2005 Mustang Convertible

"Mustang owners have always known – and bragged about – what was under the hood. With the new 300-horsepower, three-valve 4.6-liter MOD V-8, we're giving them plenty to bag about – again."
– Terry Wagner, Manager, Ford Modular V-8 Engines

S… …pting compromises in performance. Because of some convertibles' v… …ir derivative counterparts, manufacturers often restrict high-p… …nsmission. They may even soften the suspension or change final d… …rability and fuel economy in convertible models. Such are the evils a… during the conversion of a typical hardtop into a drop top – much of i… …e lack of roof structure.

P…

B… body structure was engineered from the beginning as both coupe and convertible, adding only 175 pounds over the coupe. As a result the 2005 Mustang convertible doesn't compromise when it comes to performance – either with powertrain choices or in the handling department. The 4.6-liter V-8 engine standard in the Mustang GT coupe makes the same 300-horsepower in the Mustang GT convertible. The same applies to the 210-horsepower 4.0-liter V-6 available in the base coupe and convertible.

The … backs 40 more horsepower than the previous generation Mustang V-8 and over 50 per… 289-cubic-inch V-8 that propelled the 1964 model to stardom. This newfound power – o… ent application of modern technology, including all-aluminum construction and a new… …es per cylinder and variable cam timing.

TE… …EPOWER

"W… says Terry Wagner, manager, Ford modular V-8 engines. "Enthusiasts are thrilled at how… brings 300 horsepower to the masses."

The … gine block provides optimum stiffness and strength, saving 75 pounds compared with a cast-iron design. Computer-aided engineering was used to reinforce key areas of the block, adding rigidity without the increased weight.

With 281 cubic inches of displacement, the Mustang GT engine generates more than 65-horsepower per liter. This compares with the 42-horsepower per liter that wowed enthusiasts when Ford first wedged a small block 289-cubic-inch V-8 and four-barrel carburetor into the Mustang in 1964.

One of the keys to producing 300 horsepower from this relatively small displacement is Mustang's new single-overhead-cam, three-valve cylinder design with variable cam timing. The new head gives the engine a higher compression ratio than previously possible on 87 Octane gasoline.

Because more airflow means more engine output, the V-8's heads use two intake valves per cylinder to move more air into the engine. A new, tuned-length exhaust manifold offers optimized exhaust flow to help scavenge burned gases from the cylinders.

The center-mounted sparkplug is placed to provide a symmetrical flame. Longer and narrower than previous designs, it can extend to the center of the cylinder head, while leaving as much room as possible for the valves. The compact coil-on-plug ignition system frees space under the hood and allows more precise spark control.

The three-valve heads are smaller than the previous two-valve heads, reducing weight, but offering a more direct, "ported" style path to the valves for better airflow at peak engine speeds. Magnesium cam covers suppress valvetrain noise and reduce weight. Taking weight out of the top of the engine helps to lower Mustang's center of gravity and improve handling.

VCT – THREE LETTERS THAT MEAN MORE POWER

Variable camshaft timing (VCT) was the key technology to wringing more power out of the engine, while simultaneously improving efficiency and reducing emissions. VCT allows the valves to operate at optimum points in the combustion cycle, tailored to the engine's speed and load at that instant.

The Mustang VCT system allows up to 50 degrees of cam variation in relation to the crankshaft angle. Ford's "dual-equal" variable cam timing design shifts the timing of both the intake and exhaust valves together, with a single camshaft per cylinder head. This provides all the benefits of – but creates far less complexity and adds less weight than – VCT systems that actuate the intake valves separately.

The cams operate both sets of valves using low-profile roller-finger followers, helping reduce friction and keeping the overall engine height – and thus, Mustang's distinctive hoodline – low. Cam position is controlled by an electronic solenoid that modulates oil pressure to advance or retard the cam timing based on input from the engine's electronic control computer.

4.0-LITER SOHC V-6: ECONOMICAL PERFORMANCE

With technologies such as electronic throttle control, traction control and an available five-speed automatic transmission, the Mustang's new 4.0-liter SOHC V-6 powertrain is anything but basic. And with 210 horsepower and 240 foot-pounds of torque, the V-6 engine offers real Mustang performance at a more attainable price.

The 4.0-liter V-6 offers quieter and smoother performance, higher output and more compact packaging than the previous Mustang's 3.8-liter pushrod V-6. It features low-profile heads with single overhead cams driven by a slave shaft mounted in the "Vee" of the engine. The result is a lower overall engine height than a conventional overhead cam setup. The 4.0-liter V-6 gets a new composite intake manifold, a unique camshaft grind, new tuned-length exhaust manifolds, plus a new flywheel and oil pan.

Engineering attention also was paid to noise-reducing features including a girdled crankcase for increased strength and rigidity, a dual-mode crankshaft damper, coated skirt pistons, optimized bearing clearances and isolated composite cam covers.

A TOMATIC

F ang is available with a five-speed automatic transmission. The 5R55S automatic, also u rd, has closely spaced ratios that keep the engine in its power band to produce better a ovides impressive highway fuel economy. A new powertrain control computer delivers b engine, by precisely controlling shift duration and shift timing. Throttle position, engine s er parameters guide the transmission shift schedule.

A in control module communicate with the automatic transmission ten times faster than b orks together to deliver smooth performance.

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F ift points, five-speed manual transmissions are standard on both the V-6 and GT v nd coupe.

The V-8 powered GT is equipped with a rugged Tremec 3650 gearbox; the V-6 Mustang gets a Tremec T-5 manual. Both have been improved for greater shift quality and efficiency. For example, they now use a flange coupling instead of a splined drive with the driveshaft, resulting in better balance and reduced driveline lash (the "clunk" that is sometimes heard when engine torque is applied or released into the transmission, driveshaft or rear axle.) An all-new shift linkage is designed to provide quick engagement of the gears producing a solid feel and none of the "notchiness" of the past.

A hydraulic clutch reduces pedal effort while still offering a performance feel. The V-6 clutch has new plate materials for durability, and the V-8 clutch has been enlarged to handle the engine's 300 horsepower.

Five-speed manual transmissions with improved shift quality are standard on both V-6 and GT versions of the 2005 Mustang convertible.

TRACTION CONTROL WHEN NEEDED

Under some conditions, Mustang drivers may find they need a little help in harnessing all the excitement the 2005 convertible model has to offer.

That's where the all-speed traction control system comes in. Standard on GT with the anti-lock braking system (ABS), the traction control system takes advantage of Mustang's high-speed communication network by using sensor information supplied by the engine controller and the ABS system. In turn, the electronic throttle system and brake system work smoothly in concert to reduce wheel spin.

But this is a muscle car, after all. Consequently, Mustang's traction control is tuned a little differently than most. On dry pavement, the system allows more wheel slip under acceleration, so you can still "hang it out" a bit when driving gets spirited. When the system detects slippery conditions, it acts more aggressively to help maintain greater stability.

On those occasions when traction control isn't desired – such as a smoky burnout at the drag strip – drivers can deactivate the system with a push of a button conveniently located on the instrument panel's center stack, just to the right of the gauges.