PHOTOS BY JOE RUSZ

ROAD & TRACK R&T TRACK TEST

SCIROCCOS A DEUX

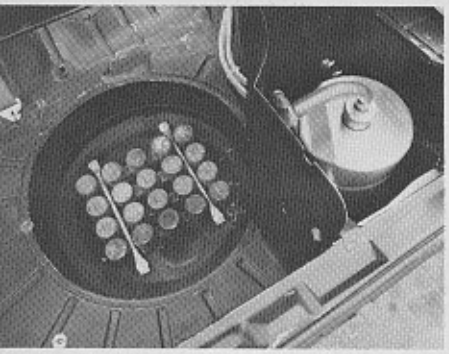
A swift road car gets its second wind and a National Championship

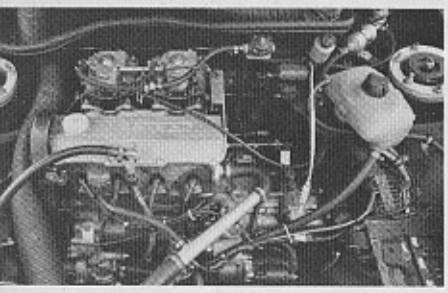
As a constant reader of R&T, you undoubtedly are familiar with our street/track comparison tests, an ongoing feature since September 1974. That's when we pitted a Jensen-Healey road car against its SCCA-racing counterpart, Lee Mueller's National D Production champion. We wanted to find out what it takes to convert a street car to a successful race car and, having done so, what the major differences are between the two. Over the years we asked those same questions again and again and directed them at people such as Bob Tullius, Don Devendorf, Richard Gordon, Mike Keyser, Charlie Kemp, John Greenwood, Al Holbert, John Buffum, Bob Sharp, as well as the Porsche and Lancia factories. But never at Volkswagen, mostly because up until 1980, no American team had made much of a mark racing a production-based VW product in an amateur or professional U.S. series. Then last year, in mid-season, a familiar face and a familiar marque turned up and set GT-3, one of the SCCA's new sedan categories, on its ear. Tom Davey, 2-time national Super Vee champion and one time professional Formula Ford champ (not to mention, a national SV runner-up), turned up at a Watkins Glen SCCA National with a racing Scirocco. He took the pole and won easily in what was his first-ever race in a front-wheel-drive car. "We picked up the car early in the week, tested on a Thursday, and raced it on Sunday. It rained for the start and I went around the paddock asking other fwd drivers, 'How do you drive these things in the wet?' They thought I was crazy," Tom recalls with a chuckle.

Perhaps Davey and Tom Milner, a partner in Bill Scott Racing, were a bit crazy. On what seemed like a whim, they bought a German Group 2 Scirocco, built by Müller VW/Audi Tuning, changed its wheels and tires, ballasted the car to legal weight, installed a modified Super Vee engine and set out in quest of a National Championship. Even showroom stock racers spend more time preparing their cars than Davey and Milner did. But if the team made it all look so easy, it's because their collective knowledge and experience enabled them to do so. They were familiar with Volkswagen products, Tom D. as a driver, Tom M. as a crew chief/top mechanic/team manager, and after scrutinizing the 1980 SCCA rulebook, they knew that GT-3 was made to order for the Scirocco. So Milner flew off to Germany where with the help of Schrick, the firm that supplied the Bill Scott Super Vee team with engines, he bought the used Scirocco that would soon carve itself a new history.

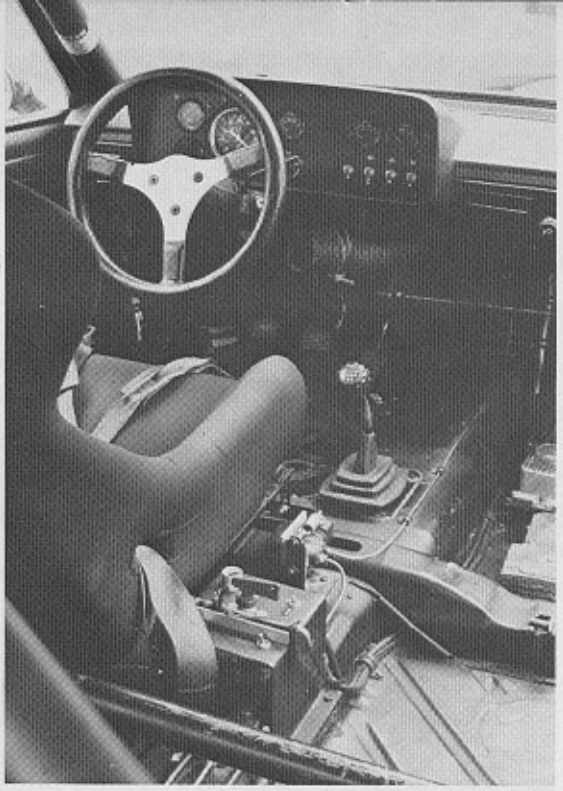
For starters, you can tell this Scirocco was a road car. It has all of its glass, a large portion of the dashboard including the ashtray and cigarette lighter and the door panels. Its suspension is relatively stock, save for the very stiff springs and Bilstein racing shocks in the MacPherson strut cartridges. There are no anti-roll bars (Davey believes German race car builders dislike them and compensate for their absence by using stiff springs) and no stiffening members in the front end (between the strut towers). The car has been somewhat stripped and the mandatory rollcage is tied into the body for torsional rigidity. The fenders have been flared to accommodate wide wheels, a front spoiler nestles beneath the front bumper and the entire car has been lowered on its suspension. Inside, there's a Scheel racing seat, instruments including oil temperature, coolant temperature, oil pressure and fuel pressure gauges, an ammeter and the all-important Jones mechanical tachometer. A very businesslike steering wheel, plus starter, ignition and fuel pump switches on the tunnel and a brake biasing valve upstream of the switches, represent the sort of standard fare found in other full-body racing cars. In its original trim (as raced last year), the VW used a stock fuel tank because a safety cell was not required in GT-3. That and a lot of other details have been changed for 1981, but before we get to that, we'll continue with last year's Scirocco saga.

After taking delivery of the VW, just →





Weights in trunk, left, bring car to its GT-3 racing weight. Engine, below left, sports dual Webers in lieu of K-Jetronic. Below and right, Tom Davey and his GT-3 office.



days before Watkins Glen, the team replaced the European-racing spec 15-in. diameter wheels with BBS 13 inchers. These 7-in. wide modular alloys were shod with Goodyear 21.0 x 7.5-13 Sports Car Special tires. Next, Davey, Milner and company bolted 250 lb of lead into the spare tire cavity to bring the car up to the Scirocco's prescribed minimum, 1900 lb. Finally, the group installed the Schrick Super Vee engine, albeit one fitted with dual Weber carburetors and not the customary Bosch mechanical fuel injection. GT-3 rules prohibit even the stock Bosch K-Jetronic in racing sedans.

"We ended up with a rocket," recalls Davey, who nevertheless pronounced the car "undriveable" at his first and only test session. The problem was excessive bump steer, which was accentuated by fwd and a locked differential and quite possibly by the changes in suspension geometry that took place when the team switched to smaller-diameter wheels. Mercifully, the clutch cable broke, so Tom was spared any further anguish, at least until the following weekend. That was the Glen and the car's first victory. By the time the Runoffs rolled around, the car had been sorted out and Davey had chalked up two more National wins and enough additional points to earn a spot at Road Atlanta. He started from the pole, amidst a flurry of protests intended to relegate him to the back of the pack. And he won, amidst a further barrage of protests which questioned (of all things) the front cowling that had been modified to duct more air to the carburetors. The protest alleged that restructuring the cowl constituted an alteration of the coachwork/chassis. But the appeals committee upheld Davey and ruled that the cowl was not a body part but part of the induction system for the carburetor. Regulations say air may be ducted to the carb in any way, providing "the ducting is contained within the engine compartment and the air is supplied through the normal openings in the coachwork." Davey's third National Championship and the Scirocco's first were official.

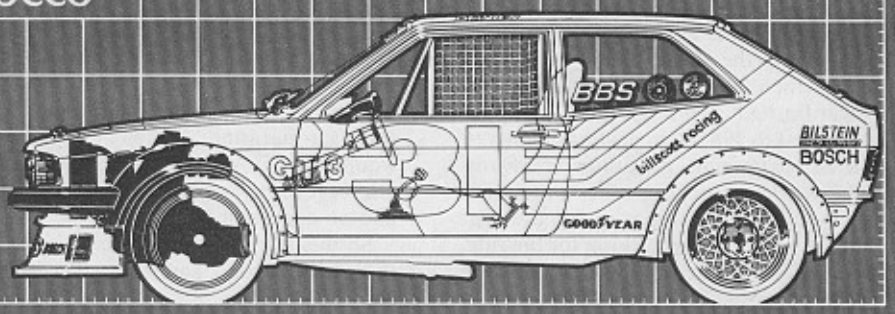
The story doesn't end there, however. Tom and the Scirocco are back this year to defend their amateur title and to take on the professionals in the Camel GT. IMSA recently instituted a category for cars such as the Scirocco, giving competitors relatively free rein in hopes of making these cars competitive with the Datsun 280ZX and Mazda RX-7. But it will take a slightly different combination to beat cars that are more powerful and sleeker than the VW. Thus, the IMSA racer will run sans lead, as close as possible to the 1600-lb class minimum. To achieve it, the team will pare weight off the car, replacing the glass windows with Plexiglas, for example. But more than that, they'll swap the sohc Super Vee engine for a dohc, 16-valve special developing 220 bhp. "We'll still be giving away 50 to 80 bhp to the Datsuns and Mazdas, but our low weight, excellent handling and traction and superb braking should even the odds, especially on tight courses such as Lime Rock," explains Davey. Although the Scirocco was no slouch last year, it should do even better in 1981. The team has asked race car designer Lee Dykstra to do his magic to the car's suspension and steering and to make other suggestions to improve performance. Davey and Milner have their own ideas too, like installing bigger brakes (the car already has 4-wheel discs) and, perhaps, slightly wider wheels and tires. Tom says discretion is the order of the day when choosing proper wheel widths. "Many teams use wheels and tires that are so wide, they impair the car's aerodynamics at high speeds. We ran wheels and tires that were narrow, yet we experienced no heat buildup," says Davey.

The Scirocco will also be campaigned in SCCA sedan racing during 1981 and that means a return to its GT-3 configuration. This time around, the car's production-based sohc powerplant will be a Bertils engine throttled a bit by a carburetor restrictor plate the SCCA threw in to equalize the VW's performance against other makes. "They would like to slow us down, but we'll still win," boasts Davey.

What's it like driving a racing Scirocco after spending a 13-year career in formula cars? Not all that unusual, says the champ. Sedans are more physical than formula cars. You have to wrestle with them, especially if they are fwd. "The front wheels argue about which will drive," says Tom, who points out that it is the outer wheel that wins. That's why he uses a special driving technique. He turns in early, gets the front wheels pointed in the right direction, positions the tail, then applies power. He avoids accelerating with the wheels turned because this only causes wheelspin and a loss of traction. Tom reminds us that turning early does not mean an early apex. Apexing is done normally and precisely. Davey believes that one reason he is faster than his sedan competitors is that formula cars have taught him to be tidy. "Sedan drivers seem rather cavalier about such details," he claims. "Flogging the steering wheel like Mickey Rooney →

ROAD TEST

DAVEY GT-3 SCIROCCO



PRICE

Price as tested	$35,000

MANUFACTURER

Müller VW/Audi Tuning, Heierstrasse 29, 4791 Atteln, West Germany

GENERAL

Curb weight, lb/kg	1950	885
Test weight	2050	931
Weight dist (with driver), f/r, %		60/40
Wheelbase, in./mm	94.5	2400
Track, front/rear	57.7/56.5	1465/1435
Length	155.7	3955
Width	72.0	1830
Height	48.0	1220
Ground clearance	3.0	76
Overhang, f/r	33.7/27.5	855/700
Trunk space, cu ft/liters		nil
Fuel capacity, U.S. gal./liters	10.6	40

ENGINE

Type	sohc inline-4
Bore x stroke, in./mm	3.13 x 3.15 — 79.5 x 80.0
Displacement, cu in./cc	97.0 — 1588
Compression ratio	12.1:1
Bhp @ rpm, SAE net/kW	185/138 @ 8500
Equivalent mph / km/h	126/204
Torque @ rpm, lb-ft/Nm	166/226 @ 6500
Equivalent mph / km/h	97/156
Carburetion	two Weber (2V)
Fuel requirement	racing, 105-oct

DRIVETRAIN

Transmission	5-sp manual
Gear ratios: 5th (1.03)	4.01:1
4th (1.17)	4.55:1
3rd (1.42)	5.52:1
2nd (1.79)	6.96:1
1st (2.50)	9.72:1
Final drive ratio	3.89:1

CHASSIS & BODY

Layout	front engine/front drive
Body/frame	unit steel
Brake system	10.0-in. (254-mm) Lockheed vented discs front, 8.0-in. (203-mm) Lockheed vented discs rear; vacuum assisted
Swept area, sq in./sq cm	312 — 2013
Wheels	BBS alloy, 13 x 7
Tires	Goodyear Sports Car Special, 21.0 x 7.5-13
Steering type	rack & pinion
Overall ratio	20.8:1
Turns, lock-to-lock	3.8
Turning circle, ft/m	31.2 — 9.5

Front suspension: MacPherson struts, lower A-arms, coil springs, Bilstein tube shocks

Rear suspension: trailing arms interconnected by L-beam anti-roll bar, coil springs, Bilstein tube shocks

ACCOMMODATION

Seating capacity, persons		1
Head room, in./mm	36.0	914
Seat width,	14.0	356
Seatback adjustment, deg		0

INSTRUMENTATION

Instruments: 11,000-rpm tach, oil press., oil temp, coolant temp, ammeter, fuel press., fuel level

Warning lights: oil press., rev limiter, hazard, high beam, directionals

CALCULATED DATA

Lb/bhp (test weight)	11.1
Mph/1000 rpm (5th gear)	14.9
Engine revs/mi (60 mph)	4050
Piston travel, ft/mi	2125
R&T steering index	1.19
Brake swept area, sq in./ton	304

ROAD TEST RESULTS

ACCELERATION

Time to distance, sec:	
0-100 ft	3.6
0-500 ft	8.5
0-1320 ft (¼ mi)	15.1
Speed at end of ¼ mi, mph	93.5
Time to speed, sec:	
0-30 mph	2.9
0-50 mph	5.2
0-60 mph	6.7
0-70 mph	8.3
0-80 mph	10.6
0-100 mph	18.5

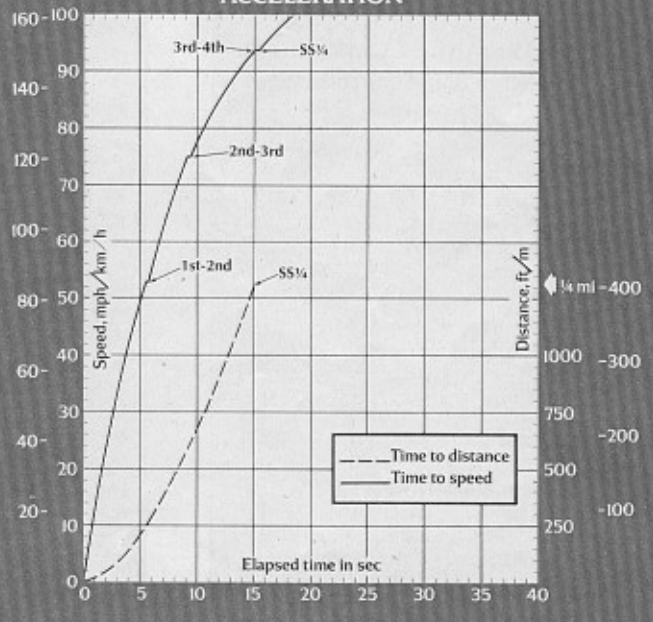
BRAKES

Minimum stopping distances, ft:	
From 60 mph	181
From 80 mph	276
Control in panic stop	very good
Pedal effort for 0.5g stop, lb	na
Fade: percent increase in pedal effort to maintain 0.5g deceleration in 6 stops from 60 mph	na
Parking: hold 30% grade?	na
Overall brake rating	very good

SPEEDS IN GEARS

5th gear (8700 rpm)	129
4th (8700)	114
3rd (8700)	94
2nd (8700)	75
1st (8700)	53

ACCELERATION



did in an old racing flick only makes the car go slower," advises Davey.

Smoothness is also of paramount importance in the stock version of the Scirocco which, like many other road cars, is power limited. Although the 1715-cc engine fitted to 1981 Sciroccos has plenty of torque, extracting maximum performance while cornering takes precision. Davey advises to forget about the rear wheels, which are only along for the ride. Concentrate on the front wheels, position the car properly and ease your way through the turn. At Lime Rock where our GT-3 test was conducted, Tom lapped at 1 minute 12 seconds in a stock Scirocco, then cranked off a lap in 1 minute flat in the racer.

The stock Scirocco's time around Lime Rock has to be a tribute to its crisp handling as well as to Davey's driving technique. We'd guess there would be a greater difference in stock versus racer lap times on a less twisty course because, as you might imagine, it's no contest between the 185-bhp racer and its 74-bhp sibling when it comes to straightline acceleration. The GT-3 snarled its way to 60 mph in 6.7 sec, compared to 11.6 sec for the bigger-engine stocker tested at our home base. This gap would close only a little by the end of the quarter mile: 15.1 sec at 93.5 mph for the GT-3 versus 18.2 sec at 74.0 mph for the stock 1981 Scirocco.

In the braking department, though, the stock Scirocco profited from our home-base test site; or said another way, Davey's GT-3 had two strikes against it going into the game: typically hard competition brake pads that aren't really effective until they're warm, and Lime Rock's relatively bumpy test straight. The GT-3's braking distances from 60 and 80 mph were, respectively, 181 and 276 ft, each off the mark from our measurements of the stock Scirocco, at 140 and 250 ft from these same test speeds. As these extremely short braking distances indicate, the stock Scirocco's brakes are very well balanced fore/aft and easy to modulate. What with their adjustable fore/aft balance, the GT-3's brakes would probably share these exemplary characteristics once properly warmed and on a smooth surface.

So this is one view on what it takes to transform a road car into a successful racer. While other teams spend countless hours building winning cars, the Scirocco effort just happened. The team knew very little about racing sedans, yet they took a gamble, one that paid off. Perhaps, the biggest gambler was the driver who was also one of the instigators of the project. "I told myself, 'I'll worry about that problem when it comes up.' " When it did, Tom Davey and the Volkswagen Scirocco handled it like the champions they are.

PERFORMANCE COMPARISON
Production & Racing Volkswagen Sciroccos

	Production*	Racing
Acceleration:		
Time to distance, sec:		
0–1320 ft (¼ mi)	18.2	15.1
Speed at end of ¼ mi, mph	74.0	93.5
Time to speed, sec:		
0–30 mph	3.4	2.9
0–50 mph	7.9	5.2
0–60 mph	11.6	6.7
0–70 mph	15.7	8.3
0–80 mph	23.1	10.6
0–90 mph	34.9	13.6
Top speed, mph	109	129
Braking:		
Minimum stopping distances, ft:		
From 60 mph	140	181
From 80 mph	250	276

*Data for 1981 Scirocco S version also tested.

SPECIFICATIONS COMPARISON
Production & Racing Volkswagen Sciroccos

	Production*	Racing
Price	$9015	$35,000
General:		
Weight, lb	2095	1950
Weight distribution (with driver), f/r, %	65/35	60/40
Track, f/r, in.	54.7/53.5	57.7/56.5
Width	63.9	72.0
Height	51.5	48.0
Ground clearance	4.6	3.0
Trunk space, cu ft	8.2+7.2	nil
Engine:		
Bore x stroke, mm	79.5 x 86.4	79.5 x 80.0
Displacement, cc/cu in.	1715/105	1588/97.0
Compression ratio	8.2:1	12.1:1
Bhp @ rpm, SAE net	74 @ 5000	185 @ 8500
Torque @ rpm, lb-ft	90 @ 3000	166 @ 6500
Carburetion/ fuel injection	Bosch K-Jetronic	two Weber (2V)
Fuel requirement	unleaded, 91-oct	racing, 105-oct
Drivetrain:		
Gear ratios:		
5th	0.71	1.03
4th	0.91	1.17
3rd	1.29	1.42
2nd	1.94	1.79
1st	3.45	2.50
Final drive ratio	3.89	3.89
Chassis:		
Brake system	9.4-in. discs front, 7.1 x 1.2-in. drums rear; vacuum assisted	10.0-in. Lockheed vented discs front, 8.0-in. Lockheed vented discs rear; vacuum assisted
Swept area, sq in.	239	312
Wheels	cast alloy, 13 x 5J	BBS alloy, 13 x 7
Tires	Goodyear S70, 175/70SR-13	Goodyear Sports Car Special, 21.0 x 7.5-13
Instrumentation:		
Instruments	85-mph speedo, 7000-rpm tach, 999,999 odo, 999.9 trip odo, oil temp, coolant temp, fuel level, clock	11,000-rpm tach, oil press., oil temp, ammeter, coolant temp, fuel press., fuel level
Warning lights	oil press., handbrake, brake sys, alternator, seatbelts, hazard, high beam, directionals	oil press., rev limiter, hazard, high beam, directionals
Accommodation:		
Seating capacity, persons	2+2	1
Seat width, f/r, in.	2 x 20.0/51.0	14.0
Head room, f/r	35.0/32.0	36.0
Calculated Data:		
Lb/bhp (test weight)	31.5	11.1
Mph/1000 rpm (5th gear)	23.1	14.9
Engine revs/mi (60 mph)	2600	4050
Piston travel, ft/mi	1475	2125
Brake swept area, sq in./ton	205	304

*Specifications for 1981 Scirocco S version also tested.