



# Mercedes-Benz E300 Diesel

Twenty-four-valve technology comes to the wallflower diesel.

BY FRANK MARKUS

**F**ifteen years ago, the fear of rising gas prices spooked droves of people onto waiting lists to buy cars that accelerated slowly, spewed black exhaust smoke, were difficult to start in cold weather, and sounded like a blender full of marbles. What's more, those buyers paid premium prices.

Ah, yes—the diesels. To offset their substantial downside, they promised to require less maintenance and to last longer, while providing better fuel economy than similar gasoline-powered cars. Many models failed to deliver on those first two promises, but they all delivered more miles per gallon, which drove diesel car sales to a peak of more than 600,000 units in 1981. But as soon as fuel prices receded to below the cost of decent bottled water, Americans abandoned the diesel like bell-bottomed pants and wide polyester ties.

Today, only Mercedes-Benz offers diesel-engined cars in this market. Mercedes introduced the world's first diesel car in 1936 and has offered them almost continuously since, even in the U.S. But California's tough particulate-emissions regu-

lations forced a retreat from that market in 1988. The sooty pollutants were controlled by a trap oxidizer then, a device that proved unreliable and required frequent warranty replacement, irking loyal Mercedes customers and eroding company profits.

But for 1995, Mercedes blazes yet another diesel trail with its E300 model: a 50-state-legal diesel *sans* trap oxidizer, and the first diesel passenger-car engine to use four valves per cylinder. Some large heavy-duty diesels had four-valve heads in 1935, but the power and torque required by a passenger car was always more easily and inexpensively met by turbo- or supercharging. Today, however, the emissions benefits of the multivalve design justify its cost.

While four valves allow better breathing in any engine, the tumbling intake air they induce does not help to atomize the fuel in a diesel. That's because in a diesel compression-ignition engine, air alone is inducted and compressed to a very high pressure and temperature before the fuel is injected. As the fuel is injected directly into the chamber, it ignites without an

external spark. This combustion begins in a small prechamber, then expands out into the cylinder. The four-valve design places this prechamber in the center of the cylinder (which cannot be done with a two-valve head), and thus shortens the maximum distance the flame must travel. The result is more complete combustion of all the air and fuel in the cylinder.

Electronically controlled external EGR helps to cut NOx and particulate emissions, and a ceramic and metal catalyst oxidizes hydrocarbons and carbon monoxide, as in a gasoline car. The catalyst also oxidizes the aldehydes and other volatile elements that cling to soot, making these particles lighter by 15 to 20 percent. (Particulate emissions are regulated by weight in grams per mile.)

The 24-valve diesel makes 23 percent more power than a naturally aspirated 12-valver of equivalent displacement. Torque is up 10 percent, thanks in large part to a variable intake-runner-length system of resonance supercharging like that used on the E320 gas motor. A turbocharger will be fitted in the near future to boost power



by another 20 percent.

Despite all the talk of power, this is still a machine focused on fuel economy. Our relentless full-throttle footwork yielded an average of 27 mpg over 1250 miles in and around town. That's 1 mpg better than the EPA city rating, and if this Benz can be trusted to achieve its rated 32 mpg on the highway, it will travel a remarkable 750 miles between fill-ups.

After a five-second wait for the glow plugs, our test car started quickly in sub-freezing temperatures and ran smoothly. Short gearing makes the most of what power there is, but cruising at 75 mph spins the engine at a rather noticeable 3000 rpm. Making the most of this power means loping to 60 mph in 11.7 seconds and through the quarter-mile in 18.5 seconds at 75 mph.

At idle with the windows open, the E300 Diesel sounds like a well-muffled marble grinder, but at full throttle there is a pleasant soprano yowl, vaguely reminiscent of the E320. When you're sealed in and driving down the highway, sound levels are gas-Benz quiet: 69 dBA at 70 mph.

The E-class was facelifted for 1994 to look more like the S-class in front, and the \$41,268 E300 Diesel is now the entry-level model. So there's no price premium, and this diesel is no longer hard to start in winter. And it doesn't smoke like past diesels. But it's still significantly slower than equivalent gas models, and it won't necessarily last longer or cost less to maintain than a gas Benz.

That leaves good fuel economy and extensive range as the E300 Diesel's principal charms. With fuel costs at historic lows, we expect that any waiting lists that might form will be for the lusty V-8 E500, not the diesel. Mercedes only hopes to sell 3300 E300s this year. These diesel cultists will likely be pleased with the current state of this rare art.

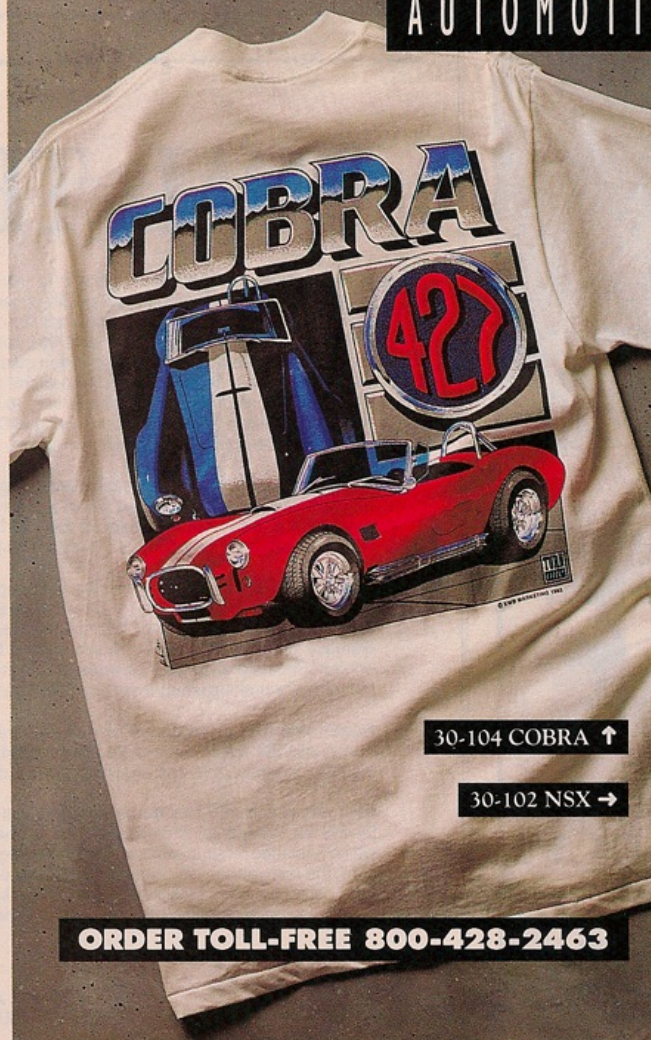
**Vehicle type:** front-engine, rear-wheel-drive, 5-passenger, 4-door sedan

**Price as tested:** \$42,318 (base price: \$41,268)

**Engine type:** DOHC 24-valve diesel 6-in-line, iron block and aluminum head, Bosch electronically controlled mechanical port fuel injection

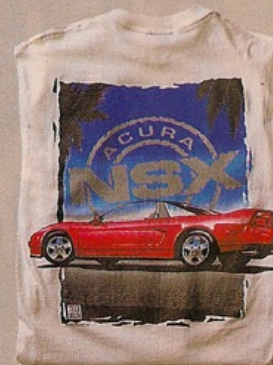
Displacement	184 cu in, 2996cc
Power (SAE net)	134 bhp @ 5000 rpm
Torque (SAE net)	155 bhp @ 2600 rpm
Transmission	4-speed automatic
Wheelbase	110.2 in
Length	187.2 in
Curb weight	3552 lb
Zero to 60 mph	11.7 sec
Zero to 100 mph	44.6 sec
Street start, 5 to 60 mph	11.9 sec
Standing 1/4-mile	18.5 sec @ 75 mph
Top speed (drag limited)	123 mph
Braking, 70-0 mph	186 ft
Roadholding, 300-ft-dia skidpad	0.76 g
EPA fuel economy, city driving	26 mpg
EPA fuel economy, highway driving	32 mpg
C/D observed fuel economy	27 mpg

## AUTOMOTIVE T-SHIRTS



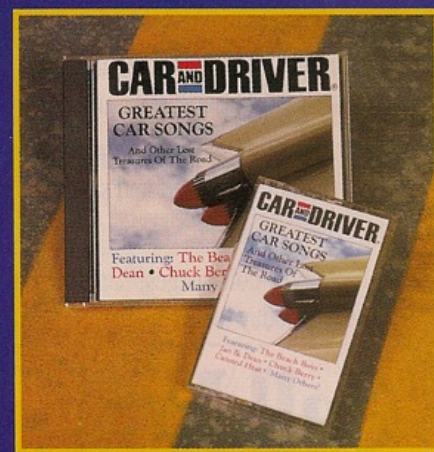
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