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Designing the New Ford Mustang

America's classic ponycar is fully reborn--for the first time in 25 years

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When the '05 [Mustang](#) arrives, it will replace a car that has galloped on much the same legs since 1979. A chassis that old is mind-blowing given today's fast-evolving auto technologies and buyers' volatile tastes.

From an automotive-product standpoint, a lot has happened since then: the birth of the minivan and the mass popularization of the sport/utility. There have been two new generations of Corvettes since the late '70s ([Viper](#) was still just the name of a snake). The [Chevrolet Camaro](#) and Pontiac Firebird have been redone twice since '79 and have since passed on. In the meantime, the current-generation Mustang has maintained a legion of fans, scored countless race wins and championships, and continued to ring the cash register for the Blue Oval.

For '05, everything old will be new again. [Ford](#) Automotive Operations Vice President of Design J Mays and his team have cooked up a strong, heritage-flavored design for this important nameplate, sporting a stance that's bold, visually well-proportioned, and containing a tangy blend of late-'60s ponycar cues. "We've obviously chosen to embrace our heritage," Mays says. "This is as close to a modern interpretation of this icon as we could provide. At the same time, it's an aggressively modern vehicle."

We spoke to Mustang design and engineering teams in Michigan and California about the production version of the all-new ponycar (due out in less than two years). At this early stage, Ford is holding close some of the fine details and purposefully keeping others fuzzy. There are really two stories here: a crystal-ball overview of the new production models, plus a close look at the two Mustang concept cars intended to keep us interested in the meantime.

These pages contain photos and particulars of the 400-horsepower Mustang convertible concept executed by Richard Hutting and his team of designers and craftsmen at Ford Design California. A silver-gray GT coupe and this seriously red ragtop were unveiled at the North American International Auto Show in Detroit in January. If you like what you see in these stylized, detailed show toys, you'll be happy with the similar-looking base V-6, V-8 GT, SVT, and what will follow when the new Mustang goes on sale in late 2004.

Back to the Future

Mays and the design staff immersed themselves in [Mustang](#) history before creating this new chapter in the evolution of America's premier ponycar. "We're not trying to clone the early cars," Hutting, the California studio boss, explains. "We're designing a thoroughly modern performance-inspired vehicle that's true to its lineage. We don't want to rubber stamp it." No problem, as the requisite Mustang stuff is there: an appropriately powerful nose, a long dash-to-front axle ratio, a short rear deck, and forward beltline rake to make the car look fast even at rest.

Important to any Mustang's visual signature is what [Ford](#) guys call the "hockey stick," the strong, laser-straight line at the top of the body side that bends abruptly down into the rear-quarter panel and incorporates a side scoop on hot models. While Hutting and company did the work on the Detroit Auto Show concept cars in California, Dearborn-based Larry Erickson is the design manager for the upcoming production version.

The concept convertible is about an inch and a half shorter, an inch and a half wider, and about two inches lower in height than the current Mustang Cobra. Rolling stock is another area where designers take liberties with show machines: These cars wear handmade 20-inch light-alloy wheels with 245/40ZR20s in front and 275/35ZR20s in the rear. Expect 17-inches to be standard on most production models, while GTs and SVTs are likely to be offered with a high-performance, 18-inch wheel/tire package.

No matter what Ford does, the new Mustang will be argued over and debated. Some of us feel these concepts oversimplify the original's lines, while others feel the look and, most important, the proportions are spot on. Mays describes himself as a "design editor," and the Mustang is the most significant editing job he's had in his five years at Ford. Nobody said reinventing an icon is easy.

DEW-ing It Right

It's illuminating to recall that the first [Mustang](#) concept in 1962 was initially shown as an exotic tube-frame, mid-engine two-seater. But the sassy '64 Mustang production model debuted on leaf springs and a bolt upright-simple '60 [Ford](#) Falcon platform. From '74 through '78, the wimpy, emissions-choked Mustang II resided on the Pinto's stubby econo-compact unibody. The current car is based on the Fairmont sedan's Fox platform launched in the '79 model year. Several spectacular Mustangs have relied on rather prosaic higher-volume models for their mechanicals.

Hau Thai-Tang is the 36-year-old chief engineer for the Mustang program and is responsible for the dynamic direction of the new car. One of his early assignments was as race engineer for the company's CART program. In 1997, this intensely serious engineer became vehicle-dynamics supervisor and vehicle-engineering manager for the [2000 Lincoln LS](#) (DEW 98) program. Working with Richard Parry-Jones, the dynamics-obsessed Ford vice president of Global Product Development, Thai-Tang defined the precise-driving character of the LS.

The new Mustang's architecture is a clever variant on the same rigid, high-tech platform used under the [Lincoln](#), Jaguar S-Type, and Ford Thunderbird. The Mustang's engineering chief says his goals with the new body are to share parts with those other models, increase the Mustang's torsional and bending strength, decrease its forward weight bias, increase steering precision, smooth the ride, and reduce shake and vibration. The car's dimensions (with the exception of a longer wheelbase) and weight will stay about the same, despite the additional structural reinforcement and added safety equipment.

Fun To Run

The [Mustang](#) Team declined to answer questions regarding production powertrains. But our sources say there are two possible choices for the V-6. If it can be certified to comply with new passenger-car emissions standards, the 4.0-liter/210-horse SOHC truck V-6 currently used in the [Explorer](#) may go into first-year Mustangs. A year later, the choice may be a longitudinal version of [Ford's](#) upcoming all-aluminum 3.5-liter/250-horsepower DOHC V-6 pegged for the 500 sedan and Freestyle sportwagon. The latter is a pricey piece for a base engine, but it's the right call for a fun and lively Mustang. A five-speed manual and a five-speed automatic likely will be offered.

The top engine choice for the '05 GT model will be an OHC V-8, although it's not yet clear if it's a SOHC or DOHC version. There's been considerable technical chatter about the lower-cost and fuel-economy advantages of two versus four valves per cylinder, particularly if variable-valve timing is applied. Many of the high-revving, free-breathing power benefits of DOHC can be had by SOHC V-8s with two or three valves per cylinder.

Adding to the V-8 intrigue are rumors of 5.0-liter versions of the 4.6-liter Modular V-8. The recent debut of a 5.0-liter DOHC customer "crate motor" at the SEMA show only adds grist to the mill. One source says this engine might make an early appearance in a final '04 current-chassis "Boss 302" Mustang. Whatever the V-8's engineering fine points, it'll almost certainly be teamed with a five- or six-speed manual and a five-speed automatic--and we're expecting at least 300 horses.



What we do know is that 400 horsepower is available from the experimental supercharged V-8 found in the concepts. This 4.6-liter DOHC V-8 features a cast-iron block and aluminum heads and is force fed by a belt-driven supercharger with a liquid-to-air intercooler. The roadster concept features a Select Shift five-speed automatic transmission, while the race-inspired fastback concept is equipped with a six-speed manual gearbox.

Of Horses and Ponies

From the earliest pictures of these [Mustang](#) concepts, it appears the new car is inspired more by Larry Shinoda's Boss Mustang designs from the late '60s and early '70s than the original mid-'60s Mustangs, forever locked in our memory by Steve McQueen's GT in the 1968 film "Bullitt" and by Carroll Shelby's GT-350s. The current Mustang seems to have become almost as wide as it is long and carries a large inventory of extraneous trim. The '05 design abandons the "some of everything" look of the '02 model in favor of a far smoother, tastier, and less-cluttered concept.

Discussions around the *Motor Trend* offices have been divided. A few editors expressed an uncomfortable feeling that what we've seen so far may be too minimalist and rectilinear. Others have been enamored with the concepts' square-shouldered, well-proportioned look. Nonetheless, the front end is pure Mustang, but the hooplike rollbar and the slab sides are reminiscent of the latest [Viper](#). We worried the car might be too simple, too straight edged, and that it needed some hips. But then a subsequent conversation with J Mays reassured us. The shape is still under development, and we can expect the '05 Mustang, as presently drawn, to become a bit more voluptuous.

The interior, as shown in early drawings, is merely sensational and in no way retro. The seats alone would be enough to turn thousands of enthusiasts into Mustang intenders. Only time and personal experience can answer questions about visibility and comfort and control relationships, but the early glimpses of the interior are quite promising.

The engine compartments of the concepts, being absolutely state of the art, hide almost everything under anonymous plastic covers. But one thing stands out, and it may be the best piece of design on the whole car: The supercharger lies in wait between the banks of the modular V-8 engine for all to see. It tells us what we're looking at here will be a truly worthwhile driving experience. --*David E. Davis, Jr.*

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