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FORD MUSTANG FR500

Think of it as the other 5.0-liter Mustang. The one that's greater than the hum of its parts.

BY JOHN PHILLIPS

PHOTOGRAPHY BY DAVID DEWHURST

There's something vaguely awe inspiring about the Mustang you see here—apart from its 415-horsepower twin-cam V-8, apart from its five-inch wheelbase extension, and apart from a hood that droops over its grille like a springer spaniel's tongue. That awe-inspiring thing is this: You can wander out to your garage on 40 or 400 consecutive spare evenings and assemble a Mustang absolutely identical to this one, right down to its carbon-fiber dog's tongue. No kidding. All you'll need is a donor SVT Cobra ($28,155), a complete set of Snap-ons ($250), a Ford Racing catalog ($5) from which to order a few parts (approximately $26,000 worth), and a family doctor trained to treat knuckles skinned in a past-time likely to land you in divorce court (priceless).

When you're finished—both in the

garage and in front of Judge Mills Lane—you'll own a street-legal Mustang that accelerates to 60 mph in 4.5 seconds (same as your neighbor's Ferrari Modena 360), carries on to a top speed of 168 mph, and possesses stiction that exceeds your other neighbor's Corvette's. Course, that particular neighbor's Corvette will have cost a lot fewer dollars, and its owner will, you know, still be *married* to someone, whereas you will be sleeping in a tent at Milan dragway and wondering aloud whether you can swap a plaid sleeping bag for a fresh set of BFGs.

Last June, the idea for the Mustang FR500 found residence in the overactive brain of Dan Davis, the 50-year-old director of Ford Racing Technology. Whether you know it or not, you're familiar with this Dearborn division. It used to be called SVO (Special Vehicle Operations), but that acronym was so often confused with SVE (Special Vehicle Engineering), with SVT (Special Vehicle Team), and with B.V.D. (a brand of excellent underwear) that the guys in Dearborn jettisoned it (the name, not their excellent underwear).

So now it's simply Ford Racing, whose chief source of income derives from aftermarket performance parts. The FR500 ("FR" for Ford Racing and "500" for five liters of V-8 displacement) comprises more than 100 of those unique parts, each to be depicted in Ford Racing catalogs by midsummer.

"When I arrived here a year and a half ago," says Davis, "I saw that SVO had been making most of its money from the old 4.9-liter pushrod motor. I said: 'That's not the future. The future is the modular twin-cam, and the sooner we offer upgrades for it, the sooner we'll see profits.' What we needed was a showcase motor—something making 400 horsepower without superchargers or turbos—and it had to be emissions-legal."

To his credit, Davis further realized that a stand-alone engine, however enticing, had about the same effect on would-be buyers as Victoria's Secret lingerie draped atop wire-frame mannequins. The high-output V-8 thus became a car that became a parts program.

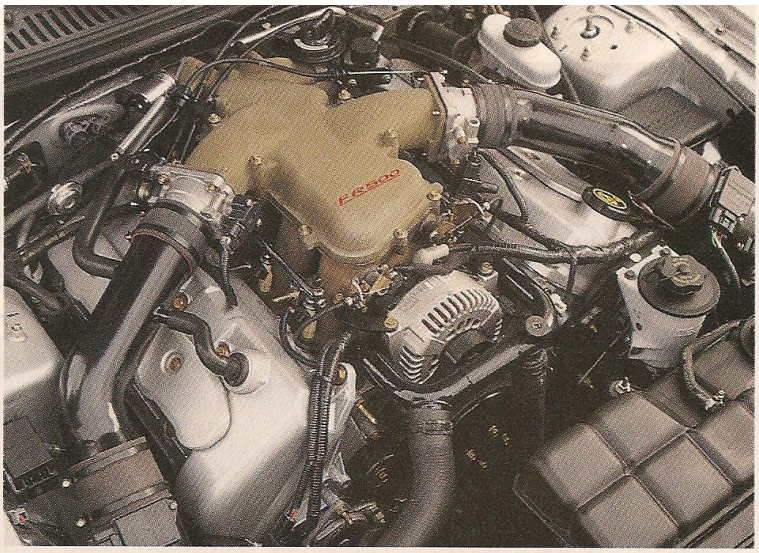
To build the FR500, Davis's engineers opted to perform the "intellectual work," and McLaren Engines in Detroit was tapped to undertake the fabrication and assembly. The goal was a Mustang that would "accelerate, handle, and stop as competently as a Corvette," says Davis. He then allotted the program what is, by Ford's standards, a peewee budget: $500,000, a sum sufficient for only two mules and a show car unveiled in Vegas, sans naked girls and marching bands.

Car and Driver was afforded access to the second of the mules, a homely specimen whose black-and-white body parts, haphazardly fitted, imbued it with a Broderick Crawford *Highway Patrol* countenance. That car's innards, how-

ever, proved fairly glorious.

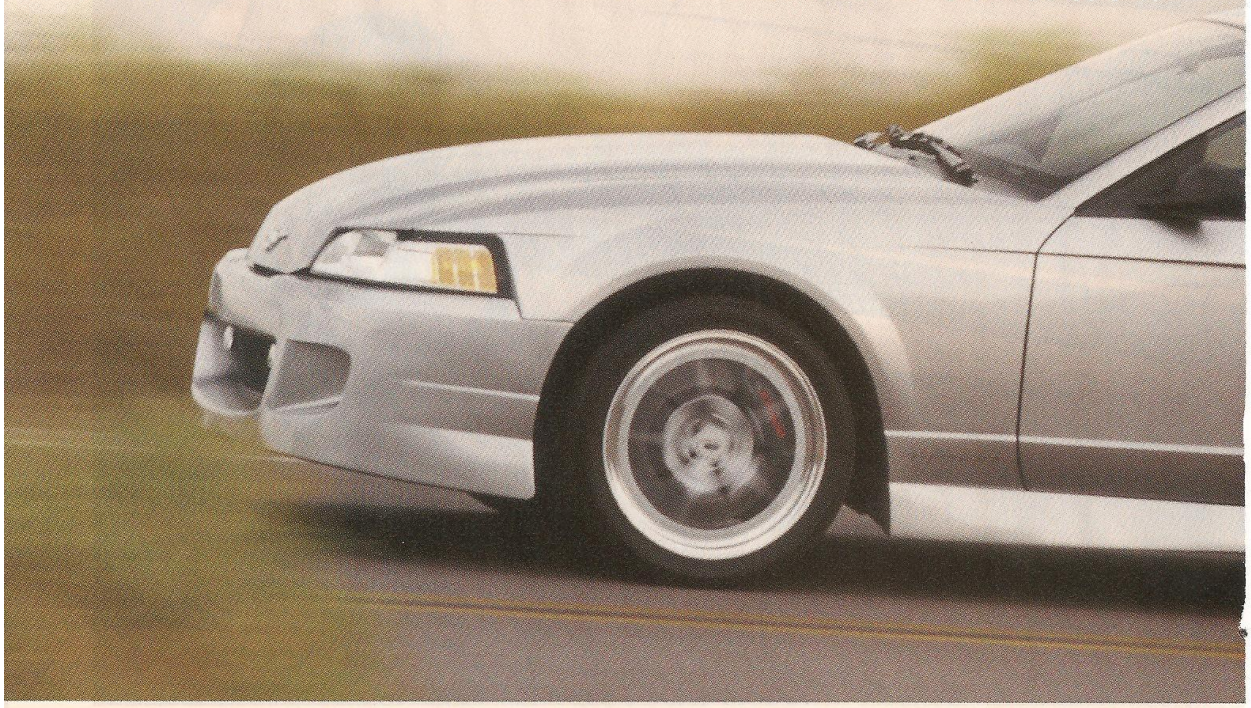
The heart of the FR500's twin-cam V-8 is a new aluminum block with 94-millimeter bores, bumping displacement to 4997cc. Although you can keep your Cobra's stock crankshaft and rods, a "bottom-end kit" (which refers to no item offered by Victoria's Secret) includes fitted pistons thumping away at a surprisingly subdued 9.9:1 compression ratio. The trick Ford Racing cylinder heads, featuring more radical cams and larger ports and valves, are topped by a flashy magnesium intake manifold with two 70mm throttle bodies yanked from Ford's 5.4-liter truck engine. The intake's twin air inlets, which resemble the bass pipes from Ralph Reed's favorite church organ, require that the battery find residence in the trunk, a relocation to the betterment of weight distribution. Add to those underhood ministrations unique headers, an EEC-V computer, and a 36mm radiator core, and you wind up with 415 horsepower at 6800 rpm and 365 pound-feet of leverage at 4200 rpm. The only reliable way to transfer that much mechanical mayhem to the rear wheels is to funnel it first through a dual-disc Valeo clutch (same as a Ferrari F50's) and a six-speed Tremec T56 transmission (same as a Dodge Viper's).

Sound complicated? Well, it is. And there's more. While you're thumbing through the Ford Racing catalog, you'll also want to stipulate the 170-liter-per-hour fuel pump, the metal-composite driveshaft, the new cats and stainless exhausts, the 51mm hollow half-shafts, and, well, about six carats' worth of eternity ring to keep your housemate off your back.



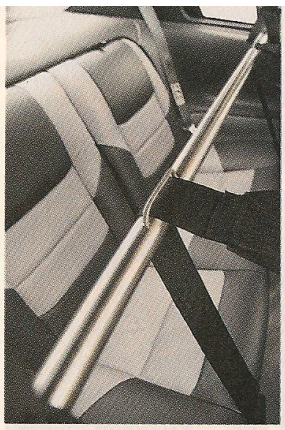
In fact, to achieve the total FR500 effect, maybe you should just *mail* your MasterCard to Ford Racing. At least that would get you this vehicle's real conversation piece—the crossmember that makes possible the clever wheelbase extension. This large steel assembly simply bolts to the frame rails five inches forward of the stock crossmember's location. Sure, it interferes with your Cobra's oil pan; that's why a unique eight-quart version is part of the deal. By happenstance, the elongated wheelbase improves ride and swells the front track by 1.1 inches, but its true purpose in life is to shift weight astern. And, boy, does it ever. On the official *C/D* scales, the FR500 mule scored a 50/50 weight bias vs. the stock Cobra's 55/45.

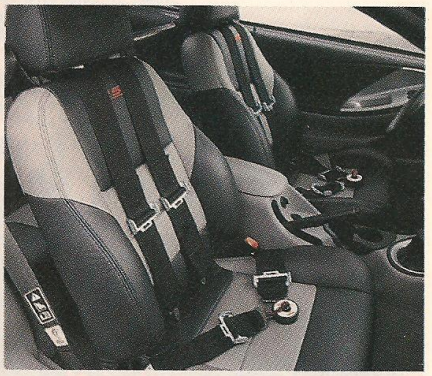
Of course, now that your Mustang's front wheels jut forward like cats' paws clawing at the velvet drapes, the vehicle requires a new pair of fenders. No sweat. Grab the catalog again and simply specify



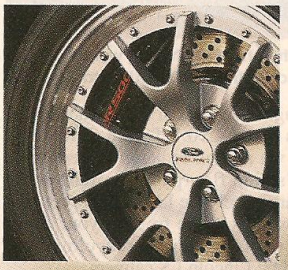
the cool carbon-fiber quarter-panels, complete with new wheel-well liners. And while you're in a carbon-fiber frame of mind, you'd better also order the new hood (which saves 23 pounds), plus the new front fascia (which, when tested in the Lockheed Martin wind tunnel, reduced drag from the stock 0.38 to a slightly more respectable 0.36), plus the new C-pillar covers, the new rocker sills, and the kit to eliminate the Mustang's traditional faux scoops just behind the doors. And, hey, if you want to show off your FR500's howling quartet of howitzer-size exhaust tips, you'd better grab the new rear fascia, too. Surprisingly, the new carbon-fiber decklid is adorned neither by wing nor ducktail. Ford's stylists deemed the latter a modern cliché as threadbare as the prefix "cyber," for which they're to be commended.

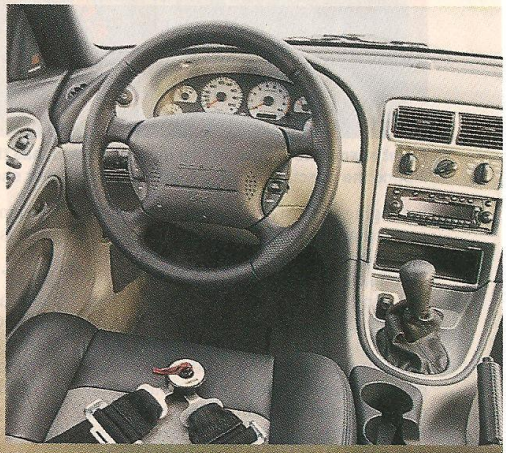
Mind you, a wheelbase extension alone does not a great-handling car make. If it did, folks would be racing Ford Excursions. To equip this Mustang with Corvette levels of grip, its front strut suspension is replaced with upper and lower A-arms. The upper A-arms are from the *rear* of a Lincoln LS sedan. And the FR500's trick lower A-arms, fabricated from steel at McLaren, resemble something you might find beneath a Taurus

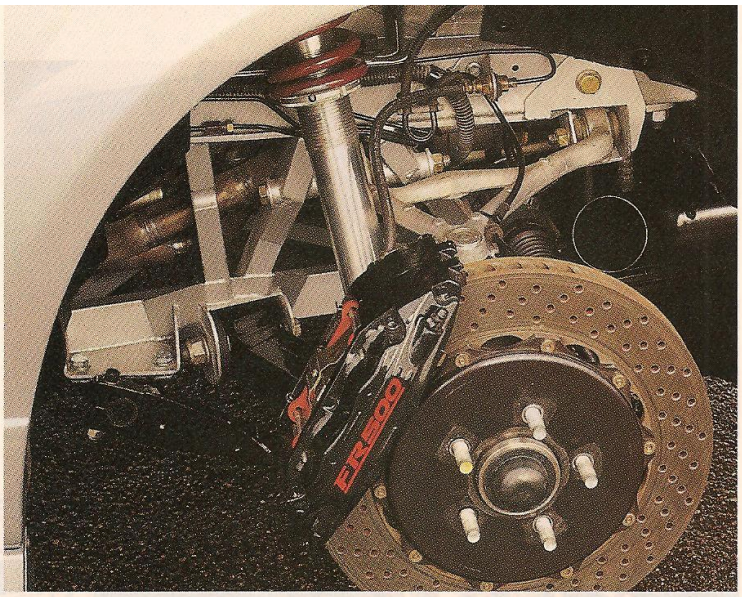




Two-piece wheels, sourced from BBS (below), can't obscure the 14-inch rotors. Gauges include 9000-rpm tach and 200-mph speedo.







Front suspension, pushed five inches forward, has the effect of shifting weight astern. Notice the spectacular new A-arms and coil-over shocks that replace the stock struts.

belonging to Rusty Wallace (who, not so accidentally, helped calibrate the spring-and-shock package during a 30-lap tire-shredding session at Road Atlanta). A dazzling set of coil-over shocks then replace the Cobra's front struts, bolting neatly to the stock shock towers. And the front brake rotors are 14.0-inch cross-drilled Brembos, with Brembo four-piston calipers that reliably cause NAPA employees to fall to their knees as if in pious rituals involving lost contact lenses.

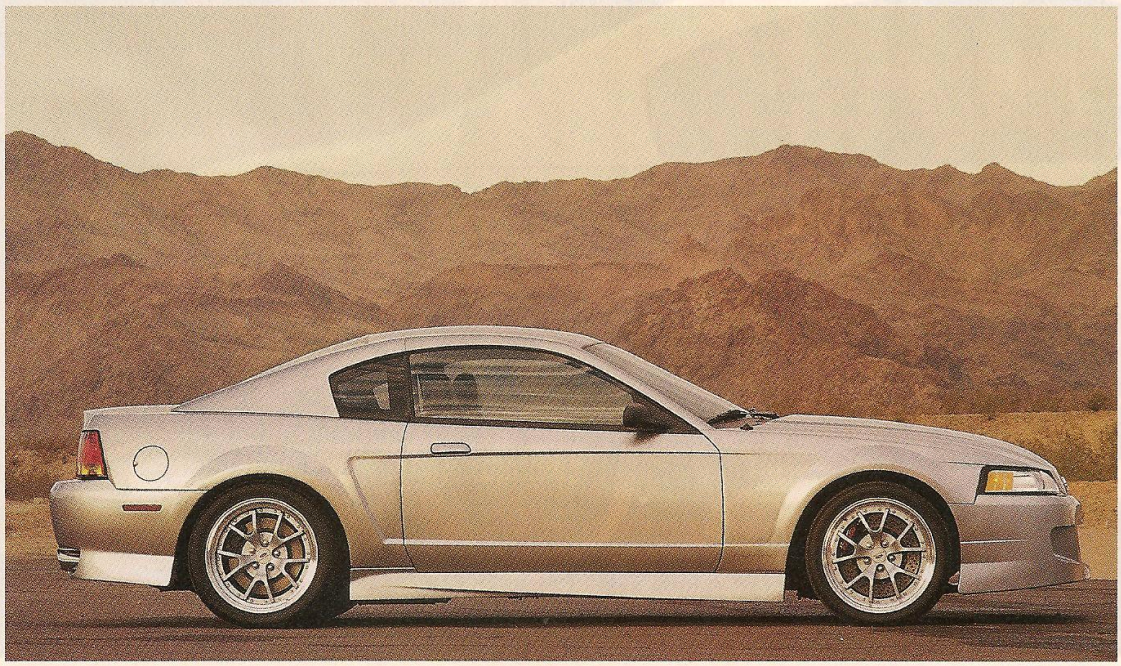
Fewer expensive new pieces inhabit the Mustang's tail: a set of stiffer shocks and springs and a 4.10:1 Torsen differential cooled via a small radiator affixed to the driver's-side floorpan. The rear brake rotors are merely the 13.0-inchers you just unscrewed from the front of your donor Cobra (at last, a little recycling) but gripped by Lincoln LS calipers.

And then—hold on, we're almost done here—ground clearance sinks an inch; 18-inch two-piece wheels are attached; and *presto pesto!* this baby is ready for Rusty. Or, in the poor mule's case, for us.

At the Grattan road course near Grand Rapids, Michigan, where most of the FR500's suspension calibrations evolved, the car proved a jewel at speed. It evinced accurate, willing turn-in and tended toward a neutral set, with just enough trailing-throttle oversteer that modest midturn corrections could be effected via the pilot's east loafer. The suspension is undeniably firm—indeed, the inside front wheel was quick to lift in Grattan's sharpest turns—yet there's sufficient compliance that the ride is never race-car jarring. In fact, on Michigan's hideous byways, the ride proved as tame as a stock Cobra's, and the steering was rarely affected by truck ruts or potholes.

Just as friendly is the all-alloy V-8, which revs like something Honda might have invented but is never peaky or thrashy. It's sufficiently torquey that 1500 rpm is dandy for step-off in third gear without an embarrassing chug. Throttle tip-in is as smooth and predictable as a stock Cobra's, and there's no driveline snatch—evidence that the hours spent laboring over air-and-fuel calibrations paid off big.

Begin poking beyond 4000 rpm, and revs accumulate so quickly that you'll regularly be startled by the 7200-rpm fuel cutoff. At virtually any speed, a stab at the throttle summons power in a fast, fluid rush, resembling nothing so much as a Lingenfelter 383 at full chat. In short, the thrust here is tractable, unstressed, and sophisticated—as user-friendly as a Dodge Viper V-10's but with a noisier snarl. At around-town speeds, there are few clues

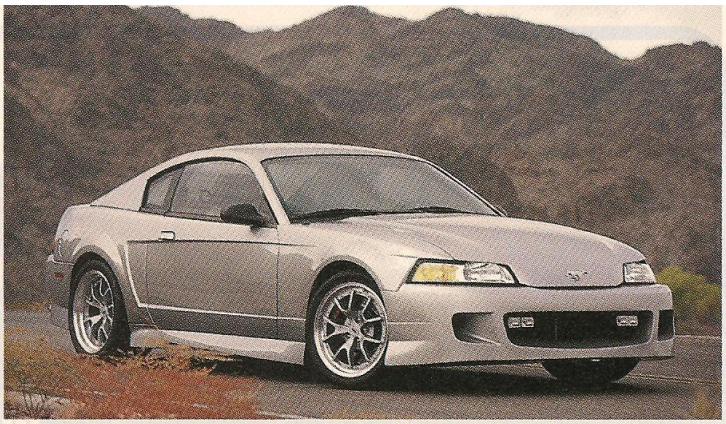


that this is anything but a nicely tuned Cobra—except for the blaring exhaust, the heavy clutch, and this: Flatten the FR500's accelerator at 5 mph—invoking no unseemly wheelspin whatsoever—and you'll be hurtling along at 60 mph *within 4.8 seconds.* Ask your neighbor to duplicate *that* in his $154,429 Ferrari 360 Modena F1.

We weren't on hand to witness it, but during development at Grattan, Ford reports that the FR500 was three seconds quicker per lap than a stock Cobra and repeatedly within 0.2 second of a Corvette's most earnest endeavors.

What we *can* confirm is the FR500's behavior at DaimlerChrysler's proving ground: To 60 mph, it is 1.0 second quicker than a stock Cobra and 0.3 second quicker than a Corvette hardtop. Through the quarter-mile, it beats the Corvette by 0.2 second and eventually hits 150 mph 1.5 seconds sooner. In fact, our only trackside complaint concerned the FR500's brakes, whose stock ABS circuitry had never been informed of the fatter tires and wheels. The result: a 185-foot stop from 70 mph, same as in a stock Cobra.

Ford's engineers are still noodling over what prices they'll attach to the FR500's pieces, but Davis estimates that the car depicted here might coincidentally match the $54,000 asking price of a Cobra R. That's a pile o' cash, but several Ford execs have nonetheless expressed interest in this Mustang's unique engine and wheelbase extension, two upgrades that could conceivably enliven a limited-production



model when the Mustang undergoes a major freshening in 2002. In the nearer term, it is likely that the best of the Mustang tuners—Saleen, Steeda, and Kenny Brown—will be the first to fiddle with the parts enumerated above, fashioning their own rocket-sled Mustangs and, in the process, we hope, abandoning their current predilection for supercharging.

Although the FR500 can outhandle and outaccelerate a Corvette, it costs about $14,000 more. And a Corvette, of course, is delivered with a warranty, better prospects for resale, and no assembly required. Justifying this $54,000 pony car may thus require not only sedatives but also a bank manager who's your brother.

What's more pertinent is this: Current Mustangs are, by even mid-'90s standards, fairly primitive conventions. That Ford Racing could so dramatically increase the car's athleticism without degrading its day-to-day tail-wagging streetability is one of those feats that lengthen life spans. In this case, the Mustang's. Would it surprise anyone if the FR500 became the next-generation Cobra?

"Course, most guys will probably just buy the engine parts, rather than the whole package," reminds Ford Racing's dealer channel sales manager, Tom Berkery. "But building even that would give you a sense of accomplishment, which Corvette buyers don't get. And if the guy leaves his Mustang looking stock, well, he could just annihilate street racers from here to . . ." Berkery's voice trails off, then he adds softly, "Not that we're promoting street racing or anything."

Which, of course, makes it slightly tricky to explain the FR500's 200-mph speedometer. ●

C/D TEST RESULTS

ACCELERATION	Seconds
Zero to 30 mph	1.9
40 mph	2.6
50 mph	3.5
60 mph	4.5
70 mph	5.9
80 mph	7.2
90 mph	8.8
100 mph	10.9
110 mph	13.1
120 mph	15.4
130 mph	19.2
140 mph	23.4
150 mph	28.9
Street start, 5–60 mph	4.8
Top-gear acceleration, 30–50 mph	8.3
50–70 mph	9.0
Standing 1/4-mile	13.0 sec @ 110 mph
Top speed (redline limited)	168 mph

BRAKING

70–0 mph @ impending lockup ..... 185 ft
Fade ..... **none** light moderate heavy

HANDLING

Roadholding, 300-ft-dia skidpad ..... 0.94 g
Understeer ..... **minimal** moderate excessive

PROJECTED FUEL ECONOMY

EPA city driving ..... 16 mpg
EPA highway driving ..... 23 mpg

INTERIOR SOUND LEVEL

Idle ..... 64 dBA
Full-throttle acceleration ..... 87 dBA
70-mph cruising ..... 80 dBA
70-mph coasting ..... 75 dBA

FORD MUSTANG FR500

Vehicle type: front-engine, rear-wheel-drive, 2+2-passenger, 2-door coupe

Estimated base price: $54,000

Major standard accessories: power steering, windows, seats, and locks; A/C; cruise control; tilting steering wheel; rear defroster

Sound system: JBL AM/FM-stereo radio/CD player, 7 speakers

ENGINE

Type ..... V-8, aluminum block and heads
Bore x stroke ..... 3.70 x 3.54 in, 94.0 x 90.0mm
Displacement ..... 305 cu in, 4997cc
Compression ratio 9.9:1
Engine-control system ..... Ford EEC-V with port fuel injection
Emissions controls ..... 3-way catalytic converter, feedback air-fuel-ratio control, EGR
Valve gear ..... chain-driven double overhead cams, 4 valves per cylinder, hydraulic lifters
Power (SAE net) ..... 415 bhp @ 6800 rpm
Torque (SAE net) ..... 365 lb-ft @ 4200 rpm
Redline ..... 7000 rpm

DRIVETRAIN

Transmission ..... 6-speed manual
Final-drive ratio ..... 4.10:1, limited slip

DIMENSIONS AND CAPACITIES

Wheelbase ..... 106.3 in
Track, F/R ..... 61.0/60.8 in
Length ..... 183.5 in
Width ..... 73.1 in
Height ..... 52.2 in
Frontal area ..... 22.9 sq ft
Ground clearance ..... 3.4 in
Curb weight ..... 3587 lb
Weight distribution, F/R 50.1/49.9%
Fuel capacity ..... 15.7 gal
Oil capacity ..... 8.0 qt
Water capacity ..... 15.3 qt

CHASSIS/BODY

Type ..... unit construction
Body material ..... welded steel stampings and carbon fiber

INTERIOR

SAE volume, front seat ..... 50 cu ft
rear seat ..... 32 cu ft
luggage space ..... 11 cu ft
Front seats ..... bucket
Restraint systems, front ..... manual 3-point belts, driver and passenger airbags
rear ..... manual 3-point belts

SUSPENSION

F: ..... ind, unequal-length control arms, coil springs, anti-roll bar
R: ..... ind, unequal-length control arms with a toe-control link, coil springs, anti-roll bar

STEERING

Type ..... rack-and-pinion, power-assisted
Turns lock-to-lock 2.4
Turning circle curb-to-curb ..... 38.3 ft

BRAKES

F: ..... 14.0 x 1.3-in vented and cross-drilled disc
R: ..... 13.0 x 1.1-in vented disc
Power assist ..... vacuum with anti-lock control

WHEELS AND TIRES

Wheel size ..... F: 9.0 x 18 in, R: 10.0 x 18 in
Wheel type ..... cast aluminum
Tires ..... BFGoodrich g-Force T/A KD; F: 265/35ZR-18 93Y, R: 295/35ZR-18 99Y