The unmodified car exhibited a lot of body roll and more understeer. It was not as controlled and was almost a half-second than with the bars.

Equipped with the stabilizer bars, the 1977 Scirocco negotiated our zig-zag slalom course in 8.4 seconds. It was very flat and excellently controlled during the test.

Suspension Tuning The RABBIT and SCIROCCO

Photos by the author & Steve Reyes

Stabilizer bars make it a breeze for either of these mild-mannered FWD sedans to outhandle Porsches!

By Charles Foster

Porsche-like handling. Those are the words that signify the ultimate in cornering performance. Few cars, no matter what they cost, are worthy of this accolade. And yet, what this story is about is how to turn a Volkswagen Rabbit or Scirocco into a Porsche-beating sports salon car.

When VW first introduced the Rabbit and Scirocco back in 1975, the handling of the cars was impressive. Despite being front-wheel-drive vehicles, they had light steering feel and very little understeer, two characteristics not usually associated with FWD configurations. But, as good as both the Rabbit and Scirocco handled on sinuous roads, there was little doubt that they could be improved upon.

Normally, suspension improvements are limited to installing heavy-duty shocks and beefier springs. The drawback here is the loss of ride comfort which, in the case of the Scirocco, is one of the appealing features of the automobile. Therefore, to maintain the streetability of the car, we must look elsewhere for our suspension upgrading.

The next logical step is stabilizer bars, or as they are usually called, *anti-sway* bars. Stabilizer bars, as their name implies, stabilize a vehicle's suspension. When a car enters a turn,

The front anti-roll bar is attached to each front frame rail by four bolts.

centrifugal force makes its weight shift, or transfer, to the outside. In other words, if the car is turning right, the weight shifts to the left, and vice versa. The weight transfer compresses the springs, causing what is know as roll. Generally, the more roll there is, the slower the car is through a corner, since the weight is shifting too fast and too much with too little control

A stabilizer bar controls weight transfer, slowing it down through torsional resistance. Naturally, the bigger the bar, the more it resists weight transfer, thereby resulting in less total roll. There are two general rules that apply to stabilizer bars: 1) A front bar tends to increase understeer, and, 2) A rear bar increases oversteer. A proper combination of the two bars should result in a car that has neutral handling characteristics—it goes *where* it's pointed *when* it's pointed.

This brings us back to the Rabbit and Scirocco. As FWD vehicles, they're basically understeering cars. Therefore, by using anti-sway bars we should be able to bring them into a more neutral state and improve their cornering speed. To find out, we contacted Glenn Rissberger of Quickor Engineering, 13920 S.W. Tualatin Valley Highway, Beaverton, OR 97005, and had him send us front and rear stabilizer bars for a 1977 Scirocco and a 1975 Rabbit.

The bars, measuring 7/8-inch in front (#VRF 072) and 5/8-inch for the rear (#VRR 051), are installed in about three hours' time using normal hand tools. The bars and installation procedures are virtually identical for both cars. A power drill will be needed to bore holes through the front frame members and lower A-arms, plus the triangular bracing bracket on each side of the rear axle. All hardware and instructions are included with the bars.

Before installing the Quickor bars, we took the Scirocco to the track for preliminary tests. A 700-foot zig-zag slalom course was set up, and the car was run through it several times to establish an ultimate speed. The car was clocked in this slalom at 8.8 seconds.

We then settled back for a few hours and installed the Quickor bars. They are thoroughly rubber insulated to reduce, if not eliminate altogether, the extraneous noises so prevalent in other aftermarket stabilizers. Once we had the bars installed it was back to the slalom course for more tests.

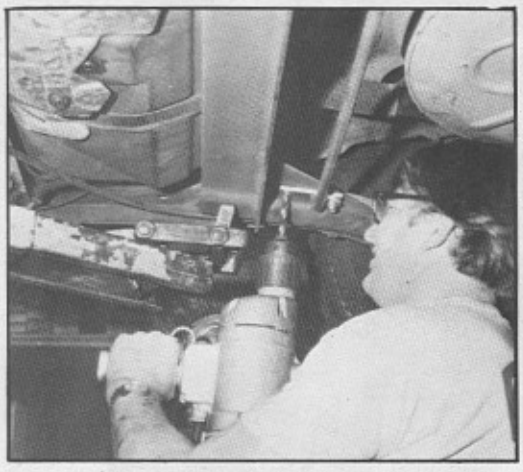
First time through the slalom showed an 8.8-second clocking, equal to the best time for the stock chassis. Second time: 8.6 seconds, a two-tenths improvement. Finally, we were able to get the car through the slalom run in a scant 8.4 seconds—almost half-a-second quicker and some five-mph faster than the unmodified car.

How does this compare to other automobiles? Well, through the same slalom a Porsche 924 and Camaro Z/28 managed 8.6 seconds while a Mercedes 280E took 8.7 seconds. In fact, of all the cars we've run through this test, the Quickor-modified Scirocco has been the fastest!

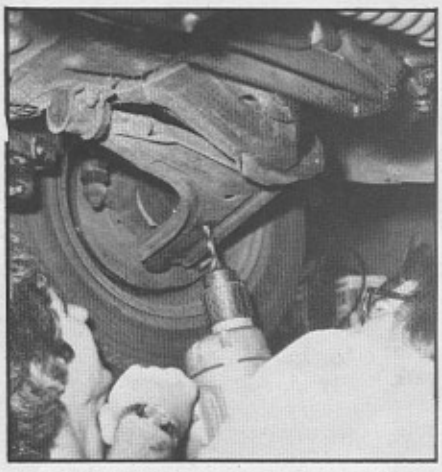
As impressive as this is, though, the Quickor stabilizer bars provide some other unexpected dividends. The steering is noticeably lighter, although total road feel is maintained. There is only a hint of initial understeer, and this quickly transitions to neutrality once the car has taken its set for the corner. Chassis roll is almost totally eliminated and the ride quality is not hampered in the slightest.

The same held true for the Rabbit, though it was slightly slower through the slalom course, a fact that could be blamed on its narrower, more worn tires and its marginally higher center of gravity.

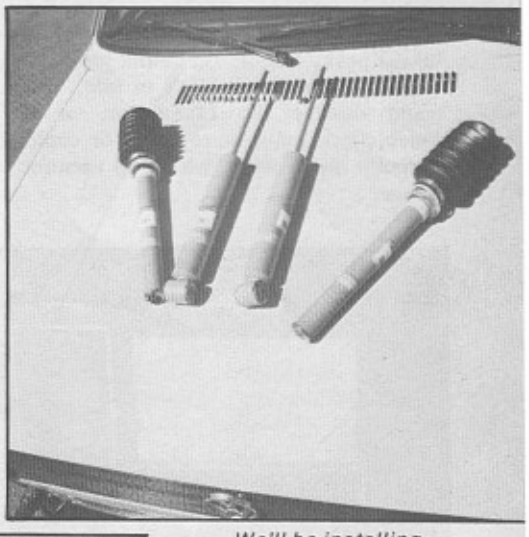
But we've decided to take this handling thing one step further. After we finished testing, we ordered a set of Bilstein gas-filled shock absorbers from Bilstein Corporation of America in San Diego, California, and a set of Quickor's shorter, high-performance springs for our Rabbit. According to Glenn at Quickor, the combination of Bilstein's street shocks and their "mild" springs, which lower the car an inch all around, should improve the Rabbit's handling even more, without seriously affecting its ride characteristics. Tune in two months from now to see how we make out. ●



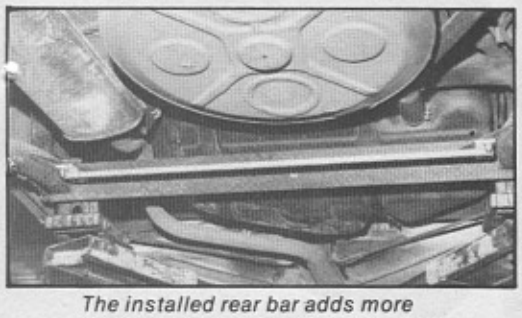
In the rear, holes must be drilled in the triangular brace bracket on the axle.



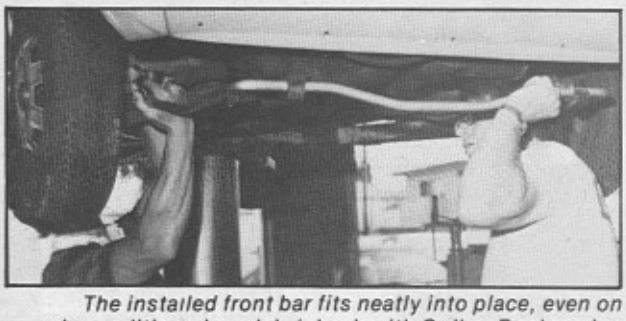
A hole is bored in each A-arm to fit the heim-joined leading arm of the bar.



We'll be installing these Bilstein gas-pressure shocks on our Rabbit before next issue to see if we can improve handling even more.



The installed rear bar adds more torsional strength to the axle, thus helping to resist left-to-right weight transfer.



The installed front bar fits neatly into place, even on air-conditioned models (check with Quikor Engineering to make sure you have the right bar if your car has A/C).