2005 Mustang

MUSTANG PROFILES

MUSTANG SIDEBAR STORIES

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Barb Samardzich
Executive Director, Small Front- and Rear-Wheel Drive Vehicles

Barb Samardzich's past life as a thermal design engineer at Westinghouse Electric's Nuclear Fuel Division has helped her turn up the heat on the all-new Ford Mustang.

Samardzich is executive director for the design, engineering and development of all small front- and rear-wheel-drive vehicles for the Ford and Lincoln-Mercury brands.

She is responsible for delivering the new Mustang to market and meeting objectives the company and its customers have set for the car.

"I think the launch of this Mustang is going to be the most exciting launch of the year for any automaker," she added. "It is a head turner, with everything – and more – you would expect in a Mustang."

Since joining Ford in 1990, she has held positions in Powertrain Engineering, as chief engineer in Super Duty Commercial Trucks, quality director for Ford products in Europe and chief engineer for Ford Automatic Transmission Operations.

Samardzich holds a bachelor's degree in mechanical engineering from the University of Florida, a master's degree in mechanical engineering from Carnegie-Mellon University and a master's degree in engineering management from Wayne State University.

Bob Johnston
Vehicle Engineering Manager

Bob Johnston is a fair man – and he has to be.

As vehicle engineering manager for the 2005 Ford Mustang, Johnston is a technical advisor to Chief Nameplate Engineer Hau Thai-Tang. He plays a key role in trade-off decisions and is responsible for making sure the vehicle meets its objectives in all areas.

"I feel like I'm a court of appeals," said Johnston. "When some members of the team want to increase the suspension rates for vehicle dynamics and others want to reduce the rates for noise, vibration and harshness, I help decide where the balance needs to be.

"There are great expectations of what this car should be, great understanding of what this car has been and a fiercely passionate group of loyalists that you can't afford to disappoint."

Johnston spends his weekends working on his own 1979 Mustang Indy Pace car with his 17-year-old son. "Working on my Mustang from the inside out gives me a great understanding of this car, and what it needs to be," he said.

Johnston has been with Ford Motor Company 25 years and has worked in many areas, including vehicle engineering for Ford Thunderbird, Truck Operations, the International Engineering Group and Casting. He holds a bachelor's degree in mechanical engineering from Michigan Technological University.

Bob Wille
Package Engineer

Bob Wille had dreams of working on Ford Mustangs for a long time and nothing – or no one – was going to stand in his way.

"There is nothing like blasting through a moonlit night in a Mustang with the top down, the stars as your companions and the wind calling your name," said Wille. "It instantly transforms you to a better place."

While working for the cross-town competitor (where he boldly parked his Mustang every day), Wille campaigned for a job at Ford. After 11 years designing jet fighters in the aerospace industry and two more working at GM, Wille would finally become a proud member of Team Mustang in 2001.

Wille has made many significant contributions to the development of the new Mustang – primarily in the interior – using analysis and decision-making techniques from the aircraft industry.

He has taken on the role of strong advocate for Mustang owners and is a key organizer in consumer events. He has been active in many Mustang clubs, including the Motor City Terminator Cobra Club, St. Louis Stallions, Special Vehicle Team Owners Association and the Mustang Club of America, participating in Mustang events across the country.

Chris Dorros
Suspension Engineer

A lot of Ford Mustang fans would say Chris Dorros' job as Mustang suspension engineer is one of the most important at Ford. The suspension of a Mustang is important to everyone who drives one, but it is critical to owners who customize, modify or race their cars.

"Our biggest challenge and biggest success was making this suspension tough, yet easy to modify for the enthusiast, and yet not heavy or expensive for people who just want to enjoy the ride," said Dorros. "One of Mustang's greatest strengths is how it appeals to everyone.

You can't change that."

"I think our team could get the new Mustang's suspension where it is today because we never forgot that our part was just a piece of the whole car," said Dorros. "You have to keep the entire system in mind to make it work."

Dorros started in the Ford College Graduate Program and rotated through a variety of areas in the company, including Marketing and Sales, Package Engineering and Vehicle Dynamics.

Dorros holds bachelor's degrees in mechanical and electrical engineering and a master's in engineering management from Dartmouth College.

Dean Nowicki
Electrical Team Leader

As a father of two young kids, Dean Nowicki may be a man who values practicality. But his work on the 2005 Ford Mustang is opening a world of new possibilities in electronics that is as exotic as it is affordable and adaptable.

In his role as Mustang electrical team leader, Nowicki sought to leverage the growing trend of vehicle personalization with an industry first – color-configurable instrument cluster technology.

Nowicki leads a team of nearly 30 Ford engineers that helped develop the new Mustang.

In addition to the new cluster technology, the active anti-theft and next-generation audiophile audio systems are among the advanced electronics features designed specifically for the Mustang customers' needs and wants.

"My team is my biggest accomplishment," he said. "We went to great lengths to ensure we represented a variety of areas, including vehicle personalization, suppliers, manufacturing and dealerships, and could provide valuable insight on what customers want.

Nowicki joined Ford Motor Company right out of college in 1995. He holds bachelor's and master's degrees in electrical engineering from Michigan State University and an MBA from the University of Michigan.

Hau Thai-Tang
Chief Nameplate Engineer

As the chief nameplate engineer for the all-new Mustang, Hau Thai-Tang is the envy of his friends. "They can't believe I get paid for this," he joked.

Thai-Tang is no stranger to Mustangs. Having previously served as the vehicle engineering manager for the Mustang line, Thai-Tang led the development and launch of the 2001 Mustang GT, V-6, Cobra and Bullitt GT models.

Thai-Tang was vehicle dynamics supervisor and vehicle engineering manager for the 2000 Lincoln LS, which was awarded the Motor Trend Car of the Year honor and was named the Best Driving Domestic Sedan by Road & Track magazine.

Thai-Tang's Ford experience also includes an assignment in Germany, as well as working with Ford Racing.

Thai-Tang took key lessons from the racing world – data-driven decision making, meticulous preparation and adherence to tight deadlines. "The Indy 500 starts Sunday at 11 o'clock. If you're not there, they start without you."

Born in Vietnam, Thai-Tang grew up in New York City. He joined Ford as a Ford College Graduate trainee in 1988. He holds a Bachelor of Science degree in mechanical engineering from Carnegie-Mellon University and a master's from the University of Michigan. In 2001, he received the Automotive Hall of Fame's prestigious Young Leadership and Excellence Award.

Keith Knudsen
Vehicle Package Engineering Supervisor

As package engineering supervisor for the new Ford Mustang, Keith Knudsen is responsible for overall mechanical design integration of the car.

"Our role is to guide the efforts of the various activities to ensure that the parts not only go together, but are designed to achieve optimum performance and efficiency.

"The '05 Mustang is a leap forward in each of the three attributes that I personally consider key to the Mustang's historic success – it's great looking, lots of fun to drive and very easy to live with, he said."

Knudsen's wife recently surprised him by recovering his beloved first new car – a 1988 Mustang 5.0L LX with T-top that he sold to pay for graduate school. It's now undergoing a thorough restoration in the Knudsen garage. It's alongside his 1994 Mustang GT that he also plans to keep for many years to come.

Knudsen holds a bachelor's degree in industrial and systems engineering from Virginia Tech, and an M.B.A. from the Darden School at the University of Virginia. He joined Ford in 1992 and served in a variety of positions, including financial analysis, business strategy and product planning and design engineering for both Body and Chassis.

Kevin George
Interior Design Manager

Who better to design the inside of a Mustang than someone schooled in fun and games? Kevin George had no idea how much of his 11 years of experience at Hasbro would apply to his job as Mustang's interior design manager.

George started at Hasbro as a product designer. During his work on action figures, Hasbro realized he was a natural to design the figures' vehicles. Soon, George branched out to designing radio-controlled cars, then die-cast models. Eventually, he decided to pursue his dream of working on the real thing and sent his portfolio to Ford.

"I thought the best trait from my old job that I could use at Ford was my passion for cars," said George. "Fortunately, Ford's chief designers saw how my Hasbro background would allow me to be creative."

"Along with me, my whole team was new to Ford," he said. "It was very exciting, yet intimidating. There is a lot of great heritage with this car that you have to respect. Our challenges were to bring that DNA into the modern era and to live up to that fantastic new exterior. I think we nailed it."

George has spent two years in Ford Design. In addition to Mustang, he is manager or interior design for Ford Thunderbird and Focus. He holds a Bachelor's of Science degree in design from the University of Cincinnati.

Larry Erickson
Chief Designer

Weekend trips from Detroit to California were once the norm for Mustang Chief Designer Larry Erickson, who earned thousands of frequent flier points to work on custom cars and hot rods.

One of Erickson's custom car projects, ZZ Top's "Cadzzilla," caught the eye of J Mays, group vice president of Design at Ford.

Erickson joined Ford and in 1999, was appointed chief designer in Ford's Small and Medium Car Vehicle Centre in Dunton, England. He worked on a variety of Focus-based programs and then returned to the United States in 2001, taking the lead on the new Mustang.

"Our goal was to create a fresh, modern-looking car – while not confusing anyone about the fact that it is a Mustang through and through," he said.

Erickson began his career with General Motors after graduating in 1983 from the Art Center College of Design in Pasadena, Calif. He then went on to work for Bartlett and Associates Design before returning to Art Center College as an instructor. He spent some time as a motorcycle and accessory designer and returned to GM in 1985.

He is a recent inductee to the National Hot Rod & Custom Car Museum's Hall of Fame.

Mark Lewis
Controller, Lifestyle Vehicle Group

Mustangs are for everyone – even bean counters.

Mark Lewis, controller for the Mustang program, is as enthusiastic as any engineer on the team. As a child of the 1960s, Lewis

admired the Mustang and all it represents. Working with Team Mustang, Lewis has grown to appreciate the legendary car's pragmatic beauty as much as its emotional appeal.

"Mustang is the only car that is sporty, fun and at a price point available to everyone," said Lewis. "It is the perfect business equation."

Lewis manages all finance activities for the Lifestyle Vehicle Group of Ford Mustang, Thunderbird and Freestar, Lincoln LS and SVT products, including financial analysis and evaluation, budgeting and reporting.

"I knew we had a home run with the new Mustang when I was asked to give an early preview of the car to a group of Wall Street analysts," said Lewis. "They were very impressed with the balance of our future and our heritage."

Lewis owns a 2003 Mach I Mustang that he drives to work every day, and a 1968 Sunlit Gold Mustang GT convertible that he saves for special occasions.

Paul Russell
Marketing Manager

Planning the debut of the new Ford Mustang is one of the more fun jobs at Ford, but Paul Russell takes his role very seriously.

With the car's premiere drawing high expectations from Mustang fans the world over, Russell's job is serious work indeed.

As marketing manager for Mustang, Russell is the voice of customers and dealers at every turn. He leads Mustang's marketing communication strategy and is responsible for deciding how to launch the car to the market.

Russell has worked in a variety of Ford marketing areas, including the Chicago Regional Sales and Service Office, Global Marketing and Auto Shows. He forged a strong connection to Mustang during his time in Brand Enhancement and Alliance Management, where he worked on the industry-first Ford SEMA Technology Initiative.

"Working with aftermarket and key performance suppliers really reinforced with me how passionate people are about their Mustangs and how they like to make them an extension of their own personalities," Russell said. "Seeing someone in a Mustang can tell you a lot about them – and that is exactly why our customers drive them."

Russell joined Ford Motor Company in 1988. He holds business and marketing degrees from Miami University in Ohio.

Phil Martens
Group Vice President, Product Creation, North America

Phil Martens' interest in automobiles began when he was a kid building model cars. He can easily recall the details of one particular model, a Lincoln Town Car, and with good reason. Thirty years after building the model, he became the chief engineer for the real thing.

Today, Phil Martens oversees the design, engineering and development of all Ford and Lincoln-Mercury cars and light trucks sold in North America. As group vice president, he also manages the product creation process in North America – including Advanced and Manufacturing Engineering and Product and Business Strategy – in line with the company's increased emphasis on platform commonality, system engineering, reusability and speed.

The new Ford Mustang was the first major car program on which Martens took the lead as vice president. "I was thrilled to be part of Mustang because it is such an American icon," he said.

Martens has a more personal stake in the Mustang story, too. In addition to owning a 1987 Mustang GT, Martens' first lease car

as a manager at Ford was a 1994 black-on-black Mustang convertible.

Martens holds a bachelor's degree in mechanical engineering from Virginia Tech. Since joining Ford in 1986, he has served in Small Car Vehicle Development, at the Large and Luxury Car Vehicle Center, at Europe's Small and Medium Car Centre and as managing director of Mazda Product Planning, Design and Development.

Terrance Wagner
Department Manager, Modular V-8 and V-10 Engine Programs

Terry Wagner knows a good engine when he sees one – or when he hears it. After 20 years working on just about every aspect of powertrains at Ford, Wagner knows his team's latest work will command new respect for an American icon.

"We all are very proud of the new Mustang V-8," said Wagner. "I think enthusiasts are going to be thrilled at how it takes the MOD V-8 to a new level, and brings 300 horsepower to the masses."

Wagner is responsible for engine design, which includes function, cost, quality and program timing for all of Ford's modular V-8 and V-10 engines. He has worked on the new Mustang for the past two years and leads a team of 65 engineers.

With experience in combustion research and development, engine simulation and engine design, Wagner's holistic perspective has been instrumental in helping create one of Ford's most pivotal and eagerly anticipated powertrains.

"The new three-valve engine is just plain clever," Wagner said. "It enables optimization of horsepower, torque, fuel economy and sound quality – and guarantees the engine always hits the sweet spot."

Wagner holds a bachelor's degree in physics from the University of Dayton, a master's degree in mechanical engineering from Purdue University and a doctorate in mechanical engineering from the University of Michigan.

Jim O'Connor
Group Vice President, North America Marketing, Sales and Service

A native New Yorker and a proud Irishman, Jim O'Connor has twice led the city's famed St. Patrick's Day parade. After all, with a reputation for unyielding energy, an approachable personality and an uncanny ability to motivate others to excellence, he knows a thing or two about leadership.

Citing loyalty, continuity and consistency as merits he values highly, O'Connor has created 'a leadership approach' that is respected by his colleagues and by the many associates in Ford's dealer community who know him on a first-name basis.

Since 2002, O'Connor's role has been to oversee Ford, Lincoln-Mercury and Ford Customer Service divisions, Ford racing and marketing operations as Ford Motor Company group vice president for North America Marketing, Sales and Service. It's a role that emphasizes his leadership strengths and his affinity with Ford dealers created in part by a three-year stint as general manager of a large Ford dealership during his four-decade Ford career.

Since joining Ford in 1964, O'Connor's career began with a series of Sales and Marketing positions with Ford, Lincoln-Mercury and Ford Parts and Service divisions, followed by senior management positions in the United States and Canada. Prior to his current assignment, O'Connor was Ford Motor Company vice president and president of Ford Division.

Ben Poore
Car Group Marketing Manager, Ford Division

When the time came for Ben Poore to buy his first new car, his purchase decision was a simple one: a Ford Mustang. A few years later, he would choose Ford Motor Company for his career after serving in Operation Desert Storm as an officer in the U.S. Army.

"It was my dream car," said Poore. The 1988 Mustang LX 5.0-liter coupe, black with a red interior and manual transmission, embodied Poore's automotive aspirations. Today his career is about fulfilling the aspirations of Ford customers across North America.

Poore is car group marketing manager for Ford Division. He oversees the brand teams responsible for marketing Ford car lines, including the Ford Five Hundred and Ford Freestyle, bringing a diverse, international background to the important Year of the Car product introductions for the Blue Oval.

Poore, who holds a business administration degree from University of Delaware and an MBA from Duke University, started his Ford career in 1994, in the Lincoln-Mercury Division, as a marketing analyst. After this assignment, multi-lingual Poore became a Marketing Development specialist for Latin America, the first of several international assignments. His most recent post was as district manager, Caribbean and Central America, for Ford's Worldwide Direct Market Operations with responsibility for the sales and marketing of Ford Motor Company products within 23 markets.

Roman Krygier
Group Vice President, Global Manufacturing and Quality

Roman Krygier knows the importance of teamwork – on the ice and within Ford.

Throughout his career with Ford, Krygier has coached youth teams in ice hockey. His experience gives him deep insight into the dynamics of teams.

"In sports and in business, it takes all kinds to make a successful team, both the hard worker and the superstar," said Krygier. "After a goal, I always give my congratulations first to the player who assisted that goal. In hockey, every win is a team win. It's that way in business, too."

In business, Krygier coaches a far bigger team focusing on Ford Motor Company's global manufacturing capabilities and quality commitment. Coming from a large, close-knit family in Indiana established values he embodies today.

Purdue graduate Krygier, began his career at Ford in 1964 as a trainee foreman at the Chicago Stamping Plant. He held numerous management positions in manufacturing, was named executive director of Advanced Manufacturing Engineering and Process Leadership in 1994 and appointed vice president, Powertrain Operations in 1999.

J Mays
Group Vice President, Design

As Ford's most emblematic Living Legend – the all-new Ford Mustang – becomes a reality, the man ultimately responsible for its creation has become something of a Living Legend himself.

J Mays, Ford group vice president, Design, has amassed a growing body of work among the world's leading automotive designers. The recipient of numerous professional awards, Mays' recognition culminated in the recent exhibition, "Retrofuturism: The Car Design of J Mays" at the Geffen Museum of Contemporary Art in Los Angeles.

Mays, an Oklahoma native who graduated from the Art Center College of Design in Pasadena, Calif., is captivated by the possibilities of modern interpretation of the Blue Oval's classic designs. Cars like the new Mustang are important ways for Ford to keep its most evocative nameplates contemporary and build on their connection with customers, Mays said.

Mays joined Ford in 1997 and was named group vice president, Design in 2003. He is responsible for shaping the design direction of Ford Motor Company's portfolio of brands. Previously, his design career was spent with Audi in Ingolstadt, Germany, and Volkswagen of America in Simi Valley, Calif.

Mark Rushbrook
Vehicle Development Manager

It is not easy to improve the legendary Mustang driving experience, but Mark Rushbrook was not intimidated when he took the job. A motor sports enthusiast and weekend amateur racer, Mark had a thorough understanding of what has made the Mustang drive so popular for so long.

"I think it comes down to freedom," said Rushbrook. "My job is to balance all the attributes – like ride, handling, steering – and make sure our customers feel free when then are behind the wheel of a new Mustang."

Rushbrook's responsibilities go beyond ride, handling, steering and braking to making sure all the attributes of the car are balanced and integrated in a way that delivers what Mustang customers expect.

"The new car is clearly the best steering and handling Mustang GT ever built," added Rushbrook. "I can tell you that with confidence."

Rushbrook holds a bachelor's in mechanical engineering from Penn State University, a master's in mechanical engineering and an MBA, both from the University of Michigan. He joined Ford Motor Company more than four years ago and began his work on the Aviator program as part of the Product Development Leadership Program.

Gary Boes
Mustang Program Manager

Having served as Body Engineering Manager for the Jaguar X-TYPE, one of the most significant models in Jaguar's history, and as Chief Engineer for the Ford Thunderbird, the classic '50s roadster that captured Motor Trend magazine's Car of the Year award, it seemed only natural for Gary Boes to start working on his next worldwide legend: the new Mustang.

Boes is responsible for integrating the business and engineering pieces of the new Mustang and making them all work together to deliver exactly what the customer wants.

"The 2005 Mustang is an incredible example of how you can combine great engineering with a great business equation," said Boes. "The teams really seemed to work together naturally because everyone has a very good understanding of what this car had to be and what they had to deliver.

"I haven't owned a Mustang since I restored a '65 a couple years ago," added Boes. "But I'm going to be first in line for this new one."

In addition to working on the Jaguar X-Type and the Ford Thunderbird, Boes has held positions in various Ford truck organizations and served as a manager in Noise, Vibration and Harshness. He holds a bachelor's degree in mechanical engineer and an MBA from the University of Michigan.

MUSTANG SIDEBAR STORIES

Movie Star Mustang

In its 40-year tenure as America's favorite muscle car, Mustang appeared more than 300 times on the silver screen, from "Goldfinger" to "Gone in 60 Seconds." But if the car could win only one Academy Award, it would undoubtedly be for its starring role in the 1968 police drama "Bullitt."

In "Bullitt," Steve McQueen races through the streets of San Francisco in a 1968 Mustang GT 390, creating one of the greatest chase scenes ever. McQueen's Fastback Mustang created an indelible image in the minds of millions of people that helped define

"cool" for the late ’60s and early ’70s. In 2001, Ford introduced a special-edition Mustang Bullitt GT inspired by the classic Warner Bros. film.

"When Steve McQueen raced the Mustang in the chase scene, he probably had no idea that it was the making of a legend," said Jan Valentic, vice president, Global Marketing. "The Ford Mustang has appeared in more movies than most of Hollywood’s brightest stars."

Chip and Dale Partner in Mustang Development

Engineers gave this early 2005 Ford Mustang prototype – one of two used to verify the design of the new chassis – the endearing code name "Chip." While it appears to be a normal 1999-2004 Mustang, notice it has extended front fenders to accommodate the longer wheelbase and wider track.

Ford engineers use "mules" like to this to verify product attributes before they lock in final design specifications. Because they often have yet to finalize the exterior design at the point these prototypes are made, they often carry the sheet metal of the outgoing model, which also gives the cars a lower "profile" on the street.

Chip’s twin? Dale, of course.

Springy Seats

Getting into the back of the Ford Mustang usually means one sad thing – you’re not the one driving.

But if you have to ride and not drive, the back seat is a whole lot more comfortable in the new Mustang. The 2005 Mustang has standard spring-loaded seatbacks, making getting into and out of the rear seat a bit easier.

A small lever on the top of the seat – at the perfect height for someone standing next to the car – can be pulled up to release the front seatback.

This means the person folding the seat forward doesn’t have to bend down to release the seatback. Once seated, the same lever repositions the seat so front passengers don’t have to hunch over to get in. It’s another small detail that makes the new Mustang the best one yet.

Not All Solid Axles Are Created Equal

Engineers designing the new Ford Mustang knew Mustang buyers fall into three categories: those who want a solid axle, those who want an independent rear suspension and those who just want it to work well.

The decision to use a world-class solid axle suspension made the most sense for the new Mustang. The strong, light and functional axle works even better than some independent setups in corners and gives Mustang a better dragstrip launch than virtually any production car.

Not all solid axles are created equal. The three-link setup engineers chose uses a Panhard rod to add lateral stiffness and prevent rear wheel toe changes under hard cornering loads – a typical solid-axle drawback. Furthermore, a torque-control link mounted above the differential prevents unwanted axle hop to ensure skip-free launches during smoky burnouts.

125 Ways to Show "Fast"

Mustang’s speedometer has always said "fast."

Now, you get to pick the color, from red to blue to green or anything in between. The 2005 Ford Mustang has an available

industry-first, color-configurable instrument cluster that can be backlit in any of 125 colors at the touch of a button.

The color-configurable gauges and read-outs behind the steering wheel address a growing trend of vehicle personalization. Mustang's customizable instruments are part of a well-crafted and bold interior design that uses modern, quality materials to evoke memories of the legendary early model cars.

The color-configurable Mustang instrument cluster is lit by three light-emitting diodes: red, green and blue. Since LEDs cannot be dimmed like conventional bulbs, the intensity of the three colors is controlled by pulse width modulation, which turns the LEDs on and off at rapid rates undetectable by the human eye. The intensity of the light is determined by the ratio between the LED's "off" and "on" functions.

The light output of the LEDs is guided into innovative acrylic light pipes on the sides of the gauges where the colors are "mixed" to create six pre-defined colors: green, blue, purple, white, orange and red. Customers can further "blend" the primary colors to create 125 more personalized backgrounds.

"During Mustang research clinics, we noticed that many of our customers already were customizing their interiors with different instrument panel features," said Dean Nowicki, Ford Mustang electrical engineering team leader. "The concept display was intended to offer choices, and we just decided we wanted all of the colors."

Racing to Win

The Ford Mustang was born to race – and win.

Mustang has a storied racing history, and the 2005 model was tested to build on that heritage. During durability testing, engineers ran 2005 Mustang prototypes on several occasions at racetracks, including Nelson Ledges in Ohio and Mosport in Ontario, Canada. The Mustang pictured below rides on the new chassis, cloaked in the sheetmetal of a 1996 Mustang.

From this vehicle and others like it, engineers could obtain valuable information early in the development process during these sessions. In some cases, the testing lasted for 24 consecutive hours, helping to make the new Mustang race-proven, right from the factory to the showroom.

Running Horses

The Ford Mustang logos are some of the most widely known in the car business. The running horse, both on its own and with the tri-color bar, always has been synonymous with the Ford Mustang.

The most notable of all Ford trademarks, the Ford oval, is not on the outside of the 2005 Mustang except on the wheel center caps. In fact the oval is so closely associated with the Mustang, that it is conspicuous in its near-absence on the car.

The design team's assumption was supported by customer research. A badgeless Mustang was instantly recognized as a Ford product by nearly 90 percent of clinic participants.

Although spirited discussions were held, the decision was made to withhold the Ford oval from the Mustang body – it just didn't need it.

Mustang Sound: No Blast from the Past

If you think a performance car can't perform while it's standing still, try out the new Ford Mustang's Audiophile sound systems.

"Its sound can be heard, as well as felt, with two door-mounted subwoofers and, in the case of the 1000-watt system, an extra two subwoofers, in the trunk," said George Kawwas, electrical systems supervisor.

Two Audiophile systems are available in the Mustang, one with 500 watts of peak power and another with 1000 watts. On cars equipped with either system, each door has its own subwoofer in a ported enclosure. This allows the door-mounted woofers to produce more "thump" than if they were housed in the bare door. The 1000-watt version adds a mounted, ported enclosure in the trunk that includes two more subwoofers.

Both systems include an in-dash six-CD changer that has the capability to play discs with MP3 computer files. This allows customers to play as many as 200 compressed music files from one disc, making the Mustang's six-disc changer capable of becoming its own jukebox with more than 1,200 songs, or 60 hours of music.

In the trunk, the subwoofer enclosure for the 1000-watt system takes up significantly less space than in the last Mustang. Computer-aided engineering enabled developers to keep its interior volume the same (to produce the same bass) while taking up less usable space in the trunk.

Modern Heritage

Although its stance and proportions are contemporary, the 2005 Ford Mustang draws on the very elements that made it the definitive American sports car for nearly four decades.

The exterior details are clearly inspired by extroverted Mustangs of the past and were created by a team that took a fresh approach to updating a classic design.

"By melding the true character of Mustang into a car with fully modern proportions, we ensured that even the uninitiated will instantly recognize these cars as Mustangs," said J Mays, group vice president, Design. "When you're designing a new Mustang, you're the steward of 40 years of automotive history. If you don't get it right, you've got 8 million Mustang fans to answer to.

"I think we got it right."

No Tow-Away Zone

Why did Ford need to call a tow truck when developing the 2005 Mustang? To test the inclination sensor included in the car's optional active anti-theft system.

Auto theft by towing has become an increasing concern. To combat tow-away theft, the new Mustang is available with a new active anti-theft package that includes an inclination sensor that detects changes in the car's angle after it has been parked. If the sensor detects the angle has changed, it will sound the vehicle's alarm. An intrusion sensor also detects window breakage during "smash-and-grab" thefts.

The theft-by-towing problem is partly due to the success of Ford's SecuriLock™ passive anti-theft system, which requires a microchip-encoded key to start the vehicle.

SecuriLock is standard on the all-new Mustang. The system is designed to help prevent the engine from being started unless a coded key programmed to the vehicle is used.

A miniature transponder with an integrated circuit and antenna is embedded in the ignition key. A wireless radio-frequency transmission transfers an electronic code between the transponder in the key and the vehicle. If the code matches a code programmed in the vehicle, a signal is sent through the wiring system to the electronic engine control, allowing the engine to start.

Tracking the Legend

Mustang's lore was built by years of street battles with its muscle-car counterparts. On the track, the car achieved equal fame coupled with some of racing's all-time heroes.

Mustang was an instant sensation in the Sports Car Club of America's Trans-Am series debut in 1966. Mustangs won four of the seven races, giving Ford the inaugural manufacturers' championship.

In the 1967 Trans-Am series, Jerry Titus chalked up four victories in a Carroll Shelby-prepped Mustang and won the drivers' title as Ford took a second straight manufacturers' championship. Bud Moore fielded the famous "Yellow Mustangs" for Parnelli Jones and George Follmer in 1969. Combined with Shelby's two-car team, Ford was off to a hot start leading at midseason before a string of bad luck.

Automakers formally dropped racing programs during the energy crisis of the 1970s, but Mustang led Ford's charge back to the track in 1981 under the Special Vehicle Operations racing program. The Ford-backed Miller Mustang, driven by Klaus Ludwig in International Motor Sport Association GTX racing, scored the first two victories in Ford's resurgent program.

Tommy Kendall carried on the Trans-Am tradition by piloting his Roush-prepared Mustang to a record 11 consecutive wins in 1997 as he clinched a record third straight driver's championship.

Mustang took over as the drag racing car of choice in the last half of the 1960s. Holman & Moody built 10 experimental Mustangs powered by the 427 V-8. In the car's first race, Bill Lawton won the Factory Stock Eliminator class, and later in the year, Les Ritchey won the class at the U.S. Nationals. From then on, Mustangs were driven by a Who's Who of top racers.

Carrying on that winning tradition, John Force broke his own National Hot Rod Association championship record by winning his 12th national crown in his Ford Mustang Funny Car in 2002.

Sweden, Meet America's Muscle Car

The new Ford Mustang has traversed the globe in search of improvements, heading as far north as the upper reaches of Sweden for cold-weather testing. Engineers took advantage of the region's early cold season to put the Mustang through extensive braking and traction control system tests to refine the car's all-weather capability.

Even though Mustang is not sold in Europe, the car's legend has swept the continent during the past 40 years.

Just ask The Times of London that named the famed muscle car the "Greatest Automobile Ever" in 2003.

Select Fit Main Bearings

To Ford Mustang owners, microns matter. The new Mustang's V-8 engine uses 'Select Fit' main bearings that have tighter tolerances. They're so tight, in fact, that they are measured in microns (a millionth of a meter.)

Although this may seem like a small detail, it pays big dividends in the form of reduced noise, vibration and harshness and improved durability. And it ensures Mustang owners will get more of what they want: power and performance.

The First Mustang

The owner of the first Mustang – serial number 1 – bought the car by pure chance.

Mustang's first appearance in 1964 at the World's Fair in New York triggered a flood of customers who wanted to be first to own the nation's hottest new car. People camped at dealerships while their checks cleared, and Ford took 22,000 orders the day the car went on sale.

Capt. Stanley Tucker, a Canadian airline pilot, was driving his Pontiac past a Ford dealership in Newfoundland and Labrador when he noticed a crowd around a Mustang there as part of a promotional tour. He bought that Wimbledon White convertible the following day, not knowing it was the first of the run.

By the time Ford persuaded him to sell his car back, he had driven 10,000 miles and Ford had built 1 million Mustangs – this less than two years after the sale. A deal was struck: In exchange for the first Mustang, Ford would trade the millionth Mustang. So at the millionth Mustang celebration in Dearborn, Mich., March 2, 1966, Capt. Tucker stood at the end of the assembly line as another white convertible rolled down the line.

Meanwhile, Mustang # 5F08F100001 once again became the property of Ford Motor Company. In 1966, Ford delivered it to Henry Ford Museum, now called The Henry Ford, in Dearborn.

A Quiet Mustang with a Large Trunk

Bob Johnston, vehicle engineering manager, and his development manager, Mark Rushbrook, understand that Mustang customers enjoy the visceral experience of driving with a throaty V-8 engine sound rumbling throughout the cockpit.

That’s why they worked so hard to make the new Mustang free of unwanted sounds.

In one of many pre-sunrise morning assignments, the two were shaking down a prototype in rural Detroit. When they detected a slight axle noise, Bob volunteered to jump in the trunk to further investigate as Mark drove.

"I bet a lot a people think about putting their boss in the trunk," jokes Rushbrook.

"Our trunk is pretty large for a performance car," said Johnston. "Try jumping in the back of a GTO."

The Fun Test

Of the 6,000 different vehicle tests used during the car’s development, perhaps none was as important to Mustang fans as the smoky burnout.

In the development monotony that includes tests like how well the car performs when it hits a curb, burnouts probably seem fun.

"We never had a shortage of volunteers to help us with burnouts," said Mark Rushbrook, Mustang vehicle development manager. "But it’s actually a very meticulous process, not just fun and games."

The new Mustang’s sophisticated rear suspension and the powerful 300-horsepower V-8 engine deliver great straight-line fun while raising the bar for muscle car driving dynamics. During burnouts, the axle’s superior lateral control helps reduce axle hop.

Mustang engineers opted for a three-link architecture with a Panhard rod that provides precise control of the rear axle. A central torque control arm is fastened to the upper front end of the differential, while trailing arms are located near each end of the axle.

A lightweight, tubular Panhard rod is parallel to the axle and attached at one end to the body and at the other to the axle. It stabilizes the rear axle side-to-side as the wheels move through jounce and rebound. It also firmly controls the axle during hard cornering.

"We had to test numerous suspension setups," he said. I hope our customers check our work."

Mustang Clubs Worldwide

In 16 countries on five continents, people gather in the name of Ford Mustang. People, and not just owners, are so passionate about this car that there are more than 250 Mustang clubs in America alone. Many of these clubs will congregate April 15-18, 2004 for a massive celebration of the 40th anniversary of Mustang.

The Mustang Club of America alone has 160 chapters, regional groups and international affiliates. Great Britain, Venezuela,

Mexico, South Africa and Australia have their own Mustang Clubs.

The clubs hold vehicle exhibitions and meets to show their restoration and aftermarket achievements. They also produce a variety of newsletters and magazines – all dedicated to the Mustang.

Sound Studies

Almost as unmistakable as a Mustang's pony emblem is the signature growl of its V-8 engine.

An inspiring exhaust note doesn't come by chance, however, but is the product of careful crafting in Ford's Advanced Engineering Center, where sound quality engineers analyze and refine everything from an engine's "aural DNA" to the "pop" of a trunk release.

Ford Motor Company has been a pioneer in the scientific study of vehicle sounds. It was one of the first automakers to build a dedicated audio listening laboratory to conduct true "blind studies" with engineers and customers. The sound-proof room at Ford's Research and Engineering campus in Dearborn is completely isolated from its surrounds – down to its silent ventilation and lighting systems and the steel springs that support its floor.

Because each study focuses on distinct attributes of a sound, the results can be used to help design future products meet established sound criteria. The all-new 2005 Ford Mustang is one of many future Fords that will benefit from years of listening lab work. What's the formula for Mustang's signature sound? "That," said Kelly Vandenbrink, sound quality engineer, "is a closely guarded secret."

Mustangs Down Under

Of the 8 million Mustangs produced in the last four decades, a few hundred of them were imported to Australia.

Ford of Australia imported 48 1965 Mustangs and converted them to right-hand drive between July and September 1965. All models were 289-cubic-inch V-8 hardtops. Ford also imported one 1965 convertible for promotional use, although there doesn't seem to be any official record in the archives. In 1966, the company imported 161 1966 Mustang hardtops. All but a few V-6s were 289-cubic-inch V-8s. These treasured cars have been joined over the years by several thousand Mustangs that have been independently imported and converted. There are Mustang owners clubs in all states of Australia.

Interestingly, Ford introduced XR Falcon that same year and marketed it with the slogan, "The Mustang-Bred Falcon."

The conversions were done in the Homebush Assembly Plant in Sydney, using Australian Falcon steering boxes, drag links and steering arms.

On the door sill scuff plate the original Ford logo was replaced with a small plate that read "Ford Motor Company of Australia Limited."