



**Waterworks:**  
The fountains create so-called "soft" obstacles

Active

## μ-Low, Sweet Chariot

Driving a sports car between "go" and "no go" — the ultimate driver safety training with Walter Röhl.

By Jo Clahsen; Photos by Thomas Hörner

A large billboard displays some advice from the Austrian Traffic Safety Board: "Drive like a pro. Cool and composed, using your head." A nice idea. It is only a short distance from the billboard to the driver-safety center in Saalfelden, where Porsche representative Walter Röhl puts this theory into practice.

The course begins with a striking illustration: A showerhead slowly slips down the metal shower bar, together with its mount, on a film of water. Engineers call this physical state, which occurs when there is no adhesive friction to impede movement, "μ-low" (pronounced "moo-low"). A few min-

utes' walk from the μ-low shower, a series of moderately to extremely difficult driving assignments awaits the participants in the driver safety course. But before Röhl allows the men and women to take the wheel of their Porsche, there is more theory to be learned.

"Doing it in practice is hard enough," Röhl says with a grin. "You should at least try to have a grasp of the theory and physics of driving." He then briefly but vividly explains the factors at work in the transmission of forces. He points out that four surfaces no larger than the palm of your hand have to transmit all these forces to



**Voice of experience:**  
Walter Röhl knows all the tricks of driving on the edge



Slippery slope:  
Driving is easier  
with instructions  
from Walter Röhrl

the road. That is why “there is hardly any part of your car more important than the tires.” In order to allow them to perform their task in optimal fashion, it is crucial that “speed be at its slowest when entering a curve, so that the tires only have to transmit the steering forces.” Using the example of a circle of friction, which demonstrates the bundled centrifugal and centripetal forces in one diagram, the former World Rally champion shows how thin the line can be between “go” and “no go.”

So far, so theoretical, so good. If your showerhead develops a  $\mu$ -low problem, it's enough to take it off the hook and hold it in your hand. At the sports car safety-training course, everyone ought to get some hands-on experience. But here, the  $\mu$ -low problem is a bit more complex. One side of the short slalom has plenty of  $\mu$ ; the other half has virtually no traction at all. That can be a recipe for trouble. “But only if you are going a tad too fast,” Röhrl assures the participants. If the course is dry, speeds of up to 80 km/h (50 mph) are possible without any cause for concern. Given  $\mu$ -low and enough water, however, the situation looks entirely different. A mere thirty km/h (19 mph) is hard to handle, and at a speed of thirty-two km/h (20 mph), the driver is essentially powerless to prevent the car from spinning out.

Making mistakes is thus a compulsory part of driver-safety training. After all, the goal of the course is not to reach high speeds, but to see to it that “customer and car get to know each other so well that they are on a first-name basis.” That is how Volker Gempt, manager of the Porsche Travel Club, defines the aim of the programs offered to Porsche customers on a regular basis. The role of driving expert Röhrl is then taken over by the professional instructors from the Travel Club and the Austrian Automobile, Motorcycle and Touring Club, which runs the center.

On the course spanning more than seven hectares (seventeen acres), a few traps



have been set to help bring theory and practice into harmony. As on the  $\mu$ -low track, which is continuously watered, anyone trying to brake and simultaneously swerve to avoid obstacles here is going to have to maintain a very high level of concentration indeed.

Röhrl describes the way a sports car behaves when performing such hazardous maneuvers: “The car understeers when you see the tree you are heading toward. That means it is pushing over the front wheels toward the obstacle. When you hear the tree, the car has oversteered.” It takes his listeners a minute to grasp the drama at the end of the sentence. Fortunately, the obstacles at the extreme-test site in Saalfelden are not made of wood, but are “soft” obstacles in the form of fountains of water. If a car oversteers and grazes the obstacle, there is only a little splash.

The velocity of the cars fluctuates rapidly between forty-five and fifty km/h (28–31 mph). The remaining test tracks, with either  $\mu$ -low or mixed surfaces, also force the test drivers to moderate their driving techniques.

The master of driving technique, Röhrl, sets approximate limits that, if maintained, should ensure safe passage through the problem zone. Yet none of the drivers can avoid problems altogether, even if they strictly obey Röhrl's directives in precarious situations. The car slips and slides and spins, even when the Porsche Stability Management system is turned on. The point of

the exercises is to experience these limits first-hand, to develop a feel for them and to be able to recognize them in time in the future. If the command comes over the two-way radio to turn off the PSM, the pirouettes that follow create an even more impressive acrobatic performance.

Between the soup and the Austrian apricot dumplings, Röhrl has little time to do what everyone else is there to do: eat. During the lunch break, the affable and down-to-earth Regensburg native is grilled on how this or that Porsche behaves on various courses and which tires are best for which driving conditions. His knowledge and experience are so vast that there seems to be no question he couldn't answer right away. Whether on two wheels (a passionate cyclist, he recently biked over 13,000 meters [43,000 feet] of altitude in five days) or four, this amazing physical specimen is open to any challenge. With interest and patience, Röhrl provides information, shares anecdotes and gives advice packaged in dramatic, succinct sentences: “When you are driving at over 300 km/h (185 mph) and you hesitate for just one second before hitting the brakes, you have already lost ninety meters (295 feet) of stopping distance. You'd better think fast.”

After the sweet dumplings, the participants are once again called upon to show some quick thinking, along with some quick braking and some quick steering. They are to approach a blind downhill stretch with a mixed pavement from behind an embank-



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#### Information on driver safety training

The Porsche Travel Club is offering driver safety training in Saalfelden again in 2003.

Dates: 30 May–1 June, and 15–17 August.

Walter Röhrl's role as explained in the text will be taken by professional instructors.

Information is available at [www.porsche.com](http://www.porsche.com)

or by telephone at +49-711-911-8155 (fax -911-8158)

or per e-mail ([travel.club@porsche.de](mailto:travel.club@porsche.de)).

ment at almost sixty km/h (35 mph). The task is to quickly begin applying the brakes in measured doses while simultaneously dodging the “soft” obstacles. A piece of cake for the rally pro, but a daunting challenge for anyone else: “When I got to the bottom, my adrenaline level was at an all-time high,” moans a man from Berlin. Nevertheless, almost no one decides to skip this exercise. The participants’ desire to prove their skills to themselves and the others is growing by the hour. Many of them try to find the point where “go” and “no go” intersect. And the traffic cones keep flying.

The last exercise is also an adrenaline stimulator. Before you get to the “car wash,” which runs as straight as an arrow, a “jolt trap” built into the pavement gives the sports car a brutal sideways kick to the rear axle. The result is amazingly simple. The *coup de fesse*, this decisive shot to

the rear end, sends the cars spinning like tops on the slippery surface. Things get better after each repetition, since now everyone knows when the jolt is going to come and can react as the champion suggests: with fingers extended on the steering wheel in the three-and-nine-o’clock position and with calculated steering moves. He recommends “you feel with your hands and your bottom when the car swerves and then react quickly, but don’t overreact.”

Easier said than done. The kick sometimes comes from one side, sometimes from the other. If you get the jolt while traveling at fifty km/h (31 mph), you’d better steer the other way pretty fast if you want to keep your Porsche going the same direction. And it doesn’t really matter if the observer can see the understeering or hear the oversteering. The fact that the driver has tried to steer at all is an accomplish-

ment in itself. And there on the side of the track is Röhrl proclaiming his encouraging comments.

The longer that  $\mu$ -low and the moisture outwit the trainees, the more relaxed the atmosphere becomes. Learning with a champion of Röhrl’s caliber is fun, even if what you are learning could save someone’s life some day.

At the end, everyone gets a certificate of participation in the driver safety training. No one can rest on their laurels, though. In a fitting epilogue to the course topic, the weather provides plenty of  $\mu$ -low the next morning on the way to the birthplace of the first Porsche in Gmünd. The newly acquired knowledge can now be applied under real-life conditions. “I didn’t believe I had learned so much,” says one participant thoughtfully, “but after the drive here I know how much it really was.” ◀