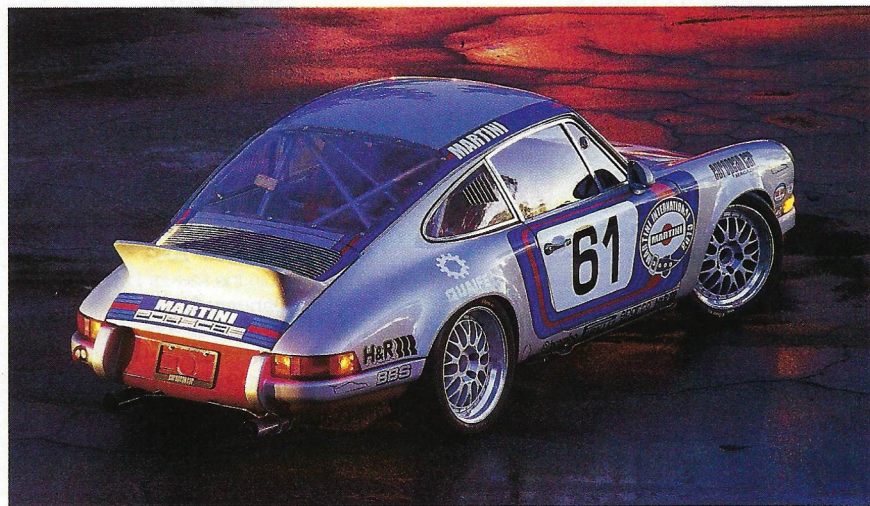
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Project 911S

BBS wheels have carried Porsches to victory from the early 1970s to the factory's last victory at Le Mans in 1998. In fact, BBS wheels and their distinctive webbing are as synonymous to Porsche race cars as the five-spoke Fuchs are to the street 911.

Computer engineered and manufactured to extremely high standards, the wheels feature widths and offset dimensions which can be tailored to the specific needs of the car by changing either inner or outer rim halves. For the project car, the BBSs were sized at 8.5 in. up front and 9.5 in. at the rear. This adjustability of the modular wheels will be an added plus when it's time to slice off the RS fenders and go for bold RSR shoulders. It also permits repairs when rim halves are bent from the inevitable off-track excursion.

Finally, the Martini & Rossi livery. I will admit that as a kid it was thrilling to see my family name draped across the hood of Porsche's most famous racing machines. Unfortunately, pretend as I may, I cannot boast ancestral ties to Luigi Rossi, who helped establish the Turin-based vermouth company. The "Rossi" name, in fact, is as common in Italy as Smith is here in the States. Still, for a 10-year-old already enamored with the German marque, Luigi's sponsorship added an extra thrill.



Although there were a number of schemes using the distinctive colors and striping of the Martini & Rossi teams, I choose a design similar to that of the Carrera RSR winner of the 1973 Targa Florio road race. In the early 1970s, before the age of custom-designed and computer-cut vinyl sheets, the livery was handpainted. Peruse the photo archives, and you'll find that no two race cars were striped exactly the same, with some changing their attire from race to race.

To decorate the project car as accurately as possible, I returned to Chris Hukill of Hukill Motorsports Paint and Graphics. Hukill painted the project car, and with his company residing inside the Porsche race shop of Vision Motorsports in Laguna Hills, he is continually creating racing graphics for a large number of competition vehicles.

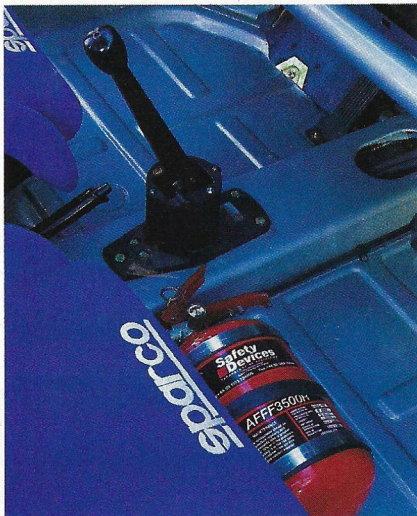
Unlike designing original art for a customer's car, however, matching the signature sponsorship of a well-known race car is a daunting task. Everyone expects the graphics to be identical to the actual car, but, as mentioned earlier, the livery was changed as often as tires.

Armed with only historical photographs and posters, Hukill spent innumerable hours recreating the Martini stripes on a two-dimensional CAD program. This allowed his computer-controlled cutting machine to trim the vinyl precisely, which minimized overlap and wasted material.

When applied in large, multiple-layer sheets over a three-dimensional surface, vinyl does have its limitations. The actual application to the car required 3 days of painstaking work. Yet, when finished, Hukill had managed to produce an impressive rendering of the famed Targa Florio winner.

One more benefit of using vinyl instead of rendering the Martini livery in paint is that the sticker material can be easily removed. Understandably, this is an option Hukill would rather I never exercise.

Back to the disheartening test day. It had been 3 years, 3 long years, since I had actually turned a wheel at Willow Springs in the 911S. One never forgets how to ride a bike, or so it is said. But sliding into the seat of a pristine race car and heading out onto the Big Track after an extended hiatus is akin to mounting the proverbial bicycle and letting someone push you off Mt. Everest. Surely you'll remember how to pedal, but making it to the bottom is doubtful.



Quick, short shifts are the duty of the WEVO shift tower, while Safety Device's fire suppression system stands guard against a racer's worst nightmare.

So, in conclusion, my excuses for impotent lap times are the weather, the need to keep the car in one piece for photographs and, more specifically, FEAR.

The first will be resolved by the coming of spring, the second by Les Bidrawn and his trusty Nikon, and the third excuse will be remedied by steady installments of seat time.

In upcoming stories—yes, there will be more on the S, because project cars are never done—we'll find a way to properly scrutinize this lustrous assemblage of German technology and aftermarket racing components. Whether I gather my wits or we entice a real race car driver to run it through its paces, the limits of the project 911S *will* be examined. ☒

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