

COMPARISON
&
ROAD TEST

FOUR MID-SIZE DIESEL SEDANS

*Making sense
and
saving cents?*

PHOTOS BY
JOE RUSZ

WHEN VOLKSWAGEN ENCOURAGED the American public to "Think Small" back in the mid-Sixties, the manufacturer probably never dreamed that by 1980 the entire world would be thinking small or at least smaller. And to a large extent, thinking diesel too. With rising fuel and production costs and increasing traffic congestion, the emphasis is on efficiency, in size as well as in fuel consumption. This is where diesels enter the picture because, generally speaking, these engines use 25 to 30 percent less fuel (also that fuel is usually less expensive) than do their gasoline-burning counterparts. So as the world and especially America tightens its belt, we see more and more automobiles with diesel power along the nation's roadways. Granted, these are not cars for everyone ("Happiness Is Being Single," said the license plate frame on a cream-colored Clenet), but for those who must transport four or five people and their luggage; or mom, the kids and the family's groceries comfortably and economically, such cars, represented by the four mid-size diesels in our comparison test, may be the answer.

In the March issue, we compared six gasoline-engine family sedans: the Audi 4000, Chevrolet Citation, Ford Fairmont, Mazda 626, Saab 900 GLE and the Volvo GL. Now we're back to compare four 4-door family diesels and, interestingly enough, one of them, the Volvo, is practically the same car, albeit diesel powered. The sedate Swede is joined by the Audi 5000S Diesel, plus the Oldsmobile Cutlass and Peugeot 505 diesels, cars that fit within the guidelines we established for size and cost. This explains why the Volkswagen Rabbit and Dasher Diesels, the Oldsmobile 98 and the Cadillac Seville and Mercedes-Benz 240D Diesels are conspicuously absent. The VWs are too small, the Olds is too big and the M-B and Caddy are too expensive.

Speaking of size (we'll get to price in a moment), here's how the smallest and the biggest candidates compare. Although the Olds has the dubious distinction of being the longest, lowest, widest and heaviest car in the group, the four cars are much alike in physical characteristics: Wheelbases range from 104.0 in. for the Volvo to 108.1 in. for the Olds; overall lengths run from 186.7 in. for the Peugeot to 199.1 in. for the Olds. Curb weights start at 2975 lb for the lightweight Audi and escalate to 3765 lb for the hefty Olds. Also, interior dimensions of our four sedans are generally quite similar. For instance, there's at least 41.0 in. of front and 24.0 in. of rear leg room and approximately 38.0 in. of front and 35.0 in. of rear head room. But there are some exceptions. For example, the Peugeot has only 35.5/34.5 in. of front/rear head room. And despite similar rear leg room dimensions, remember that all back seats are not created equal. The length of the cushion and the height of the cushion above the floor play an important role in seating comfort. That's why one of the testers referred to the Olds' rear accommodations as a "cheat seat." Finally, there's front seat travel. Because we make our rear leg room measurements with the front seat in its most rearward position, seat travel will have an effect on leg room for rear as well as front seat occupants.

Mechanical specifications are another story and these cars represent a varied lot: One has front-wheel drive, two have 4-wheel disc brakes, one has independent rear suspension and three have rack-and-pinion steering. Two of the diesels use overhead camshafts and engine design runs the gamut from inline 4-, 5- and 6-cylinders to a typical large-displacement American V-8. Represented among the transmissions are two manual 4-speeds (one with electric overdrive), a manual 5-speed and a 3-speed automatic.

This brings us to price, another distinguishing factor. All of our family diesels were equipped with options ranging from a few (air conditioning, radio, floor mats) on the Volvo, to many (the proverbial kitchen sink) on cars like the Olds. The Audi and the Peugeot were equipped with S packages costing \$1940 and \$2100 respectively, wretched excess for someone looking for an economy diesel. As equipped, the three European diesels all cost within a few hundred dollars of each other, with the Volvo being the least expensive at \$13,151 and the Peugeot the most at

\$13,725. The sole American entry follows Detroit's tradition of building bargain automobiles and even with \$3800 worth of options, the \$11,020 Cutlass Brougham still costs far less than the other contenders, though it does give away some technical sophistication in order to do so. Check base prices before jumping to conclusions as to which diesel is the best value.

One thing we quickly discovered is that all diesels are not created equal. This means that there are natural born and naturalized diesels and this is important when considering performance, smoothness, efficiency and reliability. Of the lot, only the Peugeot was born to the land—designed as a diesel many years ago. It's been used in previous models and has been thoroughly evaluated, improved, refined, etc. The upshot of all this is that it is one of the nicest diesels around: compact, smooth, efficient. And, we suspect, about as reliable as a Paris taxi.

The Audi, Olds and Volvo diesels are essentially diesel versions of gasoline-burning powerplants. Thus, they are relative newcomers to the diesel fold, dating back just a few years to the time when the public suddenly developed an awareness of and desire for diesels. Although you'll find a gasoline variant of the Audi 5-cylinder and a smaller-displacement gasoline V-8 for the Olds, don't look for this sort of equivalent in the Volvo. The Swede's 6-cylinder inline diesel is actually German-built. It's Audi's five with one extra cylinder added. But even with its six cylinders, the 2383-cc Volvo diesel is still a small-displacement engine compared to the 5735-cc Olds. Why is the General Motors powerplant so big? Because this born-of-expedience diesel is the only one Olds could get to pass the emissions certification tests. The company formerly offered a 260-cu-in. version in the Cutlass diesel. But when it became obvious the smaller engine offered no fuel mileage advantage over the 5.7-liter V-8, yet was significantly slower, Olds discontinued the 260.

One positive aspect of the Oldsmobile engine's size and horsepower is that it gives this almost 2-ton automobile a 0 to 60 mph time of 18.2 seconds, making it the quickest car of the lot. But the penalty is fuel economy and while it is true that the diesel Cutlass is more fuel efficient than its gasoline counterpart, its 20-mpg trip average is quite a bit less than those of the other cars in our test.

We'll comment on fuel economy, plus other noteworthy aspects of each sedan, in the summary accompanying it. But before we get to that and to how each car scored, let's set the stage for our competition.

The gathering point for the five staffers who participated in this comparison was San Juan Capistrano, an Orange County bedroom community located along a major interstate, near the threshold of one of our favorite sports car roads. Capo, as some call the town (Richard Nixon ate there), adjoins a number of populated areas which represent city driving in our tests. For our diesel comparison, we included plenty of stop-and-go and a few steep hills. We also added a freeway loop where one could evaluate ride (especially over lane divider dots), seating position and comfort, outward vision, heat/vent/air conditioning operation, as well as interior room, styling and finish. We cruised along at freeway speeds (50-65 mph) to simulate typical freeway driving and to pick out any possibly irritating engine resonances, wind noises, etc.

In addition to our two standard test loops, the Editor took a drive over our favorite 2-lane twisty road. He learned some interesting things about the sporting instincts of our four family diesels. Few diesel sedan owners will probably care, but it's reassuring to know how even a staid grocery-getter will perform during spirited motoring.

Once again, we used our standard 0-to-10 rating system in subjectively evaluating 21 categories for each car. These include the mechanical aspects of the car, as well as its controls, seating, design, finish, plus the all-important performance, handling and braking. The numbers tell only part of the story and for those readers who prefer a personal opinion to help them make their choice, we've included a listing showing each test driver's favor-

ite. These choices, plus the scores, objective measurements and editorial comments about each car (listed alphabetically) follow.

Audi 5000S Diesel

HERE'S A car that combines the bitter with the sweet. It has elegance, tasteful styling, excellent performance and handling and represents Teutonic thoroughness in such areas as ergonomics. We chose the gasoline-engine 5000 as one of the "10 Best Cars for a Changed World" (R&T, June 1978). But with dieselization, this outstanding automobile acquires an annoying driveline snap that detracts from its otherwise stellar qualities. What has happened is that in order to isolate the diesel engine's increased vibration, Audi engineers have made the engine/transmission mounts so spongy that the powertrain rocks back and forth in the chassis whenever one shifts gears or works the throttle. And the Audi diesel's 5-speed with its stump-puller low gear (another annoyance) has notchy linkage that is also quite stiff. But to be fair, the gearbox did allow one to extract optimum performance from the car's 67-bhp engine (the least powerful of the lot). This was especially evident during the Editor's twisty road driving where the Audi outshone the rest. The 5000 felt "steady and solid with a nice balance to the steering," said the Editor, who summed it all up by stating that the car exhibited "the best combination of ride and handling. But because of that horrendous gearbox and drivetrain, I would not want to live with this car on a daily basis."

By the way, the current Audi 5000 Diesel is not available in California because the distributor, Porsche-Audi of North America, has decided not to comply with that state's tough certification standards. At least not with this engine. Instead, the German firm hopes to introduce a turbocharged version of the 5-cylinder diesel (and the 4-cylinder too) and offer it with an automatic as well as the manual 5-speed. If Audi succeeds, the turbo diesel-cum-automatic should eliminate much of the car's driveline problems and make the diesel as impressive an automobile as its gasoline-engine counterpart—come the 1982 model year.

In spite of its shortcomings (it placed last in four categories: engine, gearbox, instrumentation and outward vision), the Audi ran a close race, finishing 1st in seven categories including such important areas as steering and handling. Two testers rated it 1st in aggregate points while the rest rated it 3rd or 4th. In the final tally, the Audi finished 2nd with a total of 765 points out of a possible 1050. But on a personal level, the car was no one's favorite. One can't help but wonder how the vote would have gone if the Audi wasn't afflicted with the diesel DTs.

Olds Cutlass Brougham

IT IS the quietest of all diesels and one of the quickest. And its instruments, though small, are complete. But those areas plus heat/vent/air conditioning are the only categories the Olds won, while in such areas as steering, brakes, body structure and controls it was dead last. The car scored "worsts" in 10 out of 21 categories and tied the Volvo for last in three others. Three of these were in the areas of passenger accommodation, that is, ingress/egress and roominess of the front and rear seats. For example, getting in and out of the front seats was no problem, but the rear was more difficult. The door and door pillar intrude, as do the front seats, especially if they are set all the way back. The front seat is soft and has little useful support, although its corduroy material does hold one in place. And the power-assisted driver's seat does offer a variety of seating angles, heights, etc. The rear seat is the worst offender. It has a short cushion that's quite close to the floor and rounded edges that detract from its overall width. There's not much leg room either. One other peculiarity relative to the rear seat area—the rear windows are fixed and only the vent wings, located at the trailing edge of the glass, are operable—by switches that open and shut the windows electrically.

The problem with the Oldsmobile is that it is the product of an earlier era at GM, a time when engineering emphasis was placed

Audi 5000S Diesel.



Oldsmobile Cutlass Diesel.

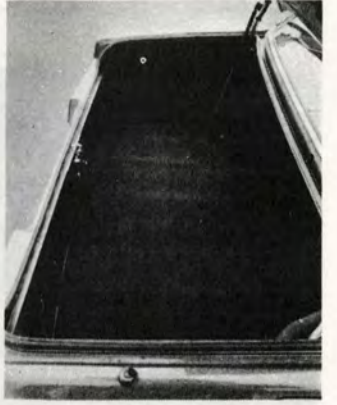
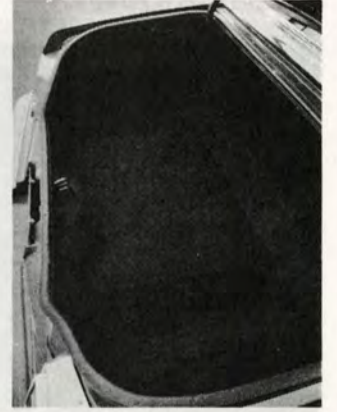


Peugeot 505SD

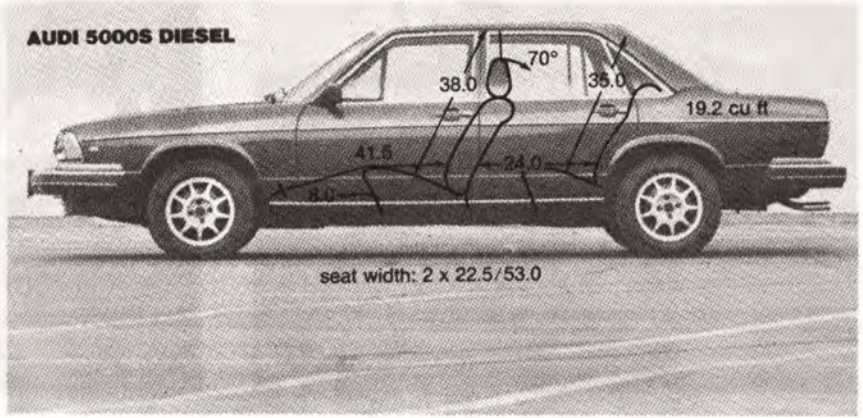


Volvo Diesel.

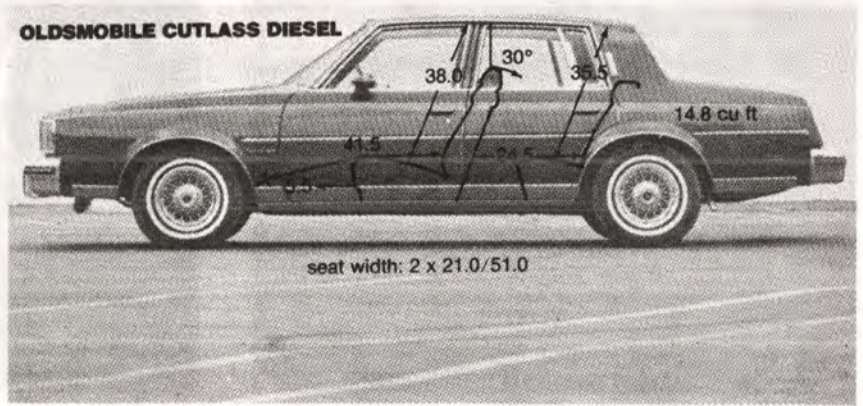




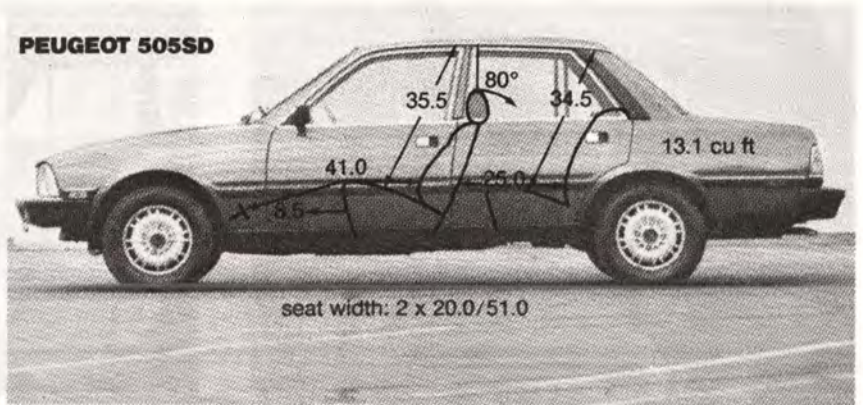
Audi 5000S Diesel.



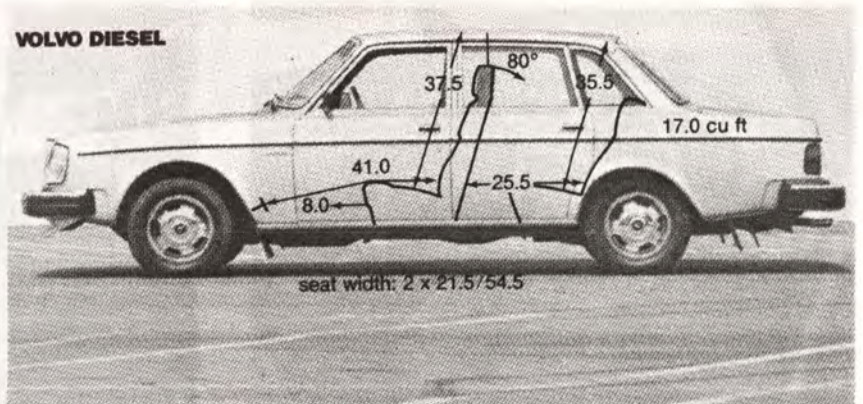
Oldsmobile Cutlass Diesel.



Peugeot 505SD.



Volvo Diesel.



on ashtray design and upholstery tufting—or heating, ventilation and air conditioning. As we said, the Cutlass Brougham scored highest marks in this area and if you have ever driven or ridden in one, you know that GM's climate control is superb. So is GM's mastery of noise isolation. Face it, no manufacturer does these things better or as inexpensively. Sadly, Detroit has just recently begun to concern itself with sophistication in handling, steering and braking, and when thrown into the mix with European sedans, the domestics usually come out wanting. However, one important point in the Old's favor is that the average driver will find it a very forgiving car that telegraphs its moves well in advance via tire squeal, benign understeer and respectable cornering power. And an unexpected discovery was that the Olds behaves itself better over rough pavement than the other car in this test with a live axle, the Volvo.

Numerically, the Oldsmobile diesel finished last, scoring 674 points. What's more, three testers reiterated their evaluative opinions by placing the Olds last among their personal choices. On the bright side, one staffer rated it 2nd (a tad ahead of the Volvo) and another had it 3rd. Perhaps this is the best indication of how we feel about the entry. It's certainly the best buy (at least until one begins to measure fuel consumption) and undoubtedly quite pleasant. But it goes for the bronze while the rest go for the gold.

Peugeot 505SD

ONE TESTER called this car's sohc 4-cylinder "the only clean-sheet diesel." The same can be said for the entire automobile. The 505 is a brand new design and it showed in our tally. The Peugeot scored eight 1sts, five of them in areas that reflect upon this manufacturer's concern for intelligent design—driving position, controls, outward vision, front seat and interior styling. The 505 diesel also scored 1sts in engine, ride, and its brakes tied with the Volvo's for 1st.

Although the 505's exterior styling is rather subdued (the car scored a 2nd in that area), the picture changes when one opens the doors. Inside are some of the most comfortable seats we've seen in a long time and the driver faces a dash with large, easy-to-read gauges. The controls are well placed and in the case of the heating/ventilation/air conditioning module, clearly marked and easily understood. There are also thoughtful touches such as a coin tray in the center console and a tea tray dashboard.

The 505SD also has one of the smoothest-running engines of the lot. It's coupled to a 4-speed gearbox rather than a 5-speed or 4-speed with overdrive, so its engine revs a bit more at speed than does the Audi's or the Volvo's. Still, it's not too objectionable and it doesn't seem to bother the fuel economy much. On our trip the Peugeot averaged 27.0 mpg which was not far off from the Audi's 30.0 mpg, the highest average of the group. Our primary complaint about this well heeled powerplant is that it has its noisy moments—when revved to the maximum and at approximately 62 mph where it exhibits an annoying resonance. Our other gripe is that it doesn't hustle the car down the road quickly.

But that's a small price to pay (figuratively speaking) for a diesel engine with proven longevity. And when buying a family sedan, while keeping an eye on cost, longevity and trouble-free operation are of paramount importance.

The Peugeot's ride is another outstanding feature. It's typically French: supple, yet exhibiting excellent control. There's one quirk, though, noted in the slalom and during the Editor's back road touring: The steering has a non-linear feel. "For a given turn I was continually cranking in too much lock and then having to twist the wheel back a few degrees in the opposite direction. . . sort of like front-end oversteer. And at the same time I was having to modulate the correction to cope with body roll. It sounds worse than it felt but it was annoying nonetheless." Still, only extreme conditions induce such behavior and in the long run we rated the Peugeot's handling just two points lower than the Audi's.

It's no surprise that the Peugeot had no last-place finishes in any of the 21 subjective categories, but the ultimate compliment,

GENERAL DATA

	Audi 5000S Diesel	Oldsmobile Cutlass Diesel	Peugeot 505SD	Volvo Diesel
Basic price ¹	\$11,400	\$8169	\$11,350	\$12,225
Price as tested ²	\$13,605	\$11,020	\$13,725	\$13,151
Curb weight, lb	2975	3765	3155	3145
Test weight	3165	3945	3350	3300
Weight distribution (with driver)				
f/r, %	65/35	59/41	56/44	56/44
Wheelbase, in.	105.5	108.1	108.0	104.0
Track, f/r	58.1/57.2	58.5/57.8	57.5/56.5	55.9/53.1
Length	188.9	199.1	186.7	192.5
Width	69.6	71.5	68.3	67.3
Height	54.7	54.2	56.7	56.5
Fuel capacity,				
U.S. gal.	19.8	19.8	18.0	15.8
Brake system, f/r: disc/drum disc/drum disc/disc disc/disc				
Wheel size 14 x 5½J 14 x 6JJ 14 x 5J 14 x 5½J				
Tires Fulda Rasant Steel General Dual Steel Michelin ZXZ Michelin ZX				
	185/70SR-14	P205/75R-14	175SR-14	185/70SR-14
Suspension, f/r: ind coil/ ind coil/ ind coil/ ind coil/				
	beam coil	live leaf	ind coil	live coil

¹Basic price includes diesel-engine optional cost, if any, but not the S packages for the Audi and the Peugeot.

²As tested price includes: For the Audi 5000S, S package incl air cond, AM/FM stereo/cassette with power antenna, alloy wheels, elect. window lifts, power door locks & misc options (\$1940), metallic paint (\$265); for the Oldsmobile Cutlass Diesel, diesel engine with high-capacity batteries and heavy-duty cooling system (\$950), air cond (\$601), AM/FM stereo/cassette with power antenna (\$336), Calif. diesel emission requirements (\$250), elect. window lifts (\$202), elect. adj seat (\$175), power door locks (\$132), cruise control (\$112) & misc options (\$1043); for the Peugeot 505SD, S package incl air cond, elect. window lifts, AM/FM stereo with power antenna, misc options (\$2100) & metallic paint (\$275); for the Volvo Diesel, air cond (\$650), AM/FM stereo with power antenna (\$198) & misc options (\$78).

ENGINE & DRIVETRAIN

	Audi 5000S Diesel	Oldsmobile Cutlass Diesel	Peugeot 505SD	Volvo Diesel
Layout ¹	f/f	f/r	f/r	f/r
Engine type ²	sohc inline 5 (G)	ohv V-8 (G)	ohv inline 4 (D)	sohc inline 6 (G)
Bore x stroke, mm	76.5 x 86.4	103.1 x 86.0	94.0 x 82.8	76.5 x 86.4
Displacement, cc	1986	5735	2304	2383
Compression ratio	23.0:1	22.5:1	22.4:1	23.5:1
Bhp @ rpm, SAE net	67 @ 4800	105 @ 3200	71 @ 4500	78 @ 4800
Torque @ rpm, lb-ft	85 @ 3000	205 @ 1600	99 @ 2500	102 @ 3000
Fuel injection	Bosch	Roosa Master	Bosch	Bosch
Transmission	5-sp manual	3-sp auto	4-sp manual	4-sp manual + OD
Final drive ratio	4.78:1	2.29:1	3.78:1	3.54:1
Engine speed				
@ 60 mph, rpm	3525	1850	3165	2381

¹f/f: longitudinally mounted front engine, front-wheel drive; f/r: front engine, rear drive.

²(G): engine developed from gasoline-fueled design; (D): engine designed originally as diesel.

and perhaps the most telling comment concerning the car's many excellent traits, came from our testers. All five chose the 505SD as their personal favorite and agreed that if they were to buy a diesel, this Gallic charmer would be the one.

Volvo Diesel

ECCENTRIC is the best way to describe this diesel sedan which suffers most from being a Volvo and least from being a diesel. In fact, its engine earned the praise of several staffers who liked its 6-cylinder smoothness and its power. Two of them had it in 1st place, tied with either the Peugeot or the Olds. One rated it 2nd, and the other two testers rated it 3rd. In total points the Volvo engine tied with the Oldsmobile for 2nd place. There was little doubt about the car's 4-speed overdrive gearbox which was a 1st-place shoo-in. So were the Volvo's body structure, rear seat

PERFORMANCE

	Audi 5000S Diesel	Oldsmobile Cutlass Diesel	Peugeot 505SD	Volvo Diesel
Acceleration:				
Time to distance, sec:				
0-1320 ft (¼ mi)	22.0	21.3	22.9	21.2
Speed at end of ¼ mi, mph	62.0	64.5	60.0	64.5
Time to speed, sec:				
0-30 mph	5.7	5.5	4.3	5.2
0-60 mph	20.5	18.2	23.1	18.5
0-70 mph	31.8	26.1	36.2	26.6
Trip fuel economy, mpg	30.0	20.0	27.0	27.0
Brakes:				
Stopping distances, ft, from:				
60 mph	157	161	159	161
80 mph	256	302	270*	277
Pedal effort for 0.5g stop, lb	20	15	20	17
Fade, % increase in effort,				
6 stops from 60 mph @ 0.5g	20	67	nil	nil
Overall brake rating	very good	good	very good	very good
Handling:				
Lateral acceleration, g	0.754	0.652	0.683	0.663
Speed through 700-ft				
slalom, mph	56.8	52.9	53.9	54.7
Interior noise, dBA:				
Idle in neutral ¹	54/55	54/59	55/56	52/56
Maximum, 1st gear	77	70	77	73
Constant 30 mph	63	64	64	64
50 mph	70	67	71	70
70 mph	74	72	77	75

¹All windows up/driver and passenger windows down.

*Not attainable at test track; any data shown based on previous testing of gasoline version.



Audi 5000S rear doors have cigarette lighter, ashtray and courtesy light.

things as the Volvo's exterior and interior styling, its heating/ventilation/air conditioning and its driving position, areas where the car finished last.

It's not surprising, because most of us consider the Volvo stodgy and old-fashioned, especially when compared to the slick new Peugeot and the 4-year-old but still sleek Audi. The Swede's looks may be right for a Volvo cultist, but to the average car buyer they seem somewhat outdated. Inside, the choice of colors (black, black, black except for a white headliner), seat fabric and headliner material offended most of our group's esthetic sense. The quality may be good, but most found the looks offputting. This was especially true of the stretchy towel-like cloth used on the seats. On the bright side, the Volvo did have the best rear seat and the 2nd roomiest trunk, something the family diesel buyer undoubtedly considers important.

Conclusions

IT IS difficult not to be impressed with the Peugeot, the statistical and personal winner in our comparison. The 505 has an outstanding body and chassis and it serves as the perfect platform for the company's time-proven diesel engine. The Audi, an otherwise outstanding example of automotive design, suffers as the result of its dieselization. The proposed turbo diesel automatic should remedy its problems, and it will be interesting to compare the 5000 to the Peugeot in years to come. The Volvo is pleasant enough as a diesel, but the car's design and styling are dated. Still, the performance is impressive, the car has some noteworthy attributes and if beauty is only skin deep, then the Volvo is worth considering. So is the Olds, especially if one has an affinity for quietness, a superb climate control system, a silky-smooth automatic transmission and a relatively low price. Californians can forget about the Audi and the Volvo diesels. They're not certified for sale in the Golden State.

Which diesel is right for you? The one that best suits your needs and/or strikes your fancy. Whatever it may be, your decision should be tempered by realism. For instance, there's reliability—only the Peugeot is a purebred diesel and, as such, is likely to offer the sort of longevity for which diesels have become known. Given the worst, a breakdown, there's service and the cost of parts to consider. There are thousands of Oldsmobile and only hundreds of Audi, Peugeot and Volvo vendors in the U.S. And European parts are generally a lot more expensive than domestic ones. Another important point is fuel economy and its relationship to performance. In other words, if one opts for, say, the American car's brisk acceleration, will he or she be willing to buy more fuel to satiate the bigger engine's (in a heavier car) greater thirst?

Perhaps the most important question is, should one buy a diesel sedan? It's hard to answer that objectively, because choosing any car is so subjective. One must weigh the advantages (fuel efficiency and lower fuel price) against the disadvantages (reduced performance and limited availability of diesel fuel) before deciding.

CUMULATIVE RATINGS—SUBJECTIVE EVALUATIONS

	Audi 5000S Diesel	Oldsmobile Cutlass Diesel	Peugeot 505SD	Volvo Diesel
Performance:				
Engine	26	34	37	34
Gearbox	15	36	35	40
Steering	43	20	33	36
Brakes	34	22	38	38
Ride	36	31	45	31
Handling	42	26	40	35
Body structure	35	29	40	42
Comfort/Controls:				
Driving position	42	33	45	32
Controls	37	32	42	37
Instrumentation	30	36	32	31
Outward vision	33	36	45	41
Quietness	34	41	36	34
Heat/vent/air cond	39	45	44	31
Ingress/egress	42	32	41	40
Front seat	42	34	44	39
Rear seat	37	26	39	41
Luggage space & loading	44	36	38	40
Design/Styling:				
Exterior styling	44	30	40	29
Exterior finish	41	32	38	39
Interior styling	29	32	44	24
Interior finish	40	31	38	31
Totals	765	674	834	745

and brakes (a tie with the Peugeot).

Basically, the Volvo sailed a middle course, earning enough points (745) to bring it within a hairsbreadth of 2nd. Blame it on the car's archaic design which didn't have the extra oomph to capture those extra points that would have made it a solid 2nd-place finisher or even a 1st-place contender. Or blame it on such

EDITORS' CHOICES

Audi 5000S Diesel	4	4	2	2	3
Oldsmobile Cutlass Diesel	2	3	4	4	4
Peugeot 505SD	1	1	1	1	1
Volvo Diesel	3	2	3	3	2