

SPECIAL VEHICLE TEAM



1 9 9 8 MUSTANG C O B R A The Ford

Special

Vehicle Team

designs and

develops

performance

vehicles that

can deliver

years of

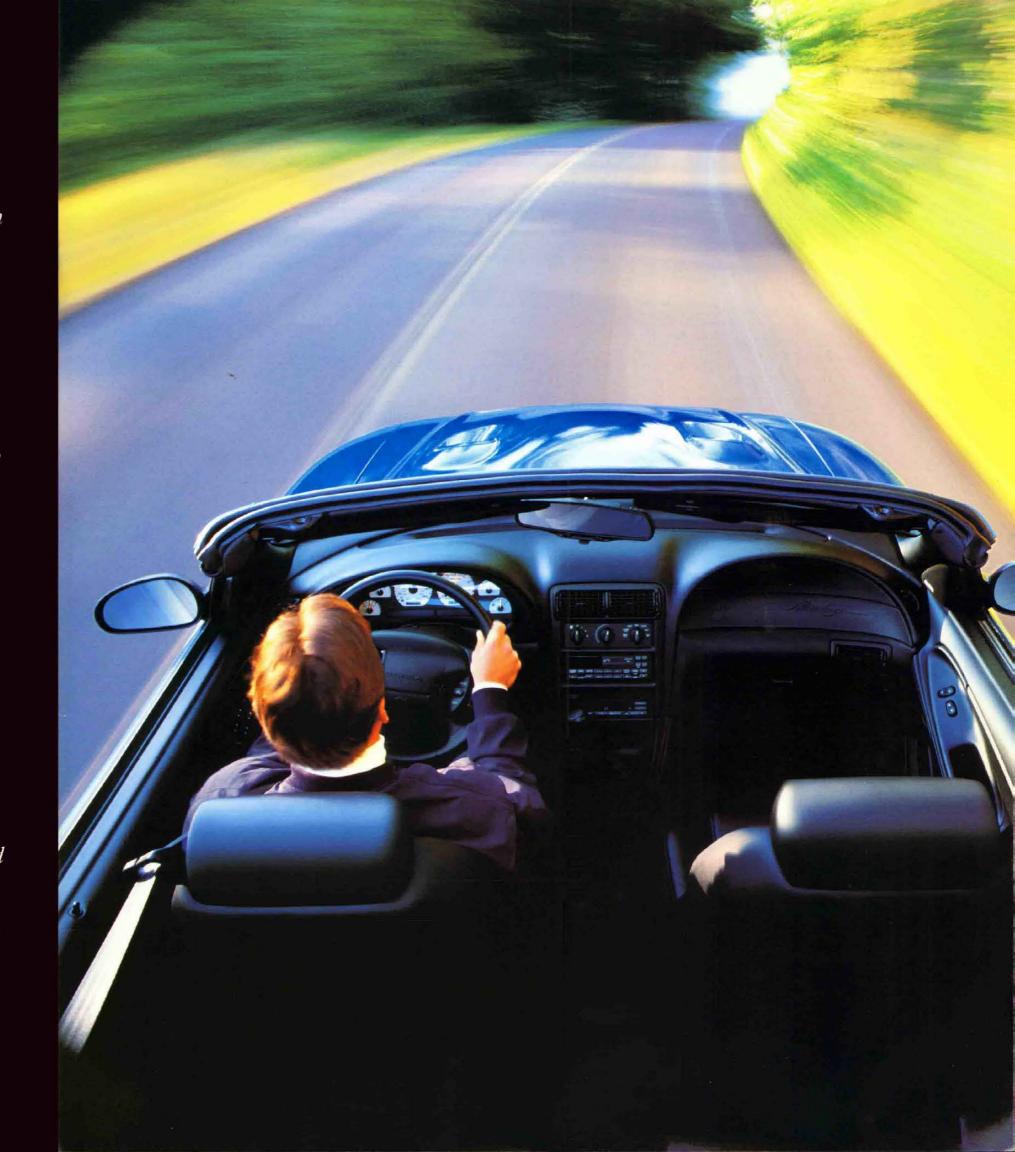
driving

pleasure and

value for the

automotive

enthusiast.





Architecture Engine

To provide the SVT Mustang Cobra with the kind of freerevving and powerful engine a driver's car must have, SVT employs a highly evolved performance derivative of the Ford 4.6-liter double overhead cam V8. This engine incorporates more than 100 specially designed components that enhance

> power and torque. To deliver this engine in a reasonably priced performance car, Ford drew on manufacturing and technical resources throughout the world.

The Block and Crankshaft

Teksid, the Italian company responsible for casting the Cobra engine block and heads, also casts aluminum components for Ferrari road and Formula One cars, as well as other Italian and European performance cars. The Cobra block, cast in Carmagnola, Italy, has a "deep skirt," which means that the bottom edge of the block extends well below the crankshaft's centerline. This design endows the engine's bottom end with great rigidity and provides a superior mating surface with the transmission. For long-term durability,

iron cylinder liners are used.

The steel crankshaft is forged by Gerlach-Werke in Homburg/Saar, Germany (see photo on back cover). The counterweights, placed opposite every throw of the crankshaft, contribute to the engine's exceptionally smooth revving characteristics from idle to redline. A windage tray mounted beneath the crankshaft strips excess oil away from the crankshaft and directs it to the deep oil sump. The Cobra flywheel, which mates to the crankshaft with eight bolts, is made of nodular iron, an especially strong and durable metal.



The nodular iron main bearing caps attach to the block with not two or four, but six bolts, spreading retention and load over a greater area of the block. On each side of the bearing cap, two bolts reach upward into the block in conventional fashion, and one bolt runs horizontally into the side of the cap through the skirt of the block.

To handle the considerable torque generated by the Cobra engine, the sinter-forged alloy connecting rods feature big ends more robust than those found in any other Ford 4.6-liter passenger-car engine. Made from powdered metal that is compacted into the rough shape of a connecting rod and then "hot-struck" in a forge, these components are remarkably strong due to the millions of bonds created on the molecular level during the forging process.

After forging, the rod big ends are mechanically fracturesplit to create the bearing cap. Due to the irregular, interlocking surfaces along the fracture line, the bearing cap and rod can be reassembled only one way, ensuring an exact fit and making the entire bearing cap assembly especially strong. All main and rod bearing inserts are made from aluminum.

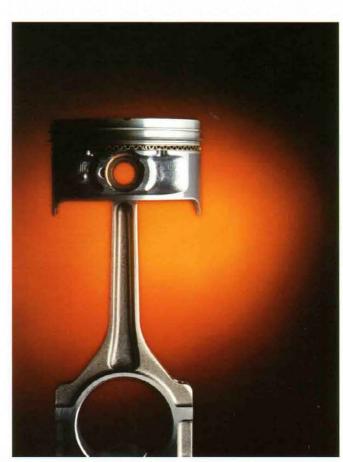
The shallow-skirt alloy pistons give a compression ratio of 9.85:1. A friction-reducing coating on the pistons' sliding surfaces allows the engine to gather revs more quickly and also reduces wear on the piston and bore surfaces. The Cobra engine features fully floating piston pins, which further reduce friction.

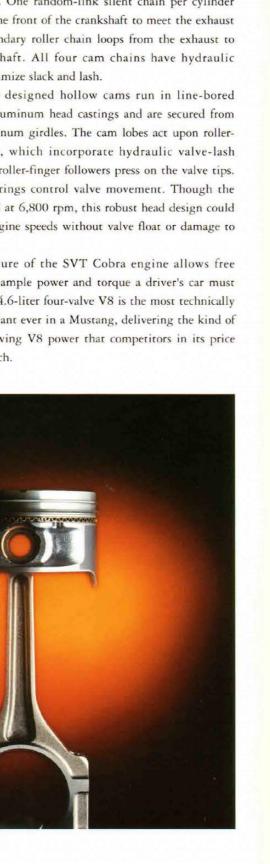
Double Overhead Cams

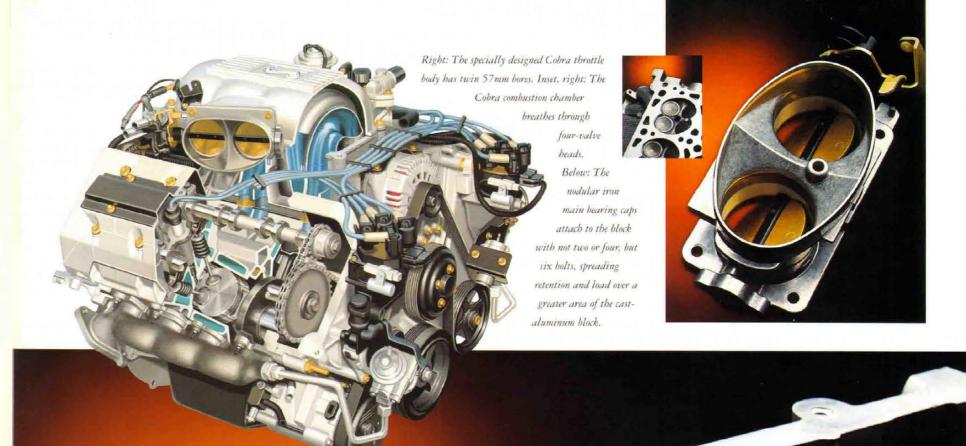
The SVT Cobra heads follow classic double overhead cam design principles. One random-link silent chain per cylinder bank rises from the front of the crankshaft to meet the exhaust camshaft. A secondary roller chain loops from the exhaust to the intake camshaft. All four cam chains have hydraulic tensioners to minimize slack and lash.

The specially designed hollow cams run in line-bored journals in the aluminum head castings and are secured from above with aluminum girdles. The cam lobes act upon rollerfinger followers, which incorporate hydraulic valve-lash adjustment. The roller-finger followers press on the valve tips. Beehive valve springs control valve movement. Though the engine is redlined at 6,800 rpm, this robust head design could sustain higher engine speeds without valve float or damage to the head itself.

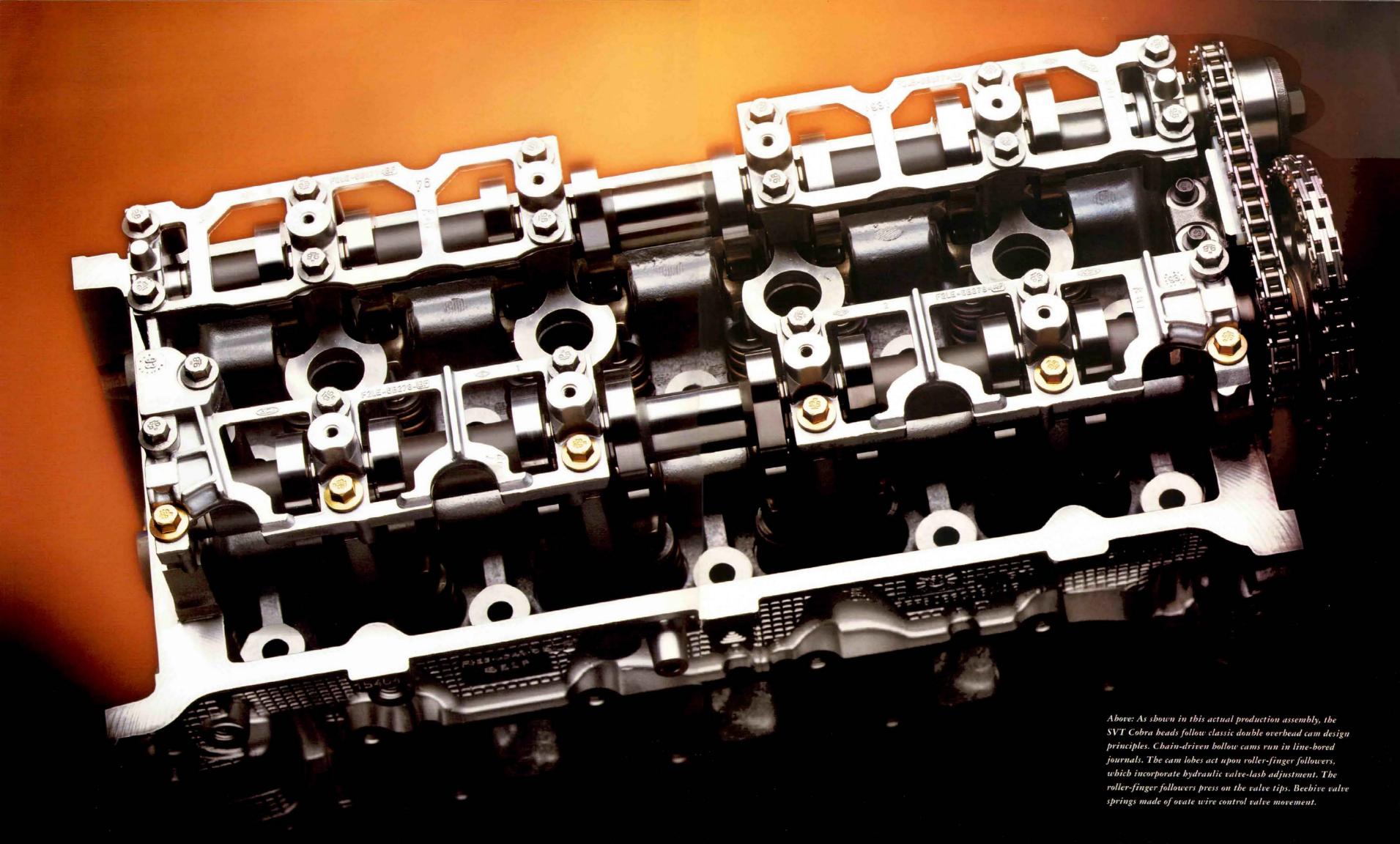
The architecture of the SVT Cobra engine allows free revving, and the ample power and torque a driver's car must have. The Cobra 4.6-liter four-valve V8 is the most technically advanced powerplant ever in a Mustang, delivering the kind of smooth, high-revving V8 power that competitors in its price range cannot match.







Above: The SVT Cobra engine is assembled at the Ford Romeo Engine Plant on a dedicated Niche Line staffed by 12 two-person teams. When a team completes an engine, both assemblers scribe their names into an aluminum badge that is then affixed to the right cam cover. Right: Cobra alloy pistons feature a 9.85:1 compression ratio. The connecting rods are sinter-forgings, with fracture-split big ends.



The Cobra Powertrain

Ford powertrain engineers focused development on two main areas of the Cobra engine: enhancing the exceptional breathing abilities of a four-valve engine, and exploiting the free-revving nature of a twin-cam head design.

Air Intake

The SVT Cobra engine begins the process of making horsepower with a specially designed conical air cleaner that sits just ahead of an 80mm air mass sensor. The air then moves further downstream to the twin 57mm bores of the throttle body. The butterfly valves in the bores open simultaneously, not in stages, giving the engine exceptional throttle response by quickly yet progressively delivering large volumes of air to the cast alloy plenum.

Eight tuned-length cast thin-wall runners (developed in partnership with an aerospace engineering company) are placed inside the plenum. One runner feeds each cylinder. A "Y" split placed in the manifold just above the valves directs air to the primary and secondary valves, but only one of the two intake valves is fed at all times. The sequential port fuel injection system features one 24 lb/hr injector per cylinder.

Placed above each secondary intake valve is a 34mm butterfly port throttle. Below 3,250 rpm, the port throttles are closed, thus blocking airflow to the secondary valves. With only one valve feeding each combustion chamber at low revs, airflow velocities are higher, and the resulting "swirl" of the fuel-air mixture is faster, producing better cylinder filling and quicker, more complete burning. This results in improved lowend torque and exhaust emissions.

Between 3,250 and 7,000 rpm, the engine computer makes two key adjustments: the secondary port throttles are opened, allowing a nearly unrestricted flow of air through all 16 intake valves at mid and high rpm; and the injectors deliver more fuel to the cylinders. The port throttle system helps preserve ample low-end torque, while providing the high-end horsepower characteristic of a twin-cam four-valve design.

Engine Computer, Exhaust

The Ford EEC-V engine computer system monitors engine functions—air flow, rpm, crankshaft position, camshaft position—and can make millions of adjustments per second to deliver the spark and fuel-air mixture at the optimum time to maximize power and fuel economy. The SVT Cobra also has a highly sophisticated on-board engine diagnostic system that meets Federal OBD II requirements.

The SVT Cobra high-silicon, molybdenum iron exhaust manifolds feed exhaust gases into a stainless steel dual exhaust designed with the fewest possible bends in order to maximize efficiency and speed exhaust flow. The 2.25-inch exhaust pipes are linked by a crossover pipe that balances the pressure pulses through the low-restriction mufflers. The system is visually distinguished by twin 2.75-inch polished exhaust tips.

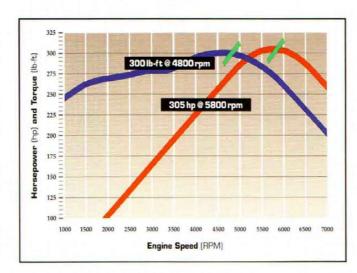
Consistent oil temperatures in this high-performance engine are maintained by a water-to-oil cooler mounted directly to the

left side of the block, with an oil filter placed on its end. Water returning from the radiator to the engine block first runs through the cooler, reducing oil temperatures significantly, allowing higher sustained revs, and extending potential engine life. The engine coolant system is designed to maintain normal coolant temperatures even under race track or autocross conditions.

Transmission, Differential

The Cobra transmission is the Borg-Warner T45. First and second gears have large double-cone synchros to smooth engagement and increase durability, while reverse gear is removed from the geartrain when forward gears are engaged, reducing noise and wear. The T45 makes extensive use of needle and roller bearings, ensuring smooth and quiet operation. Finally, the clutch housing is integrated into the transmission assembly, providing a much stiffer engine/transmission package, which reduces powertrain noise and vibration.

Power is delivered to the rear wheels through a limited-slip differential with a 3.27 axle ratio, which provides strong acceleration in all gears, without sacrificing quiet and comfort in high-speed driving.



Power, Torque, Performance

The SVT Cobra engine is free-revving from idle to its 6,800-rpm redline (fuel shut-off occurs at 7,000). It produces 305 horsepower at 5,800 rpm, and 300 lb/ft of torque at 4,800 rpm. The Cobra engine matches the traditional 1960s measure of horsepower: the Cobra V8 generates more than one horsepower per cubic inch. In the more contemporary (and more demanding) measure, the Cobra V8 develops 66.30 horsepower per liter.

In the end, an engine is intended to place a car in motion, not perform on a dynamometer. The 1998 SVT Cobra accelerates from a standstill to 60 mph in 5.9 seconds. The quarter-mile is covered in 13.99 seconds with a terminal speed of 101.6 mph. In closed-course testing, the SVT Cobra achieves a top speed of 152 mph.



"Jam your right foot to the Cobra's floorboard and magic happens."

-Motor Trend February 199



Suspension and Brakes

Because the body structure of the Mustang is so rigid—the more rigid the body structure, the more accurately a suspension can be tuned—Ford engineers were able to create a suspension that is both supple and athletic. Rather than simply stiffen the Cobra suspension with heavier springs and severely damped shock absorbers, Ford engineers tuned it to easily soak up dips and bumps while maintaining excellent contact and communication with the road.

Suspension Design and Tuning

The Cobra front suspension is a modified MacPherson-type design, with lower control arms, struts, and a 29mm stabilizer bar. Its geometry results in excellent steering turn-in and anti-dive characteristics. The hydraulically assisted rack-and-pinion steering has a communicative, precision feel.

The rear suspension employs a four-bar link system. Outboard lower trailing arms carry the springs, and a 26mm stabilizer bar links the two arms. Inboard upper trailing arms attach next to the differential housing. Horizontally mounted hydraulic leading links help locate the axle, limiting both its

fore-aft movement and wheel hop during aggressive acceleration from a standstill and out of corners.

Wheels, Tires, Brakes

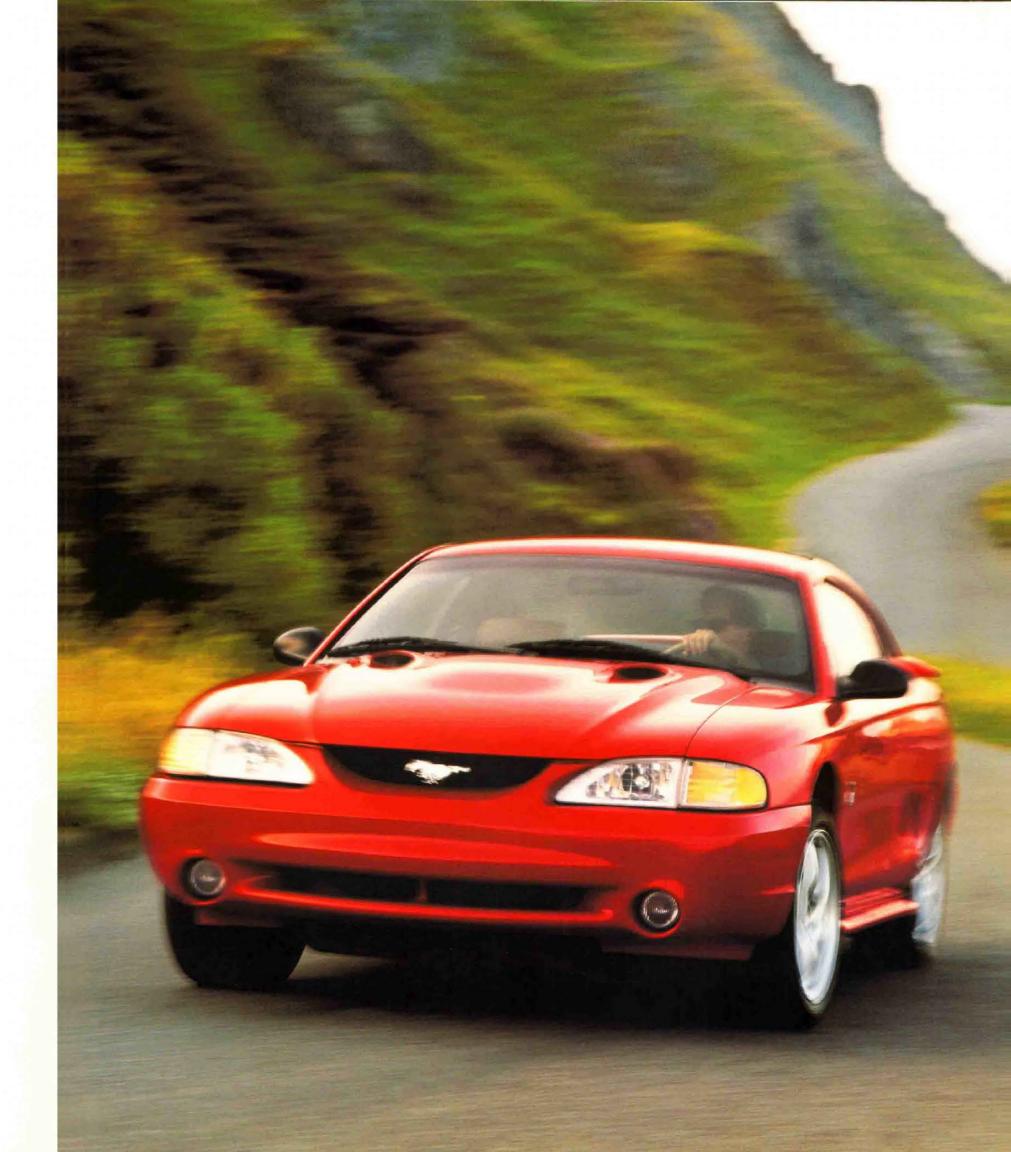
The newly designed 1998 Cobra cast alloy wheels and BFGoodrich tires are both derived from those first used on the 1995 SVT Mustang Cobra R race car: the 17.0 x 8.0-inch five-spoke wheels are shod with 245/45-17 BFGoodrich Comp T/A ZR radials.

Braking is accomplished with four-wheel discs. Up front, the 13.0-inch vented discs feature twin-piston calipers sourced from PBR, an Australian manufacturer famous for its race-proven brake components. The iron rotors feature curved internal vanes that effectively and rapidly dissipate the heat that can build up under hard braking.

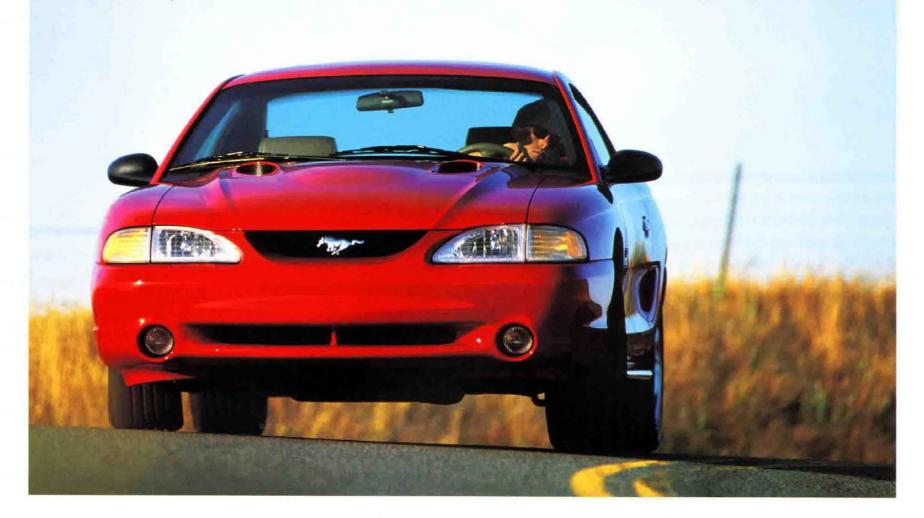
The four-wheel vented discs on the Cobra are monitored and controlled by a three-channel, four-sensor ABS system. This braking system gives the Cobra short stopping distances (60-0 mph in 127 feet) with excellent pedal modulation and limited kickback under ABS braking.



Above, left to right: The Cobra 13.0-inch vented front discs feature curved internal vanes to dissipate heat quickly. The PBR front calipers are a twin-piston design. The Cobra brakes are monitored and controlled by a three-channel, four-sensor ABS system that can modulate and adjust each of the four calipers every 10 milliseconds. The Cobra 17.0-inch five-spoke alloy wheels are wrapped with BFGoodrich Comp T/A ZR radials.



Special Features To complement the significant powertrain and suspension attributes, the SVT Cobra is visually distinguished by a number of refinements. These include a special hood, rear valance panel that reads "COBRA," and polished exhaust tips. A front fascia incorporating round fog lamps remains exclusive to the SVT Cobra. The driver's seat features four-way power adjustments and adjustments for rake (leather seats include a power lumbar feature). The steering wheel is leather-wrapped. Instruments have white faces with black numbers; at night, the numbers turn blue/green for visibility. The shift knob and shifter boot are leather-wrapped. To protect your 1998 SVT Cobra, Ford has developed a passive anti-theft system, called SecuriLock. Each SVT Cobra key carries a radio transponder that contains a unique code selected from a potential of 72 million billion combinations. An antenna located in the steering column "interrogates" the key, then the key code is transmitted to a control module, where it is compared to the codes stored in the Above: The Cobra hood is control module. If the key's distinguished by a domed center code matches, a signal is sent section. Left: The Cobra features to the EEC-V system to white-faced instruments. "enable" the engine to run. If the key code does not match or if no encoded key is detected, the EEC-V system will not allow the engine to run. Up to 16 additional keys can be programmed to operate the vehicle provided an original key is available at the same time. The SecuriLock system proved its effectiveness in 1996, as the theft rate for 1996 Mustang GTs and Cobras dropped by 77 percent compared to rates for 1995 Mustang GTs and Cobras. These dramatically lowered theft rates were maintained in 1997.* Finally, as in 1994, '95, '96, and '97, SVT will produce a limited run of Cobra convertibles. For 1998, the SVT Cobra convertible will be available in all five exterior Cobra colors: Laser Red Tinted Clearcoat Metallic, Black Clearcoat, Crystal White Clearcoat, and Bright Atlantic Blue Clearcoat. Canary Yellow Clearcoat will be available mid-year.



Below and far right: In 1997, the
Bondwant School of High-Performance
Driving began using the SVT
Mustang Cohra as its primary
training car. Inset, far right: An SVT
Mustang Cohra R won the Professional
Sportscar Racing organization's Grand
Sport class at Daytona in February
1997, The car was driven by Boris
Said III and Shawn Hendricks.

The Ultimate Goal

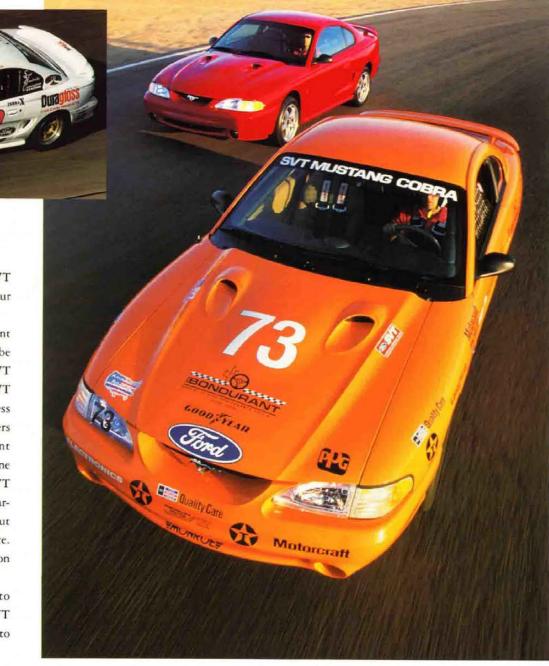
The nucleus of Ford SVT is a small close-knit group of engineers, product planners, and marketing people who meet on a weekly basis. In creating its vehicles, SVT interacts with and draws heavily on the talents and knowledge of other driving enthusiasts at Ford and its key suppliers who work in the disciplines of design, product development, manufacturing, and marketing.

Of the 4,900 Ford dealers in North America, fewer than 730 are certified to represent SVT. The annual commitment of these dealers to SVT includes in-depth technical seminars, training in customer-care techniques specific to the enthusiast driver, and instruction in car control and performance driving. SVT certified Ford dealers are dedicated to creating a culture within their dealerships that is friendly to the knowledgeable driving

enthusiast. For the name and location of your nearest SVT certified Ford dealership, call 1-800-FORD-SVT or visit our web site at http://www.fordvehicles.com/SVT.

At the heart of the SVT philosophy is a deep commitment to skillful and enthusiastic driving. Every driver should be competent and responsible behind the wheel of a car, but SVT and its dealers believe drivers of performance cars like the SVT Cobra and its stablemate, the SVT Contour, should possess exemplary car-control skills. To foster that ethic, SVT offers new SVT owners a special discount at the Bob Bondurant School of High-Performance Driving. It's the desire of everyone at the factory and at SVT certified Ford dealerships that SVT owners take advantage of this opportunity to hone their carcontrol skills, not only to become better and safer drivers, but also because such training will enhance the driving experience. In the spring of 1997 the Bondurant school began a transition to the SVT Mustang Cobra as its primary training vehicle.

The ultimate goal for Ford SVT and SVT dealers is to provide enthusiasts with many years of enjoyable driving. SVT invites you to visit your nearest SVT certified Ford dealer to experience the 1998 Mustang Cobra.





The SVT Family

1993 SVT Mustang Cobra



1993-95 SVT F-150 Lightning



1993 SVT Mustang Cobra R



1994-95 SVT Mustang Cobra



1994 SVT Mustang Cobra Indy Pace Car



1995 SVT Mustang Cobra R



1996-97 SVT Mustang Cobra



1998 SVT Contour

1998 FORD SVT MUSTANG COBRA TECHNICAL DATA

ENGINE

Valvetrain

Configuration Longitudinally mounted, 90-degree V8, cast aluminum block and heads, iron cylinder liners, fully counterweighted

forged crankshaft

Bore x Stroke 90.2mm x 90.0mm Displacement 4,601cc/280cid Compression ratio 9.85:1

Horsepower (SAE net) 305 hp @ 5,800 rpm Torque 300 lb./ft. @ 4,800 rpm

Redline 6,800 rpm (fuel shut-off at 7,000 rpm)

> Double overhead cams (hollow camshafts), chain drive to exhaust cams, secondary chain from exhaust to intake cams, roller finger followers with hydraulic lash adjustment, ovate-wire beehive valve

springs, four valves per cylinder Intake valves 2 per cylinder, 37mm head diameter Exhaust valves 2 per cylinder, 30mm head diameter

Fuel system Sequential electronic fuel injection Intake manifold Tuned length thin-wall cast aluminum runners, cast aluminum plenum chamber

Throttle body Twin 57mm bore throttle body, simultaneously opening

Air-mass sensor 80mm diameter Port throttles Electronically actuated 34mm port

throttles open to secondary intake valves at 3,250 rpm

Exhaust manifolds Cast high-silicon, molybdenum iron, manifold type, stud and nut attachment

Dual, stainless steel, 2.25 in. diameter tubes Exhaust system

DRIVETRAIN

Rear axle 8.8 in. limited-slip differential Driveshaft Steel, with hardened yoke Borg-Warner T45 5-speed manual; Transmission integral clutch housing Gear Ratio Speed 1st 3.37 45 mph (72 kph) 2nd 1.99 77 (124) 3rd 1.33 115 (185) 4th 1.00 152 (245) 5th 0.67 3.22 3.27 Final drive

SUSPENSION

Front Modified MacPherson strut, with separate spring on lower arm, 400/505 lbs./in. variablerate coil springs, 29mm stabilizer bar

Rigid axle, upper and lower trailing arms, two leading hydraulic links, 165/265 lbs./in. variable-rate coil springs, shock absorbers, Rear 26mm stabilizer bar

STEERING

Type Power assist, rack and pinion 14.7:1 (on center) Gear ratio Turns, lock to lock Turning diameter

BRAKES

DITALLO	
Front	13.0 in. (330mm) vented disc, PBR twin-piston caliper
Rear	11.65 in. (296mm) vented disc, single-piston caliper
ABS	Three-channel, four-sensor system

WHEELS AND TIRES

Cast alloy, painted surface, five-spoke, 17 x 8 in. Wheels

BFGoodrich Comp T/A ZR, 245/45ZR-17, unidirectional tread pattern

COBRA INCLUDES

Supplemental restraint system: Driver- and passenger-side (air bag). Always wear your safety belt, and secure children in the rear seat.

Tilt steering wheel

Anti-lock brake system

Articulated sport seats (four-way power for driver) with cloth/vinyl trim, cloth head restraint, and power lumbar support (leather only)

Premium electronic AM/FM stereo cassette

Compact disc player

Power Group: Power side windows, power door locks, power deck lid release, dual electric remote control mirrors

Rear window defroster

Air-conditioning/manual control

Speed control Front floor mats

Dual illuminated visor mirrors

Remote keyless illuminated entry SecuriLock anti-theft system

AVAILABLE OPTIONS

Electronics and Leather Trim Group, consisting of: Leather seating surfaces; Sport Buckets with power lumbar support; Mach 460 electronic AM/FM stereo/cassette; Total Anti-Theft System (TATS)

Rear deck spoiler

California emissions system

High-altitude principal use

COLOR AND TRIM

Wheelbase

Exterior Crystal White Clearcoat, Black Clearcoat, Laser Red Tinted Clearcoat, Bright Atlantic Blue Clearcoat (black interior only). Late availability of Canary Yellow Clearcoat (black interior only) Black Cloth, Saddle Cloth, Black Leather, Saddle Leather

101 3 in /2 573mm

DIMENSIONS AND CAPACITIES

182.5 in./4,636mm Length Height 53.2 in. (53.3 in.)/1,351mm (1,354mm) Width 71.8 in./1,824mm 60.0 in./58.7 in.; 1,524mm/1,491mm Track, F/R Head Room 38.2 in. (38.1 in.)/970mm (968mm) Leg Room 41.9 in./1,064mm Curb Weight 3,391 lbs. (3,531 lbs.)/1,541kg (1,605kg) Fuel Tank 15.4 gal./58 liters

PERFORMANCE

100 ft. skidpad

Weight Dist., F/R, % 57/43

(Numbers in parentheses are for Convertible)

0-60 mph 5.9 seconds 13.99 seconds @ 101.6 mph Quarter mile Top speed 152 mph Braking, 60-0 mph 127 ft. 227 ft. Braking, 80-0 mph 80 ft. slalom 52.1 mph

(All performance numbers were generated under closed-course conditions on a test track.)

Help is just a toll-free phone call away, 24 hours a day, anywhere in the 50 United States, should you need any towing assistance, fuel delivery,

Ownership Experience We've gone to great lengths to make the experience of driving a new Mustang enjoyable. The experience of ownership, too.

3-year/36,000-mile bumper-to-bumper limited warranty. And we look after your security with

our no-cost Roadside Assistance Program

Expect nothing less from a "customer-driven"

Every new Ford includes the assurance of an emergency no-cost Roadside Assistance program

provided by Ford Auto Club, Inc. during the 3-year/36,000-mile bumper-to-bumper warranty

We stand behind your car with our

Roadside Assistance Program

tire change, a jump start, or even help when you're locked out of your car. Ask your Ford Dealer for complete details on the Ford Roadside Assistance Program and also for a copy of the limited warranty.

Bumper-To-Bumper Coverage The 3-year/36,000-mile bumper-to-bumper

coverage of Ford's new vehicle limited warranty covers the complete vehicle (except tires, battery, service adjustments, and other items covered under separate provisions) against defects in factory-supplied materials or workmanship. For complete information, see vour dealer.

through the Ford Dealer of your choice.



Ford Credit
Ford Credit is a full service company that makes a wide mety of financing and leasing programs available to qualified buyers

The enjoyment of owning a new car begins before you take delivery, when you're selecting olors and features.

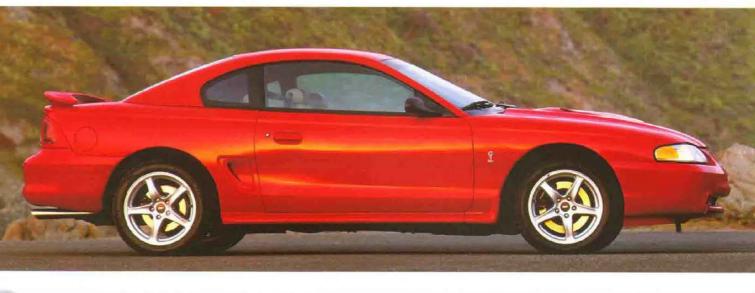
Along with the items listed elsewhere in the catalog, there are Ford-brand accessories available at your dealer. They meet or exceed ou strict specifications, and they are custom

designed and manufactured to complement the style and quality of your Ford-built vehicle.

changes in standard equipment, options, prices and the like, or product delays, may have occurred which would not be included in these pages Your Ford Dealer is your best source for ip-to-date information. Ford Division reserves the right to change product specifications at any time without incurring obligations.

Insurance Crime Bureau (NICB), NICB data compares theft rates of 1995 Mustang GTs to 1996 SecuriLock-equipped Mustang GTs 1997 SVT Cobra theft rates are similar to 1996 rates.









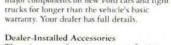












U.S.A., 8/97







1•800•FORD•SVT

HEARING IMPAIRED (TDD) 1 • 800 • 438 • 4007 FRENCH LANGUAGE: 905 • 845 • 2511, EXT. 1517 http://www.fordvehicles.com/SVT