

RSRroots

A 1973 911 Carrera RSR replica built from a 1992 911 Carrera RS — but how does it compare to the real thing? By Ian Kuaah.



Ask anyone in the Porsche fraternity what the ultimate 911 is and there's a good chance the answer will be the 1973 911 Carrera RS. While Porsche's twin-turbocharged, 993-based 911 GT2 starship wins hands down in the realm of power, speed, and braking, Porscheophiles recognize that driving pleasure is not directly proportionate to speed.

The 2.7-liter 1973 Carrera RS is a gem of a car. Nimble and powerful, it will give newer 911s, including some Turbos, a very hard time on a race

track. It may only have 210 hp, but it's so much lighter than the later cars that the all-important power-to-weight ratio is very favorable.

But as delightful as the Carrera RS is to drive, anyone who has driven one will be totally knocked out by the even more extreme racing version, the 2.8-liter 911 Carrera RSR. The RSR has 308 hp at 8000 rpm and 217 lb/ft of torque at 6200 rpm, courtesy of a 10.3:1 compression ratio. Had I never driven an RSR, I would not have believed it possible to make a car even sweeter and more fun to

drive than the RS.

The RSR's factory code was M491 and 48 cars were built. For comparison purposes, 200 examples of the M471 Carrera RS Light (RSL) and 1,308 examples of the M472 RS Touring (RST) models were constructed for 1973. Somewhere between 27 and 30 RSRs are left around the world. Seven of the remaining RSR models started life as 911 Carrera RS models that were later converted to Carrera RSR specifications by the factory. That brings the grand total of factory Carrera RSRs to 55.

The rarity of these cars has prompted many enthusiasts to build replicas, and 911s sporting the full look of a Carrera RSR are probably far more common than the real cars themselves. What makes the silver-and-blue RSR replica completed by Heinz and Franz Emmerling unique is that it did not start life as an early 911 with the correct bodywork and lightweight chassis. Instead, it was built from a 1992 911

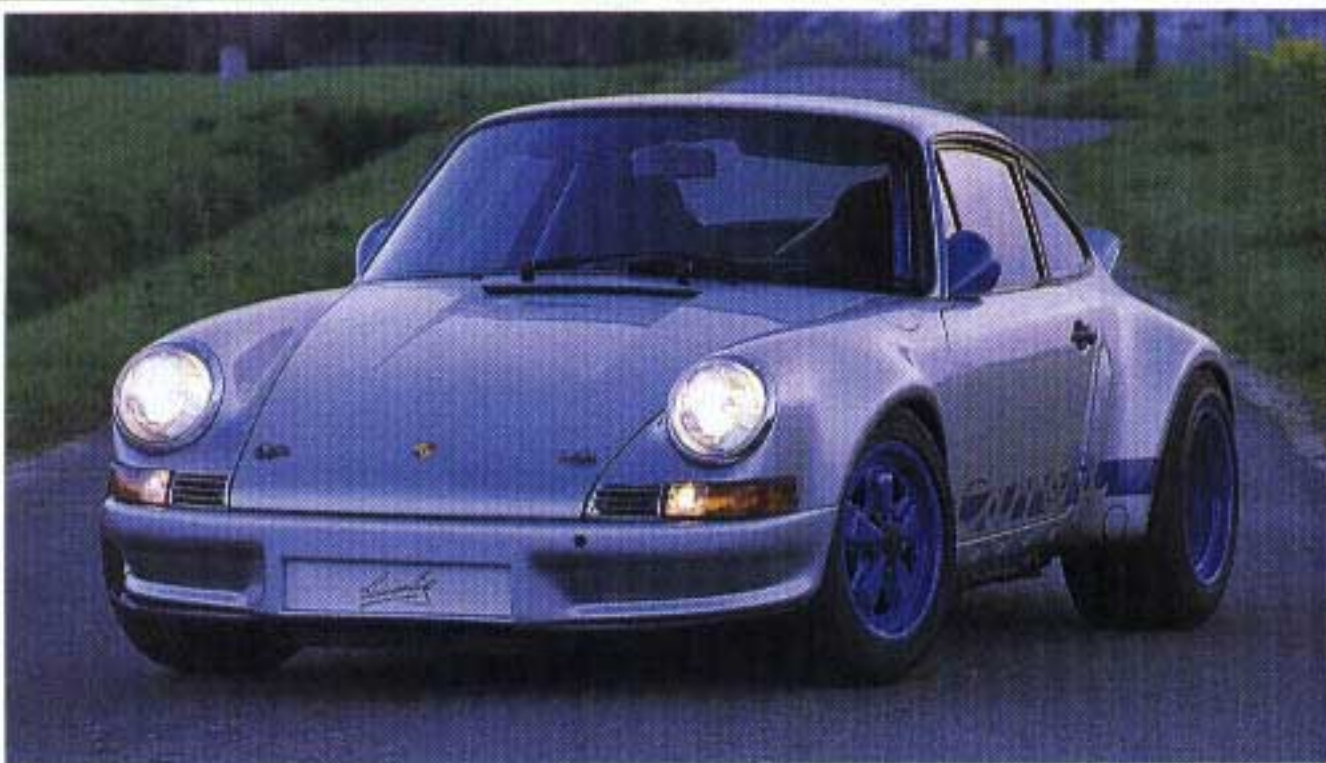
Clash of the Titans

While these two RSRs (one real, one a replica) may look almost the same, they are as different as chalk and cheese under the skin. The original RSR uses lightweight everything and high revs to get results while the heavier modern replica relies on engine capacity for torque.

The 2.8-liter Carrera RSR is a revelation. Light and full of feel, its steering

smaller capacity, such as the Honda's VTEC four-cylinder. But such small engines lack torque at low rpm and must be wound up all the time.

Not so the 2.8-liter Carrera RSR motor. Its power and torque are strong all the way through the rev band and, if you nail the throttle at 3000 rpm, you get an instantaneous shove in the back as six throttle butterflies swing open for business and dump fuel into the hungry



Carrera RS 3.6-liter, combining the technological advantages of the later 911 with the old RSR's simple, lightweight bumper design and deleted equipment. The goal was a modern 911 with all the tactile and visual charm of the original RSR.

When the chance to drive the Emmerlings' replica back-to-back with an original RSR 2.8 came along, the temptation was irresistible. How would the two cars stack up?

gives you the impression that your arms are directly linked to the front wheels with as much friction as possible edited out of the system. It gives you as close an involvement with the road as you could wish for.

An equally sharp instrument is the gas pedal. Open the throttle, and the engine responds with hair-trigger enthusiasm, while the revs climb like an F-15 fighter on full afterburner. Equally free-revving engines tend to be of

engine. The revs rise explosively, encouraging you to grab the next gear and call for an encore.

My expectations for the replica were high, as I have driven 911 SCs and Carrera 3.2s powered by the later 3.6-liter motor in the past and remember loving the torque punch of the big engine in the lighter car. I was not disappointed by my drive in the RSR replica. With 330 hp propelling just 2315 pounds, this replica

is rapid. And, like all modern engines, it is totally untemperamental. Best of all, the torque from the big motor rockets the car out of corners like a NASA moonshot.

That apart, however, the driving experience in the newer car is quite different. The greater inherent inertia in the single-throttle, 3.6-liter engine means it is less eager to respond to your right foot — you can feel the

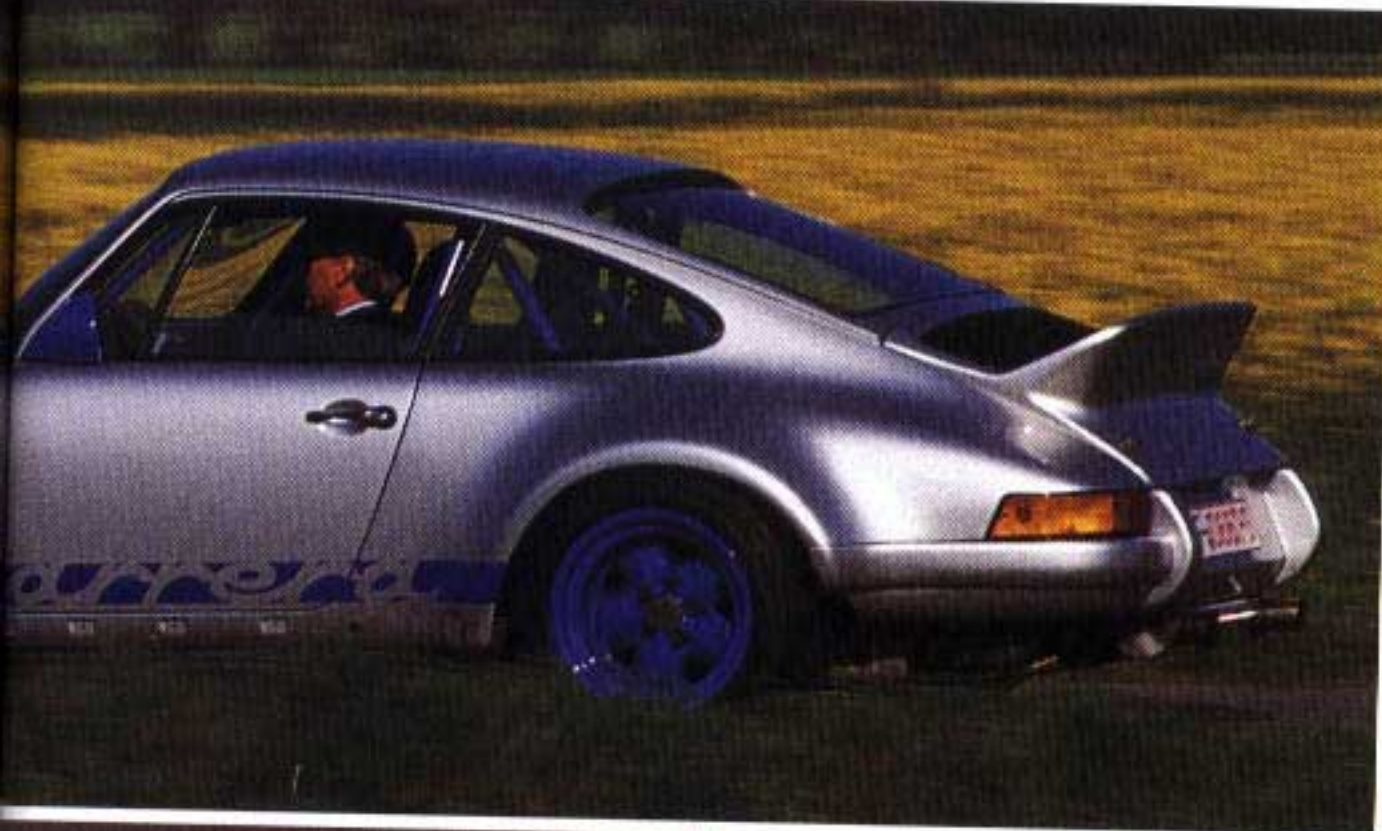
car's. But bear in mind that most 964 Carrera RS models did not have power steering. Without assistance, however, the steering requires more effort when you are going quickly. With the big tires, it does not offer a particularly rewarding experience. All of these impressions point to the fact that this 911, while appearing to be an older lightweight, demonstrates why later 911s simply cannot be made to feel

Something New

Heinz and Franz Emmerling are a father-and-son team that builds special Porsches. Heinz Emmerling has built many one-off Porsches, such as a Carrera 2 Speedster with pre-1974 front and rear bumpers. He decided that a 911 Carrera RSR 2.8 replica based around modern mechanicals would be an interesting project.

Their silver RSR replica was built in 1994 around a 1992 Carrera RS shell. Some of the body parts were fabricated from steel, while the rest of the parts were molded in glass-reinforced plastic (GRP). The wider front and rear fenders and the doors are steel, but the bumpers and ducktail spoiler are GRP, as are the modern, competition-style door mirrors. To get the early hood and fenders to match up to the later bodywork, the forward bulkhead had to be modified so that it resembled the early 911 bulkhead.

The two prominent features of this car that always raise eyebrows are the carbon-fiber air splitters neatly fitted under the sides of the front airdam and the multiple rows of holes drilled in the rear ducktail spoiler for cooling. Incidentally, original RS ducktail spoilers have aluminum frames. All replicas are molded.



■ **Above** — 1992 replica hides its youth well, though the black window trim is a giveaway.

■ **Far left** — Making 16-inch Fuchs that would clear Porsche's modern ABS brakes required custom offsets.

■ **Left, top** — Original, 2.8-liter RSR engine redlines at 8200 rpm, an impressive number even today.

■ **Left, bottom** — 3.6-liter 911 Carrera RS engine cranks out a healthy 330 hp at 6500 rpm.

■ **Right** — Custom muffler was required to recreate the look and sound of the real RSRs.



like the older cars — they are built to accept far more complex safety, luxury, and performance equipment.

That said, the newer car wins hands down when it comes to reliability and ease of maintenance. And to some, the ability to enjoy the look and feel of their dream 911 on a regular basis outweighs the need for ultimate grip and feel. But rebuilding a newer 911 to look like an old one can present more challenges than one might expect...

The 3.6-liter engine has been heavily modified to produce a claimed 330 hp at 6500 rpm and 282.7 lb/ft of torque at 5800 rpm. The pistons and cylinders are factory, but a pair of Weitec Tuning high-lift cams are used with titanium valve stems and a Bosch six-coil ignition system. On the intake side, a hot-film air sensor frees the intake path downstream of a K&N air filter. Finally, the Motronic DME was recalibrated to suit the modifications.

weight of the reciprocating parts trying to overcome the laws of physics. This means that despite its power and torque advantage, the replica feels subjectively slower in the real world!

The steering is also heavier and far less communicative than the older

One of the challenges of this project was building an exhaust system that would look correct with the older bodywork, because a later 911's exhaust sits too high visually. The system created to solve the problem uses a stainless steel muffler with two cylinders — one welded on top of the other. A single pipe runs into the end of the top cylinder and does a long U-turn to emerge through two old-fashioned tailpipes.

The 1992 911's coil-sprung suspension is about as far from the old torsion bars in earlier 911s as you can get. Set up to Carrera Cup specifications complete with a front strut brace, it gives the replica Carrera RSR the sort of stability 911 racers from the seventies could only dream about. Handling is helped by the extra stiffness of a steel Matter roll cage.

later 911s, however, would look out of place. So Heinz used 16-inch diameter Fuchs wheels that have been cut to allow new rim sections to be welded in place to correct the offset and achieve the desired width. The front uses a pair of 16x9 Fuchs shod with 225/50ZR16 Pirelli P-Zeros. The rear Fuchs measure 16x11 and mount huge 295/40ZR16 Pirellis.

Something Old

Dirk Sadlowski of PS Auto in Geseke, Germany now owns a Carrera RS that was originally bought by one Mr. Muller, the owner of Mullerbräu Brewery. PS Auto's Carrera RS was converted to RSR specifications by the factory in 1975 and was raced that year. Over the years, it had three subsequent owners, one of

a former Porsche Cars Great Britain technician who worked on these cars in their heyday. He says: "The RSRs that came into our dealership for oil-and-filter changes were mainly pooled around or driven on track days and had very low mileage. Cars from the Middle East, however, would often need an engine rebuild. Sand did not do them any good at all!

"The road-going 2.8 RSR had a lot of trick bits in its 2806-cc engine that distanced it from the RS 2.7, and this went all the way through the engine from the major components to the details," Russell continues. "As it was a race homologation special, maximum power was everything and all the stops were pulled out. For instance where the RS 2.7 had chromed oil control rings on its pistons that ran in



The other area where great strides have been made since 1973 is in stopping ability. The 1992 Carrera RS brakes were a fabulous leap forward. On this lightened replica, they provide truly remarkable stopping power.

The later 964 Carrera RS brakes will not fit behind the 15-inch Fuchs wheels that came with the original Carrera RSR because Porsche changed the offset for the 964-based cars in 1989. Wheels designed for the

whom gave it up as payment for a gambling debt! Now with 38,000 km, it has been restored to its former glory, apart from having its 80% limited-slip differential taken out to make it more civilized for road use.

When it comes to 911 Carrera RSRs, low mileage is par for the course. Apparently, the majority of road-going, 2.8-liter RSRs went to collectors who didn't use them much. RSR Engineering's Russell Lewis was

Nikasil bores, Porsche had the RSR's bores chrome-plated to reduce friction and help the engine rev higher. The chromed bores were also diamond-cut to retain oil. Of course, the rings were unchromed because you cannot run two similar metals against each other." The cylinder heads, cylinders, and pistons are unique to this car, which also has different head-stud spacing.

The RSR engine revs safely to its 8200-rpm limit — a good 1000 rpm

higher than the 1992 911 Carrera RS 3.6-liter. To keep the oil pump from seizing, Porsche added more oil galleries inside the pump. The oil pump even had a red cap on top. You were supposed to remove the cap and put 50 cc of oil into the RSR before you started the engine from cold. Needless to say, many owners did not observe this recommendation, which greatly accelerated pump wear.

Current owners of these cars will regret that because genuine parts are not cheap. New RSR pumps are as rare as hens' teeth and cost around \$17,000 — if you can find one. A replica pump recently built from a RS 2.7 pump cost more than \$11,000. While we are on the subject of spares prices, you can still get parts for the twin-plug ignition system, but a distributor cap is \$1,600 and the rotor arm costs about half that!

The RSR bodysell featured wider fender flares all around. The front and rear molded bumpers were also stretched to match. The rear ducktail spoiler came straight from the Carrera RS 2.7, although some rally 2.8-liter RSRs had extensions running from the back of the rear fenders to the ducktail, but these extensions were not allowed in contemporary circuit racing.



■ **Opposite** — 1973 Carrera RSR (foreground) was the first street 911 with large flares all around.

■ **Above** — 1973 car's interior is austere and simple, with deep bucket seats but no frills.

■ **Above, right** — 1992 replica's interior has a full cage, bolstered seats and a non-airbag wheel.

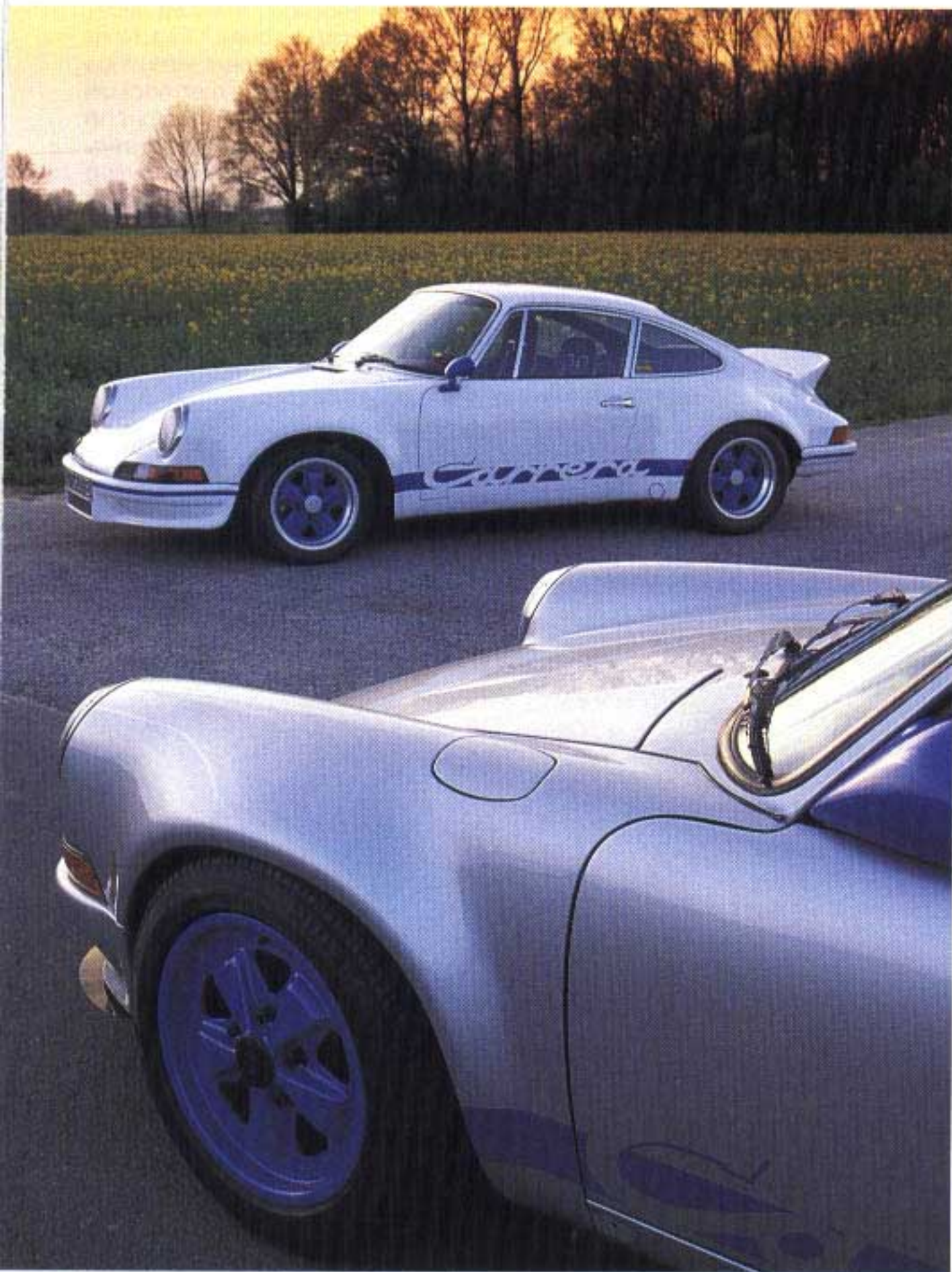
■ **Right** — Original 911 Carrera RS/RSR ducktail was Porsche's first rear spoiler for the 911 series, but certainly not the last.

■ **Far right** — Replica's rear ducktail is drilled to help cool the modern 3.6-liter engine.



Of course, if you actually want to drive an RSR and are not too fussy about originality, then today's state-of-the-art Weber Alpha fuel injection system with fully-mapped ignition and one-throttle-per-cylinder gives even more power and decent economy. The old mechanical injection ran very rich and 12 mpg was not unusual. With the Weber Alpha injection system, you can get 30 more horsepower and 25 mpg. Such is the march of progress.

On the later race cars, coil-overs were used in addition to the torsion bars, which were said to allow better control of unsprung weight. Road versions used 19-mm front and 26-mm rear torsion bars with adjustable, 18-mm diameter anti-roll bars front and rear. Porsche's racing department shortened the rear trailing arms and moved their mountings 15 mm outward and 47.5 mm further back to take full advantage of wider wheels with



■ *The modified wheels, modern mirror, and front splitter make the silver RSR replica subtly different from the real, white RSR.*

racing rubber. Incidentally, the last 181 Carrera RS 2.7 cars built also had this rear suspension modification.

The wider front and rear tracks came purely from splicing the Fuchs forged alloy wheels and adding as much as four inches to the rears on the race cars! In road trim, the wheels measured 15x7 and 15x9 inches. The racers used 9-inch-wide wheels in front and 11-inch rears. But 15 inches was the largest diameter tire you could

get in those days, so the diameter never reached 16 inches on the 2.8-liter RSR. The extra metal all went to the outside flange of the wheels to widen the track as much as possible. Needless to say, it put a lot of strain on the wheel bearings, but this was a race car and such components were expected to be changed frequently.

The original 2.8-liter RSRs had staggeringly good brakes for their day. That was a given because their

anchors came straight from Porsche's 917 race car, which needed reliable stopping power from over 230 mph at Le Mans. The non-servo-assisted brakes also had twin master cylinders. The problem with the 917 calipers down the line, however, results from their magnesium construction. Over time, this material's properties change and the calipers expand when you step on the brakes. Thus, some RSRs now use the heavier (but proven) calipers from the 3.3-liter 911 Turbo.

Like a butterfly, Porsche's magnificent 2.8-liter RSR had a relatively short lifespan. The arena of competitive motorsports moved as quickly in the early seventies as it does today and, although it won big-ticket events, the RSR was uncompetitive within a couple of seasons. In this case, the rules as well as the lap times found Porsche quickly progressing to the 3.0-liter 911 Carrera RSR, the 2.1-liter turbocharged 911, and the 934 and 935 race cars.

Rubber Meets the Road

Heinz Emmerling's RSR replica took six months and DM250,000 to build. An original 2.8-liter RSR is probably worth at least DM200,000. So how do they stack up? If you were blindfolded and drove the replica in isolation, it would leave the impression of a very fast and very capable 911. But it's still a modern 911, which means that it is somewhat lacking in feel when compared to the older 911s. While it isn't exactly carrying sandbags (it weighs 331 pounds less than a 1992 911 Carrera RS), it does not tread as lightly as the 1973 car does.

The 1973 Carrera RSR's engine may be less powerful, but it only has to punch a 2072-pound car through the air. And it does so with exhilaration that I have only encountered in pedigreed race cars, which is exactly what the RSR 2.8 is. The 2.8-liter RSR's competition heritage is the stuff legends are made of. Though the older car will never be as reliable and trouble-free as the Emmerling replica, the driving experience is so engaging that the importance of those factors seems to fade.

In the final analysis, the incisive-yet-delicate response, overall balance, and driver involvement is what separates the merely good from the great. Clearly, this match goes to the original RSR. ■