



2012 FORD RACING PERFORMANCE PARTS

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MUSTANG BOSS 302R



MUSTANG COBRA JET



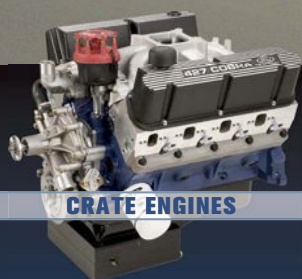
FIESTA B-SPEC



MUSTANG BOSS 302S



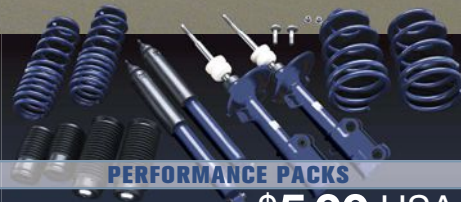
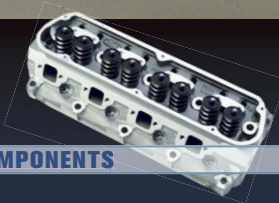
FOCUS ST-R



CRATE ENGINES



COMPONENTS



PERFORMANCE PACKS

\$5.00 USA

2012 FORD RACING PERFORMANCE PARTS

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MUSTANG COBRA JET



CRATE ENGINES



COMPONENTS



PERFORMANCE PACKS

M-0750-A2012

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FORD RACING TURN-KEY RACE CAR SPECIFICATIONS

NEXT GEN COBRA JET



BOSS 302R



Recommended Series	Various NHRA® Sportsman classes (pending NHRA® approvals)	Grand Am GS (pending homologation approvals)
Engine	5.0L 4V Ti-VCT Modular engine. Naturally aspirated and Ford Racing Whipple® supercharged versions	5.0L 4V Ti-VCT Modular BOSS R engine with FRPP Road Race oil pan
Cooling System	OEM 5.0L 4V Mustang radiator	High-capacity aluminum radiator
Fuel System	Race fuel cell with trunk-mounted fuel fill	Race fuel cell with trunk-mounted fuel fill
Transmission	3-speed C4 Auto Race transmission	BOSS 302R Six-speed
Rear End	9" rear axle w/TBD axle ratio – Strange® Engineering	Torsen® T2R differential with 3.73 gear ratio
Chassis	Factory unibody with 8.50 E.T.s NHRA®-certified roll cage	Seam-welded unibody with FIA spec 6-point roll cage
Front Suspension	Cobra Jet spring/adjustable damper tuning	Coil over struts, Front lower control arms, Delrin® bushing kit, FR adjustable front sway bar, Caster/Camber plates
Rear Suspension	Cobra Jet spring/adjustable damper tuning	Coil over shocks, tubular lower control arms, FR sway bar
Steering	Electrical power assist steering with unique Ford Racing calibration	Electrical power assist steering with unique Ford Racing calibration
Brakes Front	Light-weight, low-drag brakes (manual)	Brembo® race 4-piston front caliper, 2-piece 14" front rotors, PFC racing pads, stainless brake lines
Brakes Rear	Light-weight, low-drag brakes (manual)	Factory 1-piston caliper, 11.8" rear rotors, PFC racing pads, stainless brake lines
Brake Cooling	N/A	Spindle-mounted cooling ducts
Brake ABS Calibration	N/A	Unique FRT calibration
Electrical Wiring	Lightened FR wiring harness	Lightened FR wiring harness
Dash Controls	OEM dash with fuse panel, switch plate – start/ignition, aux switches	OEM dash with fuse panel, switch plate – start/ignition, aux switches
Data Acquisition	N/A	AIM data acquisition system with GPS
Seat	TBD	Recaro HANS® Pro Racer seat
Fire System	N/A	Cockpit-mounted fire system tank with 2 nozzles
Steering Wheel	Stock Mustang with airbag removed	Quick-release racing steering wheel
Cockpit Safety	NHRA® Stock Eliminator legal interior/8.50 E.T.s NHRA®-certified roll cage	Window net, safety system triangle nets, 6-point race harness
Wheels	Weld Wheels	BOSS 302R 18" x 10" wheel by BBS
Tires	Goodyear drag slicks	Continental Tire Grand Sport Compound
Hood	TBD	Production Mustang with hood pins
Graphics	Cobra Jet trim and appearance package	BOSS 302R graphics package
Aero Enhancements	None	None
Color	TBD	White

BOSS 302S



FOCUS ST-R



Recommended Series	World Challenge GTS, NASA® ST2, American Iron (pending homologation approvals)	Grand Am ST, World Challenge TC, Canadian Touring Car series (pending homologation approvals)
Engine	5.0L 4V Ti-VCT Modular BOSS R engine with BOSS 302 oil pan	2.0L 16V DI turbocharged I-4
Cooling System	High-capacity aluminum radiator	High-capacity aluminum radiator
Fuel System	Factory Mustang fuel tank	Fuel Cell
Transmission	GT500 six-speed transmission	Six-speed Getrag
Rear End	Torsen® T2R differential with 3.73 gear ratio	Limited slip differential
Chassis	Factory unibody with FIA spec 6-point roll cage	Seam-welded unibody with FIA spec 6-point roll cage
Front Suspension	Coil over struts, front lower control arms and Delrin® bushing kit, FR adjustable front sway bar, caster/camber plates	AST performance coil over adjustable dampers, Ford Racing adjustable anti-roll bars, caster plates
Rear Suspension	Coil over shocks, tubular lower control arms with spherical bearings, FR sway bar	AST rear damper with separate spring, Ford Racing sway bar
Steering	Electrical power assist steering with unique Ford Racing calibration	Electrical power assist steering with unique Ford Racing calibration
Brakes Front	Brembo® race 4-piston front caliper, 2-piece 14" front rotors, PFC racing pads, stainless brake lines	Single-piston caliper with 336 mm front disk with 4-piston front upgrade for WC/CTCS
Brakes Rear	Factory 1-piston caliper, 11.8" rear rotors, PFC racing pads, stainless brake lines	271 mm rear disk with stock single piston caliper
Brake Cooling	Spindle-mounted cooling ducts	Spindle-mounted cooling ducts
Brake ABS Calibration	Unique FRT calibration	Unique FRT Calibration
Electrical Wiring	Lightened FR wiring harness	Lightened FR wiring harness
Dash Controls	OEM dash with fuse panel, switch plate – start/ignition, aux switches	OEM dash with fuse panel, switch plate – start/ignition, aux switches
Data Acquisition	AIM data acquisition system with GPS	AIM data acquisition system with GPS
Seat	Recaro HANS® Pro Racer seat	Recaro HANS® Pro Racer seat
Fire System	Cockpit-mounted fire system tank with 2 nozzles	Cockpit-mounted fire system tank with 2 nozzles
Steering Wheel	Quick release racing steering wheel	Quick release racing steering wheel
Cockpit Safety	Window net, safety system triangle nets, 6-point race harness	Window net, safety system triangle nets, 6-point race harness
Wheels	19" x 9.5" BOSS Laguna Seca edition wheels	BBS 17" x 8" wheel
Tires	Pirelli Tire	Series spec tires
Hood	TBD	Stock with hood pins
Graphics	BOSS 302S graphics package	None
Aero Enhancements	Adjustable front splitter, rear adjustable CF wing	None for Grand Am, adjustable splitter and rear wing planned for WC/CTCS
Color	White, School Bus Yellow	White

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FORD'S 110 YEARS OF FACTORY PERFORMANCE

Showcasing a vehicle's performance to prove its superiority is rooted firmly in Ford history. Our company was founded with capital that Henry Ford himself attracted on October 10, 1901, when he won a match race against Alexander Winton, the most accomplished automobile racer of the era. He proved to investors that Ford's horseless carriage was better than the competition, so it's no stretch to say that Ford Motor Company was built on racing.

The Model T, launched in 1908, soon became America's favorite grassroots race car, and a few decades later, with the introduction of our famed Flathead V8 in 1932, we once again leapfrogged the competition in affordable performance.

With the proliferation of hot rods and drag racing in the 1950s and well into the '60s, we supported a small band of hardcore performance buffs by building such factory "hot rods" as the 1963½ Lightweight Galaxies and the 1964 Fairlane Thunderbolts – true race cars available right off the showroom floor. That marked the beginning of Ford's "Total Performance" program – an all-out assault brought victories and championships in drag racing, NASCAR®, Formula 1, Indy Car, Le Mans international sports car racing and off-road racing.

By 1965, the hot new Mustang was a runaway sales success for Ford. But early on it just didn't have enough oats to be considered a real "muscle car." For some immediate "street cred," Ford turned to Carroll Shelby, whose ingenuity and determination had helped make Ford a dominant force in road racing. Shelby enhanced the performance and looks of some limited-edition production Mustangs at his own facility, and today those Shelby Mustangs are among the most desirable and valuable Fords ever produced.

In the late 1960s, Mustang became Ford's entry in the Trans-Am road-racing series, sanctioned by the Sports Car Club of America (SCCA). In the hands of Parnelli Jones and George Follmer, Mustang's 1970 Trans-Am championship helped further solidify its reputation as America's muscle car.



We returned to the track in 1981, after the "fuel-crisis" decade, with our racing efforts managed by Special Vehicles Operations. In addition to success in NASCAR® and drag racing, SVO gave a top priority to road racing in the Trans-Am series and the International Motor Sports Association's GTO division. The results were impressive: a championship combined total between 1984 and 1999 of 14 driver and 14 manufacturer titles, plus Roush Racing's 10 consecutive 24 Hours of Daytona class victories.

SVO's duties were refocused in the early '90s on racing and performance parts, while Ford's performance street-car development was handed to the new Special Vehicle Team – a group of Ford car guys whose mandate was to deliver "performance, substance, exclusivity and value." From 1993 to 2004, Ford SVT produced such legendary vehicles as the Mustang SVT Cobra, Cobra R, F-150 SVT Lightning, SVT Contour sport sedan and the Focus SVT sport compact. Over that period, more than 150,000 SVT vehicles were sold worldwide, making SVT the longest-running, best-selling niche performance vehicle operation in history.

Today at Ford Racing, our premier racing activities in North America still are NASCAR® racing and NHRA® drag racing, and our successes keep on building. In 2011 Ford scored its 600th all-time NASCAR® Sprint Cup victory when Trevor Bayne won the Daytona 500 in a Wood Brothers Fusion, and during the NHRA® Full Throttle Drag Racing season, Mike Neff won the 200th Funny Car victory for Ford in his John Force Racing Mustang.

Now we combine the efforts of SVO and SVT in developing Ford performance parts for racing and street enthusiasts, and at times we develop the cars themselves. The Ford Racing Mustang FR500C – a winner and champion in both North America and Europe – is a perfect example.

The same engineers who developed the FR500C were assigned to produce Ford Racing Performance Packs for street Mustangs, and invested hundreds of hours in track and street testing. Their efforts have kept pace with Mustang advancements over the years, resulting in our factory-engineered performance and handling packages for Mustang V6, GT and Shelby GT500.

Mustang FR500C was just the beginning of Ford Racing's purpose-built, turn-key race cars from a stock foundation. Next came the spec-racer FR500S, then a drag-racing legend was reborn in 2008 with the FR500CJ (Cobra Jet). It arrived just in time for the 40th anniversary of the original Cobra Jet, and just like the original, a 2008 FR500CJ won its very first race! More Cobra Jets were built for the 2010 and 2012 model years, and the program's success continues to build. All three limited-production runs have sold out and a future fourth run is planned.



"The BOSS Is Back" was music to the ears of Mustang performance enthusiasts in 2010. First came race cars, evolved from the FR500 series – Ford Racing's BOSS 302R and 302S. Lessons from racing development and on-track competition went directly into development of the 2012 Mustang BOSS 302 production car, which has been launched to media acclaim as the finest performance Mustang ever.

In recent years, and in concert with Ford's global platform strategy, Ford Racing has expanded its scope globally to include the world of action sports: X Games, Rally and Rallycross with the Ford Fiesta,



and Formula Drift with Mustang. In addition, a purpose-built racing version of the new 2012 Ford Focus ST – the Focus ST-R – is being developed in North America for a wide variety of touring car series around the world. A result of all this work has been an ever-expanding range of performance parts and packages for Fiesta and Focus, created by the same team of dedicated engineers who worked on our winning race car programs.

Every race-proven part for Mustang, Fiesta and Focus is packed with potential, and many come with a limited Ford Racing warranty. All of them are designed, engineered and developed to rigorous Ford OE standards, so confidence in their fit, function, performance and durability is built-in.

At Ford Racing, we have 110 years of great products behind us and a lot more in the future. Our passion for performance is best expressed in how much fun these vehicles are to drive and how proud you can be to own one.

On behalf of our entire team, we want to thank you for your continued support of Ford Racing.

Jamie Allison

A handwritten signature of Jamie Allison in black ink.

Director, North American Motorsports



DRIVING WITH PRIDE IN YOUR RIDE

October 2011 marked Ford's 110th anniversary in racing. That's 110 years of "We race – You win" and in addition to a little celebrating, we've been busy bringing great products to our customers.

For more than a century, Ford vehicles have been competing and winning on the track – proof-positive that a successful race car is more than a collection of performance parts. It is a complete package of race-grade components that are engineered, developed and tested together to deliver a winning combination. During those 110 years, Ford engineers and craftsmen led the development of the special components and vehicles that went on to dominate on the track and street.

At Ford Racing, engineers, craftsmen and many of the best manufacturers in the performance industry collaborate to create and develop the best upgrades for your Ford car or truck. We know Ford vehicles better than anyone else, which puts us in a unique position to help you to realize your car's performance potential, while maintaining the important balance with durability, drivability and emissions.

The new 5.0 Coyote crate engine components and control pack are outstanding examples of this philosophy, and we are offering even more products for that engine this year. The popular 5.0 joins the X302, Z363 and X427 push rod crate engines to provide a range of choices for Blue Oval power. These engines present a number of options for classic Ford hot rods and resto-mods, and make it easy for those who want to keep their Ford project all-Ford, with an engine designed and developed by Ford Racing engineers.

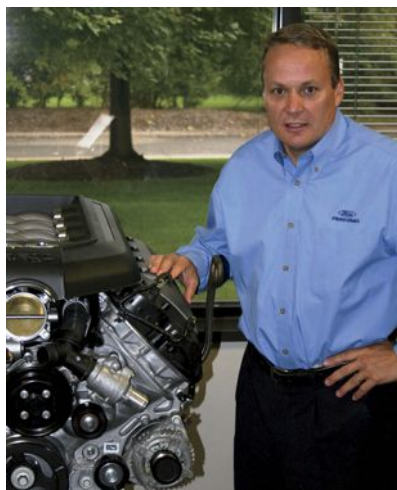
At Ford Racing, we are responding to new changes in the marketplace by adding Fiesta and Focus offerings – a reflection of Ford's global perspective, and the growing popularity of smaller, more fuel-efficient vehicles. This includes the Focus ST-R turn-key race car that you see on the cover, and expanding our line of performance equipment for these cars.

Of course, Mustang remains our "crown jewel", and we've been pushing the performance envelope in both sports car racing and drag racing. In the Grand-Am Continental Tire Sports Car Challenge, the BOSS 302R has been our lead horse. This year, BOSS 302R drivers scored four wins, and achieved podium finishes in every race but one.

In the SCCA's Pirelli World Challenge our newest BOSS, the 302S, ran the table delivering both the driver and manufacturer championships. Cobra Jet, our factory built drag race car, continues to distinguish itself on the drag strip across the country – scoring a win in Super Stock at the 2011 Brainerd NHRA® national event and numerous Class wins at the 2011 U.S. Nationals. And Ford Racing crate engines have racked up more Blue Oval wins than ever in 2011, giving Ford fans something to cheer about at short tracks across the U.S. and Canada.

Whether you are an oval racer, a drag racer, a road racer, an off-roader, a builder, a restorer or an enthusiast who wants more street performance, you are a highly valued customer. The entire team at Ford Racing is committed to giving you the very best options for improving your Ford vehicle.

Thanks again, and enjoy the ride,



Drive one.

George Goddu, Business Manager, Ford Racing Performance Group

BLUE BLOODS



BOSS 302R

BOSS 302S

FORD RACING STRIKES AGAIN

Ford Racing is proud to be the only high-volume vehicle manufacturer to design, engineer, develop, sell and support a variety of turnkey race cars – both for the drag strip and for the road course. New for 2012 is our family of BOSS 302 race cars, the BOSS 302S for sprint races and the BOSS 302R for endurance races. These cars, true to the BOSS winning heritage, are available from your local Ford dealer.

The Ford Racing performance parts used to build these exciting cars continue the pedigree of champions. And you can use them with confidence to build your own blue-blood Ford performance car. Ford Racing products are designed, engineered, and developed to rigorous Ford OE standards. They have earned the right to wear the Ford Oval – the hard way.

CRATE ENGINES



PERFORMANCE COMPONENTS



MUSTANG PERFORMANCE PACKS



TRUE-BLUE PERFORMANCE, SUBSTANCE AND VALUE WWW.FORDRACING.COM



PERFORMANCE PARTS DESIGNATIONS



As one of the leading manufacturers of performance parts, Ford Motor Company recognizes a special responsibility regarding environmental concerns. Ford Racing Performance Parts is committed to a program of developing performance parts that allow motorsport enthusiasts to modify their vehicles and meet emission requirements.

Using guidelines established by the state of California for aftermarket parts used in vehicles driven on public highways, Ford engineers have developed a system for identifying parts that are acceptable for use on emission-controlled motor vehicles and those intended for competition purposes only.

This catalog lists more than 1,100 Ford Racing parts. For emission purposes, these parts are classified into two groups.
Asterisks are used after the part number to identify the category to which the part belongs.

GROUP 1 – PARTS WITH NO ASTERISK Street Legal by Executive Order

- This special group of add-on or modified group of parts are Street Legal by Executive Order from the State of California, because Ford Racing has demonstrated through emission testing that they do not adversely affect vehicle emissions when used on emission-controlled vehicles.
- For marketing purposes, some Street Legal parts also are identified with a 50-States Street Legal logo.
- Typical parts include power upgrade packages, performance calibrations and supercharger kits with Ford Racing calibration.

GROUP 2 – PARTS WITH ASTERISK (*)

- Indicates that for emission considerations, the part is NOT Street Legal. The following footnote appears at the bottom of catalog pages describing these parts: *Not legal for sale or use on pollution-controlled motor vehicles.
- Part numbers with a single asterisk typically include off-road performance parts and parts that may affect original equipment emission function.

NOTE—GREEN STATES

Parts marked in this catalog with an asterisk and appropriately marked on their packaging may legally be used in Green States only on a racing vehicle which will never be operated on public roads.

**GREEN STATES/CROSS BORDER STATES
USING CALIFORNIA EMISSION STANDARDS:**
AZ, CA, CO, CT, DE, ID, MA, MD, ME, NH, NJ,
NM, NV, NY, OH, OK, OR, PA, RI, TX, UT, VA, VT,
WA and WV

FUTURE DEVELOPMENTS

Ford Racing is continuing the process of developing, analyzing and testing engine and powertrain parts which can be used on pollution-controlled vehicles. Many, of course, are all-out performance parts and have no application for cars driven on public highways.

Ford's vision is to provide products meeting all of our various customers' needs while remaining environmentally responsible.

For more information on this program, call the Ford Racing Techline at (800) FORD788.

IMPORTANT NOTICE

This catalog primarily lists special performance parts and is intended only as a supplement to the published service manuals and parts catalogs of Ford Motor Company. Buyers of performance parts are warned that many of these parts are for off-highway use only and that the following provisions apply:

OFF-HIGHWAY OR RACING USE

Because U.S., Canadian, state or provincial laws and regulations may prohibit removal or modification of components that were installed on vehicles by Ford Motor Company to meet emission requirements or to comply with motor vehicle safety regulations applicable to vehicles manufactured for use on public roads, Ford Motor Company recommends that vehicles equipped with parts designated "for off-highway use" not be operated on public roads, and offers such parts only for track or off-highway competitive or performance use. Such parts have a special "warning" label (see next column). All parts identified as Group 2 (see above) are included in this designation.

WARNING:

This part has been designed and is intended for off-highway application only. Installation on a vehicle intended for use on public roads may violate U.S., Canadian, state or provincial laws and regulations including those relating to emission requirements and motor vehicle safety standards. (NOTE: In California this part may legally be used only on a racing vehicle which will never be operated on public roads.) In addition, installation of this part may adversely affect the warranty coverage on your vehicle.

MUSTANG 5.0L 4V BLUE COIL COVERS

M-6P067-M50B*

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2005-2012 MUSTANG FRONT STRUT MOUNT UPGRADE (PAIR)

M-18183-C*

page 193



BOSS 302R CYLINDER HEAD ASSEMBLY

M-6049-M50BR* RH

M-6050-M50BR* LH

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BLUE "FORD RACING" COATED 3-VALVE CAM COVERS

M-6582-FR3VBL*

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BOSS 302R HEAD CHANGING KIT

M-6067-M50BR*

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MUSTANG BOSS 302 FORGED CRANK

M-6303-M50B*

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Part Number	Description	Page
M-6507-M50BR*	BOSS 302R INTAKE VALVE	97
M-6505-M50BR*	BOSS 302R EXHAUST VALVE	97
M-6100-M50BR*	BOSS 302R PISTON AND ROD SET	131
M-6007-A50NA*	5.0L DOHC ALUMINATOR CRATE ENGINE NATURALLY ASPIRATED	54
M-6582-FR3VBLK*	BLACK "FORD RACING" COATED 3-VALVE CAM COVERS	225
M-5025-MBR*	MUSTANG BOSS 302 MANUAL TRANS COOLER AIR SCOOP	159
M-16601P-MB*	2010-2012 MUSTANG GT FRONT SPLITTER KIT, SERVICE KIT	235

NEW PARTS FOR 2012

MUSTANG 20" SPYDER WHEEL

M-1007-P2085LN*

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MUSTANG 18" MATTE BLACK WHEEL

M-1007-P188MB*

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MUSTANG BOSS 302 ENGINE OIL COOLER

M-6642-MB*

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MUSTANG BOSS 302 BRAKE LINE KIT

M-2078-MB*

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5.0L Ti-VCT 4V MUSTANG BOSS 302 CRATE ENGINE

M-6007-M50B*

page 55



5.0L DOHC ALUMINATOR CRATE ENGINE FOR SUPERCHARGED APPLICATIONS

M-6007-A50SC*

page 54



Part Number	Description	Page
M-12405-M50*	FRPP RACING 5.0L 4V COLD SPARK PLUG SET	216
M-2004-MB*	2010-2012 MUSTANG BRAKE DUCT KIT	196
M-6529-MSVT*	MUSTANG SVT 5.4L 4V ROCKER ARM SET	109
M-6675-M50BR*	2012 5.0L BOSS 302R ROAD RACE OIL PAN	118
M-6880-M22*	90-DEGREE OIL FILTER ADAPTOR KIT	121
M-7213-L*	MUSTANG SVT SHIFTER HANDLE KIT	160

RING AND PINION SETS

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2005-2012 MUSTANG SVT 3.73

AXLE ASSEMBLY

M-4001-SVT373*

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2012 MUSTANG BOSS 302 TORSEN DIFFERENTIAL

M-4204-MB*

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1999-2004 COBRA IRS AXLE GIRDLE COVER

M-4033-G3*

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2012 MUSTANG BOSS 302 RADIATOR

M-8005-MBR*

page 127



2012 FOCUS HATCHBACK MUFFLER

M-5230-FOH*

page 155



Part Number	Description	Page
M-FR3-FB*	2012 FOCUS HANDLING KIT	188
M-5300-S*	2012 FOCUS SPRING KIT	190
M-5490-F*	2012 FOCUS ANTI-ROLL BAR KIT	190
M-4210-B2*	8.8" RING AND PINION INSTALLATION KIT	170
M-5649-S*	2005-2012 MUSTANG REAR TUBULAR LOWER CONTROL ARM KIT	193
M-5650-A*	2005-2012 MUSTANG LOWER CONTROL ARM RELOCATION BRACKET	193

NEW PARTS FOR 2012

MUSTANG THROTTLE BODIES

pages 210-212



MUSTANG 4V Ti-VCT 90 MM THROTTLE BODY INTAKE SPACERS

page 212



5.0L 4V Ti-VCT EXHAUST CAMSHAFT SET

M-6550-M50GTE*

page 107



2011-2012 FIESTA SCCA B-SPEC RACE SUSPENSION KIT

M-FR3-FASB*

page 188



5.0L 4V ALTERNATOR KITS

M-8600-M50ALT* Mustang GT

M-8600-M50BALT* BOSS 302

page 129



8.8" IRS HOUSING KIT W/GIRDLE COVER

M-4010-G3*

page 169



Part Number	Description	Page
M-9000-302RAKIT*	302 CRANKSHAFT RODS AND PISTONS KIT	131
M-6513-M50BR*	BOSS 302R VALVE SPRING KIT	97
M-8511-M50BR*	BOSS 302R POWER STEERING PUMP BRACKET	129
M-9444-M50B*	MUSTANG BOSS 302 INTAKE MANIFOLD INSTALL KIT	117

302/351/460 FRONT T-SUMP RACING OIL PANS

page 119



302/351/460 REAR SUMP OIL PANS

page 119



363 CUBIC INCHES BOSS SHORT BLOCK

M-6009-363*
page 69



2011-2012 MUSTANG GT SHAKER HOOD SYSTEM

M-16612-SHKB*
page 234



363 CUBIC INCHES 500 HP BOSS CRATE ENGINES

M-6007-Z363FT*
M-6007-Z363RT*
page 59



427 CUBIC INCHES CRATE ENGINES "X" HEAD

M-6007-X427FFT* Front
M-6007-X427FRT* Rear
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Part Number	Description	Page
M-1007-R1895*	2012 MUSTANG BOSS 302S WHEEL	178
M-5220-MB*	2011-2012 MUSTANG GT SIDE EXHAUST	154
M-6373-A*	STARTER INDEX PLATE MODULAR BLOCK AUTO TRANS	163



2005-2012 FORD MUSTANG



FORD RACING SUPERCHARGERS



See pages 148-151 for a complete listing of Ford Racing superchargers.

The old adage in engine performance is “there’s no replacement for displacement”...unless you have a supercharger!

Ford Racing supercharger kits give Ford enthusiasts hundreds of additional “bolt-on” horsepower and include our exclusive Ford Racing calibration.

All Ford Racing supercharger kits endure a rigorous calibration and durability schedule before they are sold to the public. Each kit has thousands of hours on the engine dyno, in climate controlled temperature and altitude testing, and finally on-road validation and durability. All with the goal of making the most reliable horsepower and torque under the curve, and maintaining factory-like drivability! They are the most proven, engineered and reliable kits available, period!

Only Ford Racing is capable of delivering these characteristics because only Ford Racing can change not only the calibration, but also the actual software in the powertrain control module. This is akin to changing a word processor document and the word processing program, too. We do more than change limits and parameters, we create new features, limits and parameters specifically designed for our supercharger kits. In some kits, this is up to 10,000 new lines of code.

When you’re looking for safe, reliable, “bolt-on” horsepower, buy with confidence from the industry leader, Ford Racing. The only supercharger brand good enough to bear the Ford Oval.

FORD RACING AIR INTAKE KITS AND POWER UPGRADE PACKAGES



See pages 134-136 for a complete listing of Ford Racing air intake kits and power upgrade packages.

Ford Racing air intake kits are manufactured by Ford OEM suppliers based on mainstream production car programs. The intake housing was sourced from the 2008 special edition Mustang GT program and features a high-flow disposable air filter. The housing design has been proven to channel air from the grill opening into the filter for optimum performance. Ford Racing tests its calibrations extensively, in a wide range of conditions. The engineers take extreme care to provide as much power and torque as can be safely delivered, and also to deliver high durability and exceptional drivability. In the area of automatic transmission calibration, they generally make extensive changes to improve shift quality and give the transmission a more performance-oriented feel, without compromising durability.

Most other companies do not have the time or resources to test to the extent Ford Racing does. In fact, all Ford Racing kits are 50-state emissions legal and many are offered with a warranty. Customers can be sure of a quality product that will continue to deliver improved performance over the long term.

FORD RACING PERFORMANCE MUFFLERS



See pages 153-155 for a complete listing of Ford Racing performance mufflers.

With all the aftermarket exhaust companies offering the “latest and greatest” Mustang muffler, choosing a performance exhaust for your Mustang can be confusing. The old school exhaust design philosophy of “bigger is better” can lead to substantial power loss and exhaust drone. For street use, Ford Racing and its exhaust design partners know that large diameter pipes take energy out of the exhaust, both by slowing down exhaust gas velocity and by cooling off the gases. Exhaust velocity and uninterrupted flow are the real performance-making factors in your Mustang exhaust. Ford Racing’s exhaust systems’ design increases exhaust gas velocity and moves more uninterrupted air through the engine. Since there are reduced restrictions, exhaust gases evacuate the cylinder completely, thereby allowing the new charge to come into the cylinder and create more power.

The distinctive look of Ford Racing’s logo embossed muffler case and polished exhaust tips tell the world you are running a Ford Racing system. Many Ford Racing exhaust systems are built of aircraft-quality T-304 stainless steel to withstand corrosion for years of good looks.

FORD RACING MUSTANG SHIFTERS



See pages 160-161 for a complete listing of Ford Racing Mustang shifters.

Short throw shifters are a popular upgrade for late model Mustang and Ford Racing offers shifters for the Mustang V6, Mustang GT and SVT models. We have partnered with world famous Hurst® shifters to build our line of Mustang shifters. Hurst® shifters have been installed in performance Mustang's since the late '60s. Iconic Mustangs like the 1969 BOSS 302 and Drag Pack optioned cars.

Most Ford Racing shifters include the famous white shift ball with engraved "Ford Racing" logo. We also offer black "Ford Racing" logo shift knobs for those that dare to be different. For smooth shifting, all Ford Racing shifters feature high-lubricity polymer shifter bearings and urethane body vibration isolators. For Fox body enthusiasts, a Ford Racing/Hurst® shifter is also available for the T-5, T-45 and T-56 transmissions.

FORD RACING MUSTANG HANDLING PACKS



See pages 183-185 for a complete listing of Ford Racing handling packs.

Ford Racing's Handling Packs for the 2005-2012 Mustang come with everything an owner needs to improve the cornering ability of his/her ride while maintaining everyday streetability. Each FR3 handling pack comes with all parts needed to lower the front and rear of your Mustang and maintain a streetable ride. The same engineers that developed the suspension for the BOSS 302R and 302S race cars worked on the FRPP handling packs. The shocks in the FR3 kit were developed by Multimatic, under the Dynamic® Dampers brand, and manufactured by Tokico®.

For the enthusiast that likes to tune their suspension, Ford Racing offers a tunable suspension kit. A supplied tool allows the shocks to be adjusted from full soft to full hard, and stages in-between. For sway bars, the solid rear bar is a larger diameter than stock and increases bar stiffness. On the front suspension, the tubular front sway bar is also increased in diameter to work with the rear bar. Heavier mounting hardware, billet rear link bars and urethane bushings are included to improve the consistency of roll resistance through all types of driving.

FORD RACING WHEELS



See pages 176-180 for a complete listing of Ford Racing wheels.

There's no better way to make your car stand out in a crowd than a brand new set of wheels! Ford Racing Performance Parts has a full line of wheels for 2005-2012 Ford Mustang. Whether you own a fuel-sipping V6 model or a Shelby GT500, Ford Racing has the aggressive, high-quality wheels to give your car a little bit of attitude.

Ford Racing sources its wheels from original equipment (OE) wheel suppliers that manufacture to SAE and ASTM testing standards. This assures your new set of wheels can handle the bumps and bangs they'll face everyday, whether driving to work or lapping hard at the track. They're also tested to withstand substances such as salt, gasoline, oil, brake fluid and other corrosive substances.

Ford Racing's Mustang wheels come in a variety of sizes, styles and finishes so you can find the look and fit you're after. Whether you want a new finish on a current design, such as the 19" Track Pack Wheel in gloss black, or a larger diameter wheel, like the 20" Spyder Wheel, Ford Racing has a huge selection for your S197 Mustang. Also available are the wheels found on Ford's new Mustang BOSS 302R and 302S race cars.

FORD RACING HIGH-PERFORMANCE OIL FILTERS

M-6731-FL820* Case of 12
CM-6731-FL820* Single Filter
 See page 121 for details.



MUSTANG X-PIPES

M-5251-MGTA* 2011-2012 Mustang GT
M-5251-MV6A* 2011-2012 Mustang V6
M-5251-R* 2005-2010 Mustang GT
 See page 154 for details.



FRRP 5.0L 4V COLD SPARK PLUG SET

M-12405-M50*
 See page 216 for details.



NEW

5.0L 4V BOSS 302 OIL PAN

M-6675-M50B
 See page 118 for details.



2011-2012 MUSTANG 5.0L 4V 90 MM THROTTLE BODY

M-9926-M5090*
 See page 212 for details.



NEW

MUSTANG "SHORTY" HEADERS

M-9430-C54C* 2007-2009 Mustang SVT Coated
M-9430-S197* 2005-2010 Mustang GT
M-9430-S197C* 2005-2010 Mustang GT Coated
 See page 152 for details.



2007-2012 MUSTANG SVT THROTTLE BODY

M-9926-MSVT*
 See page 212 for details.



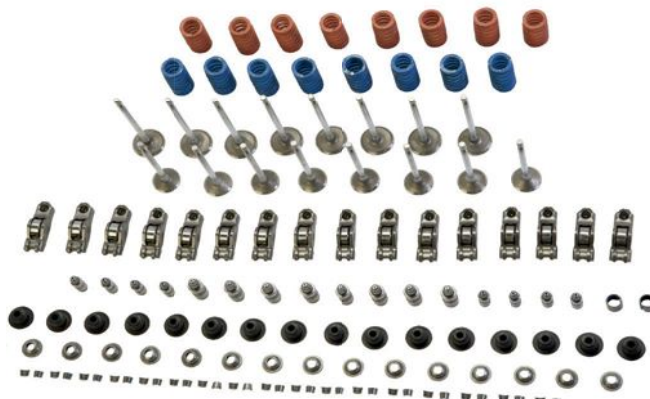
SUPER COBRA JET OVAL THROTTLE BODY

M-9926-SCJ*
 See page 212 for details.

NEW

VALVE KIT MUSTANG SVT HEAD

M-6C521-MSVT*
 See page 109 for details.



2005-2012 FORD MUSTANG

MUSTANG BOSS 302 MANUAL TRANS COOLER AIR SCOOP

M-5025-MBR*

See page 159 for details.



NEW

2012 MUSTANG BOSS 302 TORSEN® DIFFERENTIAL

M-4204-MB*

See page 172 for details.



NEW

8.8" AXLE GIRDLE

M-4033-G2*

See pages 168 for details.



8.8" ALUMINUM AXLE COVER

M-4033-K*

See page 168 for details.



NEW

MUSTANG AXLE ASSEMBLIES

M-4001-A355*

2005-2012 3.55 gear ratio

M-4001-SVT373*

2005-2012 3.73 gear ratio

See page 168 for details.

NEW



8.8" RING GEAR AND PINION SETS

PART NUMBER	AXLE	RING & PINION
MUSTANG/RANGER/F-150		
M-4209-88308*	8.8"	3.08
M-4209-88315*	8.8"	3.15
M-4209-88327*	8.8"	3.27
M-4209-88331*	8.8"	3.31
M-4209-88355*	8.8"	3.55
M-4209-88373*	8.8"	3.73
M-4209-88410*	8.8"	4.10
M-4209-88456*	8.8"	4.56

See page 170 for details.



IRS 8.8" RING AND PINION INSTALLATION KIT

M-4210-A*

See page 170 for details.

NEW



8.8" RING AND PINION INSTALLATION KIT

M-4210-B2*

See page 170 for details.



4.6L/5.4L 4V "FORD RACING" CAST COIL COVERS

M-6067-D*

See page 228 for details.



MUSTANG 5.0L 4V Ti-VCT BLUE COIL COVERS

M-6P067-M50B*

See page 232 for details.



2007-2012 MUSTANG SVT AND COBRA JET A/C DELETE KIT

M-19216-CJ*

See page 128 for details.



1996-2010 MUSTANG A/C ELIMINATOR KIT

M-19216-D46*

See page 128 for details.



2007-2011 MUSTANG SVT COATED CHROME CAM COVERS

M-6582-CC*

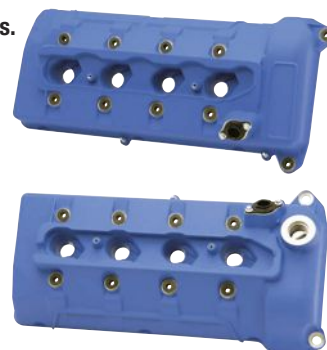
See page 225 for details.



2007-2012 MUSTANG SVT BLUE COATED CAM COVERS

M-6582-C*

See page 225 for details.



COATED 3-VALVE CAM COVERS 4.6L/5.4L

M-6582-C543V*

Chrome appearance

M-6582-3VB*

Blue

M-6582-3VBLK*

Black

See page 225 for details.



2011 5.0L 4V ENGINE COVER KIT

M-9680-M50*

See page 232 for details.



2005-2010 MUSTANG GT INTAKE SHROUD

M-6949-3V*

See page 232 for details.



2005-2012 FORD MUSTANG

BOSS 302R CYLINDER HEAD ASSEMBLY

M-6049-M50BR* Right Hand

M-6050-M50BR* Left Hand

See page 96 for details.

NEW



BOSS 302R HEAD CHANGING KIT

M-6067-M50BR

See page 97 for details.

NEW



BOSS 302R VALVES

M-6505-M50BR* Exhaust

M-6507-M50BR* Intake

See page 97 for details.

NEW



BOSS 302R VALVE SPRING KIT

M-6513-M50BR*

See page 97 for details.

NEW



BOSS 302R PISTON AND ROD SET

M-6100-M50BR*

See page 131 for details.

NEW



BOSS 302 INTAKE CAM SET

M-6550-M50BINT*

BOSS 302 EXHAUST CAM SET

M-6550-M50BEXH*

BOSS 302R EXHAUST CAM SET

M-6550-M50BR*

5.0L 4V Ti-VCT EXHAUST CAM SET

M-6550-M50GTE*

See page 107 for details.



2005-2012 FORD MUSTANG

CNC PORTED 3V CYLINDER HEAD ASSEMBLIES

See pages 95-98 for details.



2005-2010 MUSTANG GT HIGH LIFT HOT ROD CAM SET

M-6550-3V*

See page 108 for details.



3V 4.6L HEAD CHANGING KIT

M-6067-3V46*

See page 106 for details.



BOSS 302 FORGED CRANK

M-6303-M50B*

See page 131 for details.



BOSS 302 INTAKE MANIFOLD

M-9424-M50BR*

BOSS 302 INTAKE MANIFOLD INSTALL KIT

M-9444-M50B

See page 117 for details.



4.6L 3-VALVE PERFORMANCE INTAKE MANIFOLD

M-9424-463V*

See page 117 for details.



FORD RACING FUEL INJECTOR SETS

See page 209 for details.



MUSTANG GT DUAL FUEL PUMP KITS

M-9407-MSVTA* 2010

M-9407-GT05* 2005-2009

See page 213 for details.



2005-2012 FORD MUSTANG

2005-2012 MUSTANG GT ALUMINUM RADIATOR

M-8005-MGT*

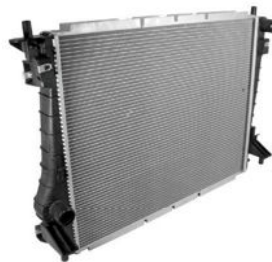
See page 127 for details.



2012 MUSTANG BOSS 302 RADIATOR

M-8005-MBR*

See page 127 for details.



MUSTANG SVT ELECTRIC WATER PUMP

M-8501-MSVT*

See page 127 for details.



2011 MUSTANG SVT HEAT EXCHANGER

M-8229-MSVT*

See page 148 for details.



5.0L 4V ALTERNATOR KITS

M-8600-M50ALT* Mustang GT

M-8600-M50BALT* BOSS 302

See page 129 for details.



2005-2012 FORD MUSTANG

2005-2010 MUSTANG GT FRONT LOWER CONTROL ARM UPGRADE KIT

M-3075-E*

See page 193 for details.



2005-2012 MUSTANG GT REAR LOWER CONTROL ARM UPGRADE KIT

M-5538-A*

See page 193 for details.



2005-2012 MUSTANG REAR TUBULAR LOWER CONTROL ARM KIT

M-5649-S*

See page 193 for details.



2005-2012 MUSTANG FRONT STRUT MOUNT UPGRADE (PAIR)

M-18183-C*

See page 193 for details.



NEW

MUSTANG FR500C REAR UPPER CONTROL ARM BUSHINGS

M-5638-R*

See page 193 for details.



2005-2009 MUSTANG GT COUPE FRONT LOWER A-ARM BRACE UPGRADE KIT

M-5025-A*

See page 193 for details.



2010 COBRA JET REAR SUSPENSION KIT

M-5649-CJ10*

See page 193 for details.



2005-2012 FORD MUSTANG

2005-2012 MUSTANG GT AND 2007-2009 MUSTANG SVT DRIVESHAFT LOOP KIT

M-5478-S197B*

See page 175 for details.



2005-2012 MUSTANG JOUNCE BUMPER KIT

M-5570-A*

See page 187 for details.



2005-2012 MUSTANG GT 14" SVT BRAKE UPGRADE KIT

M-2300-S*

See page 194 for details.



2005-2010 MUSTANG V6 BRAKE UPGRADE KIT

M-2300-D*

See page 194 for details.



MUSTANG BOSS 302 BRAKE LINE KIT

M-2078-MB*

See page 196 for details.



2010-2012 MUSTANG BRAKE DUCT KIT

M-2004-MB*

See page 196 for details.



2005-2012 FORD MUSTANG

2007-2009 MUSTANG SVT STEERING WHEEL

M-3600-C*

See page 233 for details.



FORD RACING MUSTANG GAUGE POD

M-6304GPOD-A*

See page 219 for details.



FORD RACING MUSTANG GAUGE PACK

M-6304GPACK-MA*

See page 219 for details.



2007-2009 MUSTANG SVT BLACK STITCH WHEEL AND BOOT

M-3601-C*

See page 233 for details.



MUSTANG SUPER COBRA JET 5" TACHOMETER W/SHIFT LIGHT

M-17360-SCJ*

See page 220 for details.



2005-2012 FORD MUSTANG

2010 COBRA JET FIBERGLASS HOOD

M-16612-CJ*

See page 234 for details.



2007-2009 MUSTANG SVT HOOD

M-16612-C*

See page 234 for details.



2007-2009 MUSTANG SVT REAR SPOILER

M-16600-SVTC*

See page 235 for details.



MUSTANG GT SHAKER HOOD SYSTEM

M-16612-SHKB* 2011-2012 Mustang GT

M-16612-SHK* 2010 Mustang GT

M-16612-SHK59* 2005-2009 Mustang GT

See page 234 for details.



FORD RACING MUSTANG SPLITTER KITS

M-16601-MB*

M-16601P-MB* Service Kit

See page 235 for details.



2005-2012 FORD MUSTANG

2005-2009 MUSTANG ALUMINUM FUEL FILL DOOR

M-2301-5M*

See page 236 for details.



2005-2009 MUSTANG QUARTER- WINDOW LOUVERS

M-1784-MS*

See page 235 for details.



CHROMED ALUMINUM OIL FILL CAP COVER FOR 4.6L/5.4L/6.8L

M-6766-MP46A*

See page 229 for details.



5.4L SVT ENGINE BILLET ALUMINUM CAP KIT

M-6766-M54

See page 229 for details.



2007-2009 MUSTANG SVT "COBRA" SNAKE FENDER EMBLEMS

M-1447-C

See page 237 for details.



2011-2012 MUSTANG 5.0L FENDER EMBLEM

M-1447-M50

See page 237 for details.



MUSTANG SVT DECK LID EMBLEM

M-1447-SVT

See page 237 for details.





2011-2012 FIESTA SCCA B-SPEC RACE SUSPENSION KIT

M-FR3-FASB*

See page 188 for details.



NEW

2011-2012 FIESTA HANDLING PACK M-FR3-FA*

See page 188 for details.



FORD RACING 15-SPOKE FIESTA WHEEL

M-1007-FA*

See page 180 for details.



2011-2012 FORD FIESTA SHORT THROW SHIFTER

M-7210-FA*

See page 161 for details.



2011-2012 FIESTA EXHAUST SYSTEM M-5230-FAC*

See page 155 for details.





FORD FOCUS



FORD FOCUS ST-R

2012 FORD FOCUS ST-R



For more details, see page 276.

2002-2004 FOCUS SVT FRONT FASCIA

M-17831-F*

See page 236 for details.



2002-2004 FOCUS SVT REAR FASCIA

M-17835-F*

See page 236 for details.



2000-2009 ALUMINUM FUEL DOOR

M-2301-E*

See page 236 for details.



FOCUS TORSEN® DIFFERENTIALS

M-4204-F20* MTX-75 transaxle

M-4204-SVTF* 2002-2004 Focus SVT

See page 172 for details.



2012 FOCUS HATCHBACK MUFFLER

M-5230-F0H*

See page 155 for details.



2012 FOCUS ANTI-ROLL BAR KIT

M-5490-F*

See page 190 for details.



2000-2009 FOCUS ZX3/4/5 ADJUSTABLE REAR SUBFRAME

M-5035-ZX3*

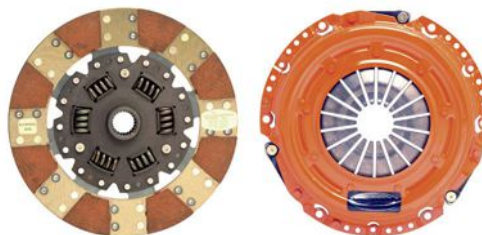
See page 190 for details.



2000-2004 FOCUS ZX3/ZX5 CENTERFORCE CLUTCH KIT

M-7563-Z3*

See page 167 for details.



2012 FOCUS HANDLING KIT

M-FR3-FB*

See page 188 for details.



FOCUS PERFORMANCE SPRING KITS

M-5560-ZXM*

2000-2005 Focus except wagon

M-5560-ZXM1*

2006-2007 Focus except wagon

See page 190 for details.



2012 FOCUS SPRING KIT

M-5300-S*

See page 190 for details.



2006-2007 FOCUS PERFORMANCE SPRING KIT

M-5560-ZX3B*

See page 190 for details.



FOCUS DYNAMIC® DAMPER KITS

M-18000-ZXM*

2000-2005 Focus except wagon

M-18000-ZXM1*

2006-2007 Focus except wagon

See page 187 for details.



FOCUS SVT STRUT/SHOCK KITS

M-18000-ZX3*

2000-2005 Focus except wagon

M-18000-ZX3B*

2006-2007 Focus except wagon

See page 187 for details.



2000-2005 FOCUS SUSPENSION KIT

M-3000-ZX3*

See page 188 for details.



2000-2005 FOCUS SUSPENSION KIT

M-3000-ZX3A*

See page 188 for details.



2000-2004 FOCUS 300 MM FRONT BRAKE UPGRADE KIT

M-2300-SVTF4*

See page 195 for details.



2000-2004 FOCUS RALLY FRONT BRAKE KIT

M-2300-ZXR*

See page 195 for details.



2005-2009 FOCUS 300 MM FRONT BRAKE UPGRADE KIT

M-2300-SVTF5*

See page 195 for details.



2004 FOCUS SVT WHEEL

M-1007-S177A*

See page 180 for details.



2003 SILVER FOCUS SVT WHEEL

M-1007-S177*

See page 180 for details.



2003 FOCUS SVT EUROPEAN APPEARANCE PACKAGE 15-SPOKE DARK ARGENT WHEEL

M-1007-S177E*

See page 180 for details.



FORD RACING FOCUS RALLY WHEEL

M-1007-S177B*

See page 180 for details.





FORD TRUCKS



6" ROUND AUXILIARY HALOGEN LIGHTS

M-15200-F15R6HAL*

See page 238 for details.



8" ROUND AUXILIARY HIGH-INTENSITY DISCHARGE LIGHTS

M-15200-F15R8HID*

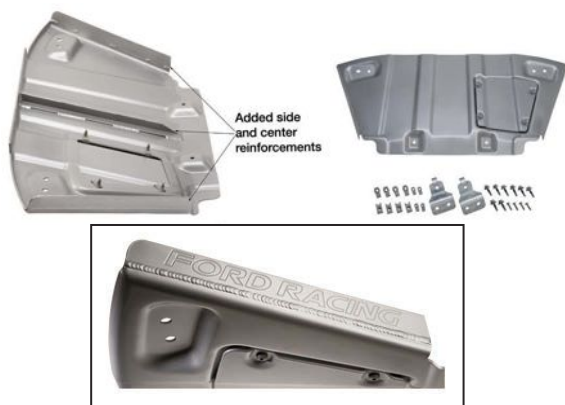
See page 238 for details.



2010-2012 F-150 SVT RAPTOR ENHANCED FRONT SKID PLATE

M-5018-F15R*

See page 238 for details.



8" ROUND AUXILIARY HALOGEN LIGHTS

M-15200-F15R8HAL*

See page 238 for details.



2010-2012 F-150 SVT RAPTOR FRONT AUXILIARY LIGHT BAR

M-15266-F15RBAR*

See page 238 for details.

NOTE: This product will impact performance of airbag system.



INBOARD TIREGATE WHEEL AND TIRE CARRIER

M-1B120-F15*

See page 238 for details.



TOW KIT W/STRAP

M-19515-TOW

See page 240 for details.



TRAILSIDE KIT

M-19515-GENKIT

See page 240 for details.



LIGHTNING MASS AIR METER

M-12579-L54*

See page 213 for details.



LIGHTNING ELECTRIC INTERCOOLER PUMP

M-8501-L54*

See page 127 for details.



2004-2008 F-150 2WD LIGHTNING STYLE EXHAUST SYSTEM

M-5230-L*

See page 155 for details.



2006-2008 F-150 LIGHTNING STYLE EXHAUST

M-5230-L06EC*

See page 155 for details.



FORD RACING F-150 CHROME EXHAUST TIP

M-5255-F15R*

See page 155 for details.



F-150 SVT RAPTOR BLACK WHEEL

M-1007-F15RBA*

See page 179 for details.



F-150 SVT RAPTOR CHARCOAL GREY WHEEL

M-1007-F15RAA*

See page 179 for details.



BLACK 6.2L CAM COVERS

M-6582-62BK*

See page 228 for details.



BLUE 6.2L CAM COVERS

M-6582-62BL*

See page 228 for details.



ORANGE 6.2L CAM COVERS

M-6582-62OR*

See page 228 for details.



SILVER 6.2L CAM COVERS

M-6582-62SL*

See page 228 for details.



WHITE 6.2L CAM COVERS

M-6582-62WH*

See page 228 for details.



COATED 3-VALVE CAM COVERS 4.6L/5.4L

M-6582-C543V*

Powdercoated chrome appearance

M-6582-3VB*

Blue powdercoated

M-6582-3VBLK*

Black powdercoated

See page 225 for details.



BLACK SATIN TRUCK VALVE COVERS

M-6582-A351R*

See page 224 for details.



8.8" TRACTION-LOK LIMITED SLIP DIFFERENTIAL

M-4204-F318C*

See page 172 for details.



8.8" RING GEAR AND PINION SET

M-4209-88308*

See page 170 for details.



1999-2004 LIGHTNING/HARLEY-DAVIDSON® LOWERING KIT

M-3000-L*

See page 190 for details.



2004-2010 F-150 REAR LOWERING KIT

M-3000-G*

See page 190 for details.



1997-2003 F-150 2WD LOWERING KIT

M-3000-T1*

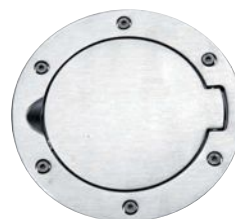
See page 190 for details.



ALUMINUM FUEL DOOR

M-2301-E*

See page 236 for details.





FORD RACING CRATE ENGINES



Photo by Tom Wilson, 5.0 Mustang & Super Fords Magazine

CRATE ENGINES AND SHORT BLOCKS

PUSH ROD CRATE ENGINES AND SHORT BLOCKS

PART NUMBER	M-6007-X302	M-6009-331F	M-6007-Z331P	M-6009-347	M-6009-363
Displacement (ci)	306	331	331	347	363
Horsepower (hp) Racer Correction (SAE J607)	340	N/A	515	N/A	N/A
Torque (lb-ft) Racer Correction (SAE J607)	350	N/A	410	N/A	N/A
Compression Ratio	9.0:1	N/A	11.9:1	N/A	N/A
Cylinder Heads	M-6049-X306	N/A	M-6049-Z304P	N/A	N/A
Camshaft	E303 Hydraulic Roller	N/A	Solid Roller	N/A	N/A
Crank	3.000" Cast	3.100" Forged	3.100" Forged	3.400" Forged	3.400" Forged
Piston	4.030" Forged	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.030" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt
Intake	N/A	N/A	N/A	N/A	N/A
Distributor	N/A	N/A	N/A	N/A	N/A
Valve Cover	302-070	N/A	M-6582-BOSS	N/A	N/A
Oil Pan	Rear Sump	N/A	7 qt. Rear Sump	N/A	N/A
Water Pump	N/A	N/A	V Belt	N/A	N/A
Block	Remanufactured	M-6010-BOSS302	M-6010-BOSS302	M-6010-BOSS302	M-6010-BOSS302
PART NUMBER	M-6007-Z363FT	M-6007-Z363RT	M-6007-S347JR	M-6007-D347SR	M-6007-S374W
Displacement (ci)	363	363	347	347	374
Horsepower (hp) Racer Correction (SAE J607)	500	500	350	415	540
Torque (lb-ft) Racer Correction (SAE J607)	450	450	400	400	470
Compression Ratio	10.0:1	10.0:1	10.5:1	10.0:1	11.0:1
Cylinder Heads	M-6049-Z304DA	M-6049-Z304DA	M-6049-X307	M-6049-Z304DA	M-6049-Z304P
Camshaft	Hydraulic Roller	Hydraulic Roller	Hydraulic Roller	F303 Hydraulic Roller	Solid Roller
Crank	3.400" Forged	3.400" Forged	3.400" Forged	3.400" Forged	3.500" Forged
Piston Forged	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.030" Forged-Mahle® Grafal® coated skirt	4.030" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt
Intake	N/A	N/A	RPM Air-Gap 302	Victor Jr.®	Super Victor®
Distributor	N/A	N/A	MSD Billet Distributor	MSD Billet Distributor	MSD Billet Distributor
Valve Cover	M-6582-BOSS	M-6582-BOSS	Ford Racing	Ford Racing	Ford Racing
Oil Pan	7 qt. Front Sump	7 qt. Rear Sump	7 qt. Rear Sump	7 qt. Rear Sump	7 qt. Rear Sump
Water Pump	V Belt	V Belt	V Belt	V Belt	V Belt
Block	M-6010-BOSS302	M-6010-BOSS302	M-6010-BOSS302	M-6010-BOSS302	M-6010-BOSS35192
PART NUMBER	M-6007-S374D	M-6007-S374DCRA	M-6007-Z427FFT	M-6007-Z427FRT	
Displacement (ci)	374	374	427	427	
Horsepower (hp) Racer Correction (SAE J607)	590	590	535	535	
Torque (lb-ft) Racer Correction (SAE J607)	495	495	545	545	
Compression Ratio	11.0:1	11.0:1	10.5:1	10.5:1	
Cylinder Heads	M-6049-Z304P	M-6049-Z304P	M-6049-Z304DA	M-6049-Z304DA	
Camshaft	Solid Roller	Solid Roller	Hydraulic Roller	Hydraulic Roller	
Crank	3.500" Forged	3.500" Forged	4.000" Forged	4.000" Forged	
Piston	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	
Intake	Super Victor®	Super Victor®	N/A	N/A	
Distributor	MSD Billet Distributor	MSD Billet Distributor	N/A	N/A	
Valve Cover	M-6582-DS	M-6582-DS	M-6582-W427B	M-6582-W427B	
Oil Pan	Dry Sump	Dry Sump	7 qt. Front Sump	7 qt. Rear Sump	
Water Pump	V Belt	V Belt	V Belt	V Belt	
Block	M-6010-BOSS35192	M-6010-BOSS35192	M-6010-BOSS35195	M-6010-BOSS35195	

CRATE ENGINES AND SHORT BLOCKS

PART NUMBER	M-6009-427F	M-6007-Z427AFT	M-6007-Z427ART	M-6007-X427FRT	M-6007-X427FRT
Displacement (ci)	427	427	427	427	427
Horsepower (hp) Racer Correction (SAE J607)	N/A	600	600	450	450
Torque (lb-ft) Racer Correction (SAE J607)	N/A	550	550	520	520
Compression Ratio	N/A	11.0:1	11.0:1	10.5:1	10.5:1
Cylinder Heads	N/A	M-6049-Z304P	M-6049-Z304P	M-6049-Z304DA	M-6049-Z304DA
Camshaft	N/A	Solid Roller	Solid Roller	Hydraulic Roller	Hydraulic Roller
Crank	4.000" Forged	4.000" Forged	4.000" Forged	4.000" Forged	4.000" Forged
Piston	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt	4.125" Forged-Mahle® Grafal® coated skirt
Intake	N/A	N/A	N/A	N/A	N/A
Distributor	N/A	N/A	N/A	N/A	N/A
Valve Cover	N/A	M-6582-W427P	M-6582-W427P	M-6582-W427B	M-6582-W427B
Oil Pan	N/A	7 qt. Front Sump	7 qt. Rear Sump	7 qt. Front Sump	7 qt. Rear Sump
Water Pump	N/A	V Belt	V Belt	V Belt	V Belt
Block	M-6010-BOSS35195	M-6010-Z351	M-6010-Z351	M-6010-BOSS35195	M-6010-BOSS35195

MODULAR CRATE ENGINES AND SHORT BLOCKS

PART NUMBER	M-6009-463V	M-6007-M50	M-6007-A50NA	M-6007-A50SC	M-6007-M50B	M-6007-M54
Displacement	4.6L	5.0L	5.0L	5.0L	5.0L	5.4L
Horsepower (hp)	N/A	412	412	412	444	550
Torque (lb-ft)	N/A	390	390	390	380	510
Compression Ratio	9.8:1	11.0:1	11.0:1	9.5:1	11.0:1	8.4:1
Combustion Chamber Volume (cc)	N/A	55.98	55.98	55.98	55.98	52.7
Cylinder Heads	N/A	Production	Production	Production	Production BOSS	Production
Camshafts	N/A	Production	Production	Production	Production BOSS	Production
Crankshaft	Cast, 6-Bolt Flywheel	Forged Steel 8-Bolt Flywheel	Forged Steel 8-Bolt Flywheel	Forged Steel 8-Bolt Flywheel	Forged Steel BOSS 8-Bolt Flywheel	Forged Steel, 8-Bolt Flywheel
Connecting Rods	Sintered Steel	Sintered Steel	Manley® H-Beam	Manley® H-Beam	Sintered Steel	Sintered Steel
Piston	Cast, hard-anodized ring grooves Grafal® coated skirts	Cast, hard-anodized ring grooves Grafal® coated skirts	Mahle® forged hard-anodized ring grooves Grafal® coated skirts	Mahle® forged hard-anodized ring grooves Grafal® coated skirts	Forged, hard-anodized ring grooves Grafal® coated skirts	Forged, hard-anodized ring grooves Grafal® coated skirts
Intake Manifold	N/A	2011 Mustang	2011 Mustang	2011 Mustang	Production BOSS	2011 Mustang SVT
Ignition	N/A	Coil on plug	Coil on plug	Coil on plug	Coil on plug	Coil on plug
Valve Covers	N/A	Production	Production	Production	Production	2011 Mustang SVT
Oil Pan	N/A	Production	Production	Production	Production	Production
Water Pump	N/A	Production	Production	Production	Production	Production
Exhaust Manifolds	N/A	Production	Production	Production	Production	Production

ENGINE DIMENSIONS

BASIC ENGINE DIMENSIONS (INCHES) Gasoline Engines

DISPLACEMENT	YEARS	BORE	STROKE	BORE SPACING	MAIN JOURNAL DIA.	ROD JOURNAL DIA.	CON ROD LENGTH (MEAN)	DECK HEIGHT	PISTON COMP HT
1.6L Kent	1971-73	3.188	3.056	3.780	2.1253	1.9372	4.928	8.2272	—
1.6L CVH	1981-85	3.150	3.130	3.614	2.383	1.886	5.195	8.212	1.451
1.9L CVH	1985-87	3.230	3.465	3.614	2.383	1.886	5.195	8.378	1.451
1.9L CVH	1988-96	3.230	3.465	3.614	2.383	1.728	5.195	8.378	1.451
1.8L ZETEC® DOHC	1991-96	3.270	3.350	3.583	1.966	1.771	5.230	8.130	1.108
2.0L I-4 Duratec®	2005-TBD	3.445	3.272	3.780	2.047	1.850	5.758	8.540	1.122
2.0L CVH	1997-98	3.339	3.465	3.614	2.383	1.728	5.195	8.378	1.451
2.0L OHC ①	1971-74	3.575	3.029	4.016	2.244	2.047	4.982	8.146	1.595 ⑤
2.0L OHC ②	1983-87	3.520	3.126	4.173	2.399	2.047	5.205	8.368	1.583
2.0L ZETEC®	1995-04	3.339	3.465	3.614	2.283	1.847	5.3618 ⑦	8.378	1.3012 ⑧
2.0L V6	2001-04	3.215	2.631	4.016	2.479	1.967	5.686	8.189	1.181
2.2L Probe	1988-92	3.390	3.700	3.810	2.360	2.006	6.200	9.500	1.450
2.3L I-4 Duratec®	2001-07	3.445	3.701	3.780	2.047	1.968	6.094	9.094	1.122
2.3L OHC	1974-97	3.780	3.126	4.173	2.399	2.047	5.205	8.368	1.583
2.5L OHC	1998	3.780	3.401	4.173	2.399	2.047	5.457	8.368	1.211
2.3L HSC	1984-94	3.680	3.300	4.080	2.249	2.124	5.457	8.700	1.520
2.5L HSC	1986-91	3.680	3.583	4.080	2.249	2.124	5.990	9.400	1.579
2.5L V6 Duratec®	1995-99	3.245	3.130	4.016	2.480	1.968	5.437	8.189	1.181
2.5L V6 Duratec®	1999-07	3.215	3.130	4.016	2.480	1.968	5.437	8.189	1.181
2.6L V6	1972-73	3.545	2.630	4.760	2.244	2.127	—	8.084	1.546
2.8L V6	1974-80	3.650	2.700	4.760	2.244	2.127	5.140	8.084	1.539
2.9L V6	1986-92	3.661	2.835	4.760	2.244	2.126	5.140	8.858	1.461
3.0L V6	1986-07	3.504	3.150	4.330	2.519	2.126	5.532	8.661	1.535
3.0L V6 Duratec®	1997-07	3.504	3.130	4.016	2.480	1.968	5.437	8.189	1.181
3.5L V6 Duratec®	2006-07	3.642	3.413	4.173	2.658	2.205	6.011	8.970	1.240
3.0L V6 SHO	1989-95	3.500	3.150	4.330	2.516	2.047	5.780	8.660	1.307
3.2L V6 SHO	1993-95	3.620	3.150	4.330	2.516	2.047	5.780	8.660	1.307
3.4L V8 SHO	1996	3.245	3.130	4.016	2.480	1.968	5.437	8.189	1.181
3.8L V6	1982-95	3.810	3.390	4.193	2.5194 ④	2.311	5.914	9.232	1.602
3.8L V6	1997-03	3.810	3.390	4.193	2.519	2.311	6.091	9.232	1.450
3.9L V6	2004-07	3.810	3.465	4.193	2.519	2.311	6.091	9.232	1.411
3.9L V8 ⑨	2000-02	3.386	3.346	3.858	2.441	2.205	6.115	8.880	1.211
3.9L V8 ⑨	2002-07	3.386	3.346	3.858	2.441	2.087	6.115	8.880	1.211
4.0L V6	1990-00	3.950	3.320	4.760	2.244	2.126	5.748	8.858	1.442
4.0L V6	1997-07	3.950	3.320	4.760	2.244	2.126	5.748	8.858	1.440
4.2L V6	1997-07	3.810	3.740	4.193	2.519	2.311	6.091	9.232	1.273
4.5L Ford Racing	③	4.080	3.500	4.469	2.749	2.100	6.088	9.232	③
4.6L V8	1991-07	3.552	3.543	3.937	2.657	2.086	5.933	8.937	1.221
5.0L V8	⑩	3.700	3.543	3.937	2.657	2.086	5.933	8.937	1.221
5.0L V8	2011-12	3.629	3.647	3.937	2.652	2.082	5.933	8.937	1.220
5.4L V8	1997-07	3.552	4.165	3.937	2.657	2.086	6.658	10.079	1.167
6.8L V10	1997-07	3.552	4.165	3.937	2.657	2.086	6.657	10.079	1.221
6.0L V12	1999-07	3.504	3.130	4.016	2.657	1.968	5.437	8.189	1.181
200 I-6	1963-83	3.680	3.126	4.080	2.249	2.124	4.715	7.808	1.511
250 I-6	1969-80	3.680	3.910	4.080	2.399	2.124	5.880	7.808	—
240 I-6	1965-72	4.000	3.180	4.480	2.399	2.123	6.795	10.000	1.605
300 I-6	1965-96	4.000	3.980	4.480	2.399	2.123	6.210	10.000	1.757
221 V8	1962-63	3.500	2.870	4.380	2.249	2.123	5.155	8.206	1.595
255 V8	1979-82	3.680	3.000	4.380	2.249	2.123	5.155	8.206	1.600
260 V8	1962-64	3.800	2.870	4.380	2.249	2.123	5.155	8.206	1.600
289	1963-68	4.000	2.870	4.380	2.249	2.123	5.155	8.206	1.605
302	1968-96	4.000	3.000	4.380	2.249	2.123	5.090	8.206	1.605
302 BOSS	1969-70	4.000	3.000	4.380	2.249	2.123	5.150	8.201-8.210	1.530
302 Ford Racing	③	4.000	3.000	4.380	2.249	2.123	5.150	8.201-8.210	③
351W	1969-70	4.000	3.500	4.380	3.000	2.311	5.956	9.480	1.769
351W	1971-96	4.000	3.500	4.380	3.000	2.311	5.956	9.503	1.769
351 Ford Racing	③	4.000	3.500	4.380	2.749	2.311	5.956	9.503	③
351 Ford Racing	③	4.000	3.500	4.380	2.249	2.311	5.780	9.206	③
351C * BOSS	1970-74	4.000	3.500	4.380	2.749	2.311	5.780	9.206	1.647
351M	1975-85	4.000	3.500	4.380	3.000	2.311	6.580	10.297	1.947

- ① Car (EAO)
- ② Ranger/Bronco II
- ③ Non-production blocks. Dimensions for reference
- ④ 3.8L SC #1-2-3 – 2.5190", #4 – 2.5096"
- ⑤ Sport 2000 – 1.6395"
- ⑥ 1997 – 5.482"
- ⑦ 1997 – 1.181"
- ⑧ 3.9L V8 used in the Thunderbird and Lincoln LS is based on the Jaguar® V8 design
- ⑨ Aftermarket from Ford Racing

NOTES:

- All 4-cylinder (except 1.6L Kent) and all V6 engines are metric. Dimensions shown in inches.
- 3.9L V8 used in the Thunderbird and Lincoln LS is based on the Jaguar® V8 design.
- 6.0L V8, 6.4L V8 and 7.3L V8 – ITEC® Powerstroke.

BASIC ENGINE DIMENSIONS (INCHES) CONTINUED

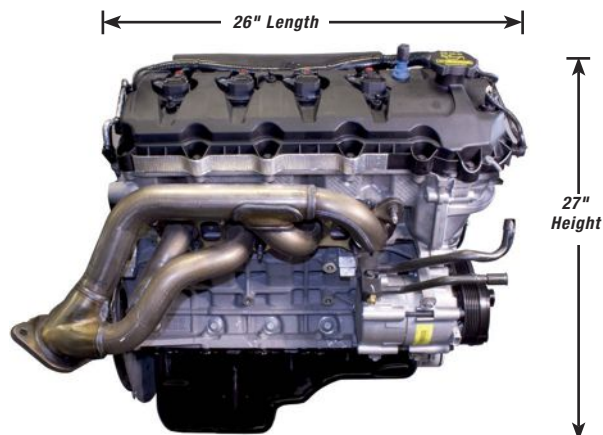
Gasoline Engines

DISPLACEMENT	YEARS	BORE	STROKE	BORE SPACING	MAIN JOURNAL DIA.	ROD JOURNAL DIA.	CON ROD LENGTH (MEAN)	DECK HEIGHT	PISTON COMP HT
400	1971-81	4.000	4.000	4.380	3.000	2.311	6.580	10.292-10.302	1.647
352	1960-66	4.000	3.500	4.630	2.749	2.438	6.540	10.170	1.825
390	1961-71	4.050	3.780	4.630	2.749	2.438	6.489	10.170	1.775
406	1962-63	4.130	3.780	4.630	2.749	2.438	6.489	10.170	1.745
410	1966-67	4.050	3.980	4.630	2.749	2.438	6.489	10.170	1.674
427	1963-68	4.230	3.780	4.630	2.749	2.438	6.489	10.170	1.752
428	1966-70	4.130	3.980	4.630	2.749	2.438	6.489	10.170	1.674
429 STD	1968-73	4.360	3.590	4.900	3.000	2.500	6.605	10.300 (1968-70)	1.890
429 STD	1968-73	4.360	3.590	4.900	3.000	2.500	6.605	10.310 (19701/2-71)	1.890
429 CJ/SCJ	1969-70	4.360	3.590	4.900	3.000	2.500	6.605	10.322 (1972-73)	1.890
429 BOSS (S)	1969	4.360	3.590	4.900	3.000	2.500	6.549	10.300	1.926
429 BOSS (T)	1969-70	4.360	3.590	4.900	3.000	2.500	6.605	10.300	1.870
460/460 Ford Racing	1969-96	4.360	3.850	4.900	3.000	2.500	6.605	10.322 (1972-96)	1.756

ENGINE SWAP SIZE CHART

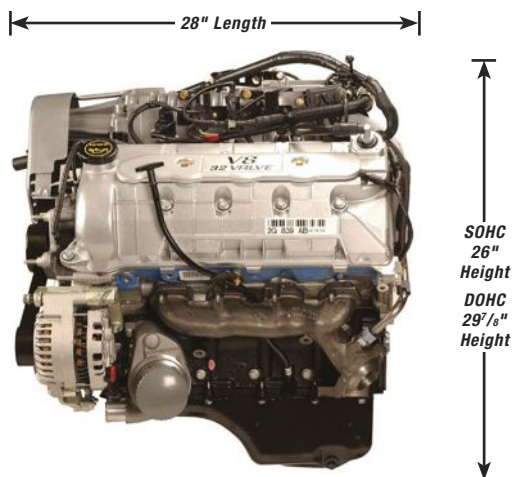
(SEE INDIVIDUAL ENGINE INSTALLATION NOTES PAGES 51-62 FOR WEIGHTS)

5.0L 4V Ti-VCT ENGINE



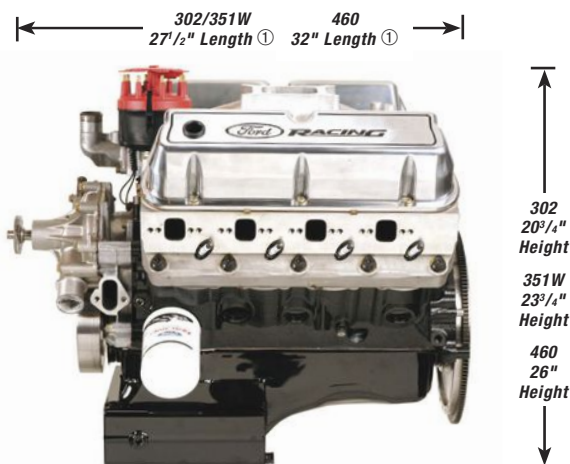
NOTE: 28" Width

4.6L MODULAR ENGINE



NOTE: SOHC – 25⁵/₈" Width / DOHC – 30" Width.

302/351W/460 ENGINE



NOTE: 302 – 18³/₄" Width / 351W – 21" Width / 460 – 26" Width
NOTE: ① With Short Serpentine Water Pump M-8501-A50.

ENGINE INSTALLATION AND TUNING TIPS

Performance engine durability is dependent on several supporting systems including the cooling system, fuel delivery system, ignition system and oiling system. If the support systems are not adequate, poor engine performance and possible engine failure could result.

OILING SYSTEM CONSIDERATIONS/COMMON PROBLEMS

- Priming the oiling system before starting a new engine is crucial to engine life. This is important on initial start-up of a new engine and if a used engine has not been run for extended periods of time.
- Does the oil pan have adequate capacity? Most performance vehicles require a 7 qt. minimum capacity. All engines will benefit from increased oil pan capacity.
- Does the oil pan have proper oil control baffling for the vehicle's braking, acceleration and cornering capabilities? Road race cars need oil control in four directions: braking, acceleration, LH cornering and RH cornering. Drag race cars need oil control in two directions: braking and acceleration. Baffles must be designed to keep oil over the pickup screen at all times.
- Is the pickup screen the proper distance from the bottom of the oil pan? If the oil pickup screen is too close to the bottom of the oil pan, it can cause cavitation. If it is too far away, it will cause the pump to draw air and minimize lubrication capacity. The pickup screen should be located .250" to .375" from the bottom of the pan. Does the design of the screen on the pickup tube create restrictions? We have seen some pickup tube screen designs that restrict oil flow as much as 75%. Wire mesh is good. Perforated metal is usually restrictive. Measure the wire size and calculate the flow area. Most aftermarket screens have less flow area than stock screens.
- If using a remote oil filter mount or oil cooler, make sure that all of the components are large enough to eliminate any restrictions to oil flow. Many Cobra replica kit cars use components that are too restrictive.
- Undersize oil lines commonly restrict oil flow.
- The more bends/turns in an oiling system, the more restrictions are created.
- Poorly designed remote filter mounts and adapters can create restrictions.
- Be sure that the oil cooler flows enough oil to meet the engine's requirements.
- Never reuse a used oil cooler. Debris gets trapped and cannot be cleaned out.
- Poorly designed oil filters can cause a restriction.
- Many oil systems only flow one way. Connecting the remote oil filter or oil cooler lines backwards can cause engine damage/failure.

IGNITION SYSTEM CONSIDERATIONS/COMMON PROBLEMS

- The ignition system must deliver a properly timed spark. There are a lot of factors that determine when the spark should be delivered. The most common factors include: compression ratio, fuel quality, fuel octane rating, combustion chamber design, engine operating temperature, power adders such as NOS or supercharger, inlet air temp, altitude and load.
- Avoid too much or too little timing for your engine combination.
- Avoid hooking up the vacuum advance to intake manifold vacuum instead of ported vacuum.

- Avoid inductive crossfire created by improper plug wire routing. Separate plug wires on cylinders that fire in sequence.
- Improper timing can damage pistons, rod bearings, head gaskets and many other engine parts.
- Typical total mechanical advance timing at 4000 rpm for Ford Racing Performance Parts crate engines: 5.0L: 36° to 38°, 347/351: 34° to 36°, 392/460/514: 30° to 32°.

FUEL DELIVERY CONSIDERATIONS

- Size of fuel pump, size of fuel line, fuel pump placement, fuel filter placement, fuel filter size, injector size, fuel rail size, fuel pressure, jet size and baffling in the fuel tank.
- Does the fuel system maintain full pressure at peak engine horsepower in high gear?

Altitude, air temperature and fuel characteristics including quality, specific gravity and octane rating will affect your jetting requirements. Engine efficiency and Brake Specific Fuel Consumption (BSFC) also have an effect. Here are some examples of a Holley® 750 CFM 4V.

Octane	Temp.	Altitude	Jetting Front	Jetting Rear
94	80 F	0 ft.	81	86
Aviation 100LL	80 F	0 ft.	81	84
110 Race	80 F	0 ft.	78	83
94	80 F	3000 ft.	76	81
94	80 F	6000 ft.	73	77
94	40 F	0 ft.	84	89
94	120 F	0 ft.	78	83

As you can see by these examples, jet requirements can vary a lot depending on fuel, altitude and temperature. Oxygenated fuels are available in some states and can dramatically affect your jetting requirements. Make sure you get your jetting correct. Aviation fuel is lighter and will require richening an engine in relationship to its requirement with pump gas. We have found in the dyno testing of our crate engines that 1 point richer on air/fuel ratio equals only a few percent less power. Running an engine as lean as possible produces the best power but also increases combustion temperatures and the chances of engine damage.

COMMON PROBLEMS WITH FUEL DELIVERY SYSTEMS

- Do not mount an EFI electric fuel pump so it has to draw fuel from the tank. This creates negative pressure in the fuel line allowing the fuel to boil at a lower temperature.
- The pump must be mounted in the tank or in a location so that it is gravity fed.
- If the fuel rail is too small and you have large injectors, this can create a pulse in the fuel rail allowing fuel starvation on some cylinders.
- Fuel should be pushed through the fuel filter. Pulling fuel through a filter can cause cavitation. If a filter is to be used on the inlet of a rail-mounted fuel pump, a filter rating of 160 microns MINIMUM should be used.
- It takes approx. 1/2 lb of gasoline to support 1 hp. This is commonly referred to as a .5 BSFC. You should always err in the safe direction of larger when sizing your injectors and fuel pump.

COOLING SYSTEM CONSIDERATIONS/COMMON PROBLEMS

- Higher horsepower requires more cooling capacity.
- When the fill point of the cooling system is not the highest point, air pockets are created. The air pockets then create hot spots, and the hot spots promote improper combustion, which can cause engine failure.
- Improper pulley size makes the fan and water pump turn too slow or too fast. Production water pumps are normally run at 20% over engine speed and do not perform well over 5000 engine rpm. Underdrive pulleys generally reduce water pump speed to 85% of engine rpm and may not provide enough water flow to cool the engine.
- The radiator must have enough area to dissipate the heat being generated by the engine.
- If the fan size is too small, it will not move enough air across the radiator so it can properly dissipate the heat being generated. Fan shrouds increase the effectiveness of the fan significantly.
- Radiator location can affect airflow through the radiator at different vehicle speeds.

FLYWHEEL, CONVERTER AND TRANSMISSION PROBLEMS

- Installing the wrong flywheel for the balance factor of the engine will cause vibration and eventually damage the engine.
- Wrong length input shaft or "stack-up height" can force the crank forward, damaging the engine thrust bearing.
- Improperly installing the torque converter can force the crank forward, damaging the engine thrust bearing. This is most commonly caused by improperly locating the torque convertor drain plug in the flexplate.
- If the torque converter balloons, it can force the crank forward, damaging the engine thrust bearing and the transmission. Most high-performance torque converters have anti-ballooning features.
- Damage to the thrust bearing can happen in seconds!

MISCELLANEOUS PROBLEMS THAT CAN DAMAGE AN ENGINE

- Dropping nuts, bolts, washers or foreign materials down the intake. We have seen this more than once.
- Reusing an intake off an engine that had broken parts in a cylinder. The parts can get bounced up into the intake manifold, carburetor or air cleaner (pieces of piston or piston rings, etc.). When you put your used intake on your new engine and start it, the pieces are drawn in and damage your engine.
- Bead-blasting an EFI intake. You will NEVER get all of the blasting media out. When the engine is started, it draws the blasting media into the cylinders, destroying the engine.
- Improperly torquing fasteners when installing new parts to your engine. Over-torquing of the intake manifold bolts to the cylinder head on 302 and 351W engines can cause head gasket sealing problems.
- Installing distributor gears at the incorrect height, or using gears made of the wrong material. We have seen this a lot on remanufactured distributors as well as popular aftermarket manufacturers of distributor assemblies. Use cast iron gears for cast iron flat tappet cams, and steel gears for steel hydraulic roller cams.

ENGINE DYNAMOMETER TESTING BASICS

TYPES OF ENGINE DYNAMOMETERS

There are many types of dynamometers for testing engines: Water Brake, Eddy-Current, Electric... just to name a few. Depending on availability and engine application, Ford Racing utilizes any of those mentioned. The basic function of each of these dynamometers (referred to as dynos from this point forward) is the same. Each applies a different method to absorb the energy output of the engine. The engine output is measured as torque (work) and power is calculated. The energy produced by the engine is absorbed by the dyno and eventually dissipated as heat. Dynos measure this engine output over a range of engine conditions that vary with speed and load. Temperature, pressures, air fuel ratio, water, oil, fuel and airflow measurements are elements of the test cell. The accurate measurement of these parameters is just as vital to good testing as the dyno itself. The test cell that houses a dyno can vary widely. Conditioned airflow, exhaust evacuation and fuel delivery must be adequate for the power level of the engine tested. Shortfalls in any of these areas can impact the integrity of the test.

Ford Racing tests our crate engine offerings on any of the above-mentioned types of dynos. The type depends on test cell availability and type of engine application (street, sealed circle track, etc.). The engine is directly coupled to the dyno via a prop shaft. This type of testing yields brake power and torque. Test results are brake because measurements are taken directly from the crankshaft output.

Water brake dynos absorb energy by pumping water through various orifices. Speed and load are controlled through a feedback loop of inlet and outlet valves. Water brake dynos are typically capable of absorbing very high engine outputs and rpm.

Eddy-current dynos rotate a disc through a magnetic field. This magnetic field can be varied in strength to control the rpm of the disc. These dynos are desirable for engine development due to very good rpm control.

Electric dynos rotate a generator to absorb engine output; this yields an electric output that can be accurately measured. Typically, electric dynos can be used to spin a non-firing engine and measure pumping losses and friction. Those types of losses are difficult to ascertain in conventional dyno testing.

METHODS OF TESTING

Once the engine is installed in a test cell, and all desired operating parameters are instrumented, testing can begin. The dyno is capable of absorbing an infinite number of operating conditions ranging from idle to WOT (wide open throttle) and idle rpm to rpm's beyond peak horsepower. In cases where the dyno is operated manually, the operator will set the rpm value via a controller. The operator then opens the throttle via a throttle actuator and applies load to the dyno. As the throttle is opened further, the dyno will control the rpm to the set point and the load will increase until full throttle is reached. Many types of testing exist for evaluating engine performance. Crate engine testing consists of power development, durability, idle stability, etc.

POWER TESTING

Methods for performing power tests or power runs vary by dyno facility and engine application. Acceleration tests (sometimes referred to as ramp tests) are controlled completely by dyno software through the dyno controller and throttle actuator. The rpm and transient times are programmed by the operator and, once set, the controller takes the engine through the test. These tests typically do not let the engine stabilize at any given speed and data is collected throughout the ramp. For example: The test would begin at idle. Slowly the throttle will be opened and rpm controlled to the first chosen rpm test point. Eventually the throttle will reach WOT. From then, the rpm will increase at a given rate of rpm/time until the maximum test rpm is reached. Test data is recorded throughout the entire run. Finally the controller will close the throttle and return the engine to idle.

Another method of power testing is the step method. This can be controlled manually or by an automated test where the dyno software controls the engine operation. The dyno controller is set to the first rpm test point and the throttle actuator is slowly opened to the full throttle point. The controller will maintain the rpm of the engine to the set point. In the manual mode, the operator will observe the data until stable and then record. In automated mode, the dyno will hold the throttle and rpm for a set period of time and automatically record the data. In either case, this testing provides good steady readings and makes for good repeatable runs. The above procedure will be repeated for all desired rpm test points.

Results of power testing are used in the design of crate engine packages and for marketing/sales. For further information on interpreting results see article on "Correction Factors, Observed and Corrected Horsepower and Torque."

DURABILITY TESTING

Durability testing varies by engine application and configuration. The type of engine and where it will be used can influence the type of durability testing greatly. For example, durability testing criteria for a sealed circle track crate engine will be determined by minimum and maximum track conditions. Durability testing for a street application crate engine will be determined by peak torque and horsepower for the given components. Testing conditions are typically WOT or high-load conditions and variable rpm to cover as wide of a range as possible. In short, durability testing criteria vary, but the goal is the same. The goal is to produce an accelerated wear condition that exceeds the normal application of the engine as designed.

CORRECTION FACTORS, OBSERVED AND CORRECTED HORSEPOWER AND TORQUE

THE NEED FOR CORRECTED TEST RESULTS

The main reason for a correction factor is the ability to compare testing performed under different atmospheric conditions. The correction factor will contain a temperature, barometric pressure and an efficiency percentage. The temperature and barometric pressure have significant impact on the performance of an engine. Also, to a lesser degree, humidity can affect the performance. Some dyno facilities have controlled atmospheric chambers to condition air to a desired temperature, humidity and barometric pressure. These test cells are very sophisticated and usually booked with production, emission, cold start and hot test work. The test cells with these chambers can easily cost several hundred thousand. Considering these challenges, it becomes evident that there is a need to be able to test engines under observed operating conditions and correct the results to a standard set of conditions.

SOME DEFINITIONS

Observed Operating Conditions are measured near the entry of the carburetor or inlet air system of the engine. These conditions include inlet air temperature, wet bulb temperature and actual barometric pressure.

Observed Torque is the measured torque value while the engine is running. It typically uses a calibrated load cell. This load cell measures the work the engine is doing in real time. The observed torque value is then used in calculating the observed horsepower value.

Observed Horsepower represents how fast the work (generated by the engine) is being done. This is calculated by the following formula: $(\text{observed torque} \times \text{rpm}) / 5252$.

Observed Barometric Pressure is atmospheric pressure measured near the engine air inlet.

Observed Inlet Air Temperature is self-explanatory.

Wet Bulb Temperature is the temperature achieved by evaporating water into the observed inlet air. This is accomplished by using a wick with one end in a vessel containing water and the other connected to a thermometer or thermocouple. This reading is used in calculating vapor pressure, humidity and, ultimately, correction factor.

Corrected Torque is the measured torque times the correction factor.

Corrected Horsepower is the measured horsepower times the correction factor.

Corrected Barometric Pressure is the observed barometric pressure minus the corrected vapor pressure.

Standard Barometric Pressure is stated in the definition of the correction factor.

Load Cell is an electronic device capable of measuring force.

Brake Horsepower is useful power determined from the engine (no other power train losses); can be observed or corrected.

BASIC ENGINE PERFORMANCE AND ATMOSPHERIC CONDITIONS

Engines utilize fuel and air, and apply a form of combustion to convert the power stored in fuel into usable work. The air contains oxygen; this is the element that supports the combustion process. Cool dry air contains more oxygen molecules within a constant volume and pressure. As barometric pressure increases, additional oxygen molecules are present (maintaining a constant volume).

For example, if an engine was tested on a cool January day where the barometric pressure was relatively high, observed engine performance will be better than the same engine tested on a hot, muggy August day when a storm was coming in. Also, engine tests performed in higher altitudes have lower observed barometric pressure and engine performance is lower.

CORRECTION FACTORS

Several correction factors exist and this article will deal with two of them.

- (1) SAE J1349, June 1990 Data corrected to 77° F and 29.31 in Hg 85% efficiency.
- (2) SAE J607, Data corrected to 60° F and 29.92 in Hg.

SAE J1349

This formula utilizes the observed inlet air temperature and wet bulb readings to calculate saturated, current and corrected vapor pressure. The corrected vapor pressure is subtracted from the observed barometric pressure. It is subtracted because this pressure is due to water vapor in the air. This yields corrected barometric pressure.

The conditions for correction are 77° F and barometric pressure of 29.31 inches of mercury. Once the corrected barometric pressure is calculated and the observed inlet air temperature is known, those values are plugged into the following formula. The correction factor formula is:

$$C.F. = 1.18 \# [(29.31 / \text{Corrected Barometric Pressure}) * \{(\text{Observed Inlet Air Temp} + 460) / (537)\} \wedge .5] - 1.18$$

SAE J607

This formula utilizes the observed inlet air temperature and wet bulb readings to calculate saturated, current and corrected vapor pressure. The corrected vapor pressure is subtracted from the observed barometric pressure. It is subtracted because the pressure is due to water

vapor in the air. This yields corrected barometric pressure. The conditions for correction are 60° F and barometric pressure of 29.92 inches of mercury. Once the corrected barometric pressure is calculated and the observed inlet air temperature is known, those values are plugged into the following formula. The correction factor formula is:

$$C.F. = [(29.92 / \text{Corrected Barometric Pressure}) \wedge 1.2 * \{(\text{Observed Inlet Air Temp} + 460) / (520)\} \wedge .6]$$

SUMMARY

Once a correction factor is calculated, the observed numbers are multiplied by it. These are the "corrected values." Undoubtedly, the best scenario is to test under the exact same conditions each time. If that is not achievable, a good rule of thumb is that engines corrected to the SAE J607 standard will yield corrected torque and power numbers approximately 4% higher than those corrected to SAE J1349. Unfortunately, SAE J607 conditions are not very realistic. The most commonly accepted standard is the SAE J1349. This corrects to a more practical set of atmospheric conditions and utilizes coefficients to compensate for an 85% mechanical efficiency. Please note temperature is converted Rankin degrees in both formulas.

FYI about Ford Racing catalog torque and horsepower ratings

Ford Racing push rod crate engines are rated at STP-corrected operating conditions. This correction factor is actually SAE J607, and also referred to as "Racer Corrected". Simply speaking, the STP correction factor takes the ambient conditions and corrects the observed data to 60° F, a barometric pressure of 29.93" of mercury and no correction for vapor pressure. This correction factor is used by most dyno shops because it yields the highest numbers to advertise.

Ford Racing Modular crate engines are rated at "SAE" corrected operating conditions. This correction factor is SAE J1349, and typically referred as just "SAE". This correction factor is used by automotive manufacturers to rate torque and power for new vehicles. This correction factor adjusts the ambient operating conditions and corrects the observed data to 77° F, barometric pressure of 29.31" of mercury and compensates for corrected vapor pressure. Some of Ford Racing's Modular crate engines are direct vehicle replacement engines, and since these engines/vehicles are originally advertised with SAE-corrected numbers, they also are advertised in the catalog with SAE numbers. This keeps the engines torque and power ratings consistent with O.E. advertised numbers.

See Ford Racing Dyno Tech articles on page 49.

FORD RACING CRATE ENGINES



SUPERCHARGED 5.4L MUSTANG SVT ENGINE

M-6007-M54*



- Current production engine
- 550 hp @ 6200 rpm, 510 lb-ft of torque @ 4250 rpm
- Original equipment in the 2011 Shelby GT500
- Aluminum block with Plasma Transferred Wire Arc (PTWA) cylinder liner coating
- Perfect crate engine for a high-end street rod or Mustang "retro-mod" project
- Fully dressed including accessories and supercharger
- Does not include vehicle wiring or Powertrain Control Module
- Works with M-6017-54SC Controls Pack
- Shipping weight: 717 lbs

See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74

CONTROLS PACK - 5.4L 4V SUPERCHARGED ENGINE HARNESS UPDATE KIT

M-12B637-A54SC

See page 200 for details.

CONTROL PACK - 5.4L 4V SUPERCHARGED MANUAL TRANSMISSION

M-6017-54SC

See page 200 for details.



FORD RACING CRATE ENGINES



5.0L 4V Ti-VCT 412 HP MUSTANG CRATE ENGINE

M-6007-M50*



Ford Racing's all-aluminum 5.0L Mustang crate engine is a modern 5.0L 32-valve DOHC V8 that uses advanced features like Twin Independent Variable Camshaft Timing (Ti-VCT) to deliver 412+ horsepower @ 6500 rpm and 390+ lb-ft of torque @ 4250 rpm (with premium fuel).

- 11.0:1 compression ratio
- Light-weight aluminum cylinder block features cross-bolted main bearing caps and thick main bearing bulkheads for bottom-end strength
- Piston-cooling jets, optimized oil drainback and windage control improve high-rpm performance
- Large sump oil pan with 8 qt. capacity
- Tuned composite intake manifold provides efficient air delivery and weight savings
- 80 mm single-bore drive-by-wire throttle body
- Four-valve-per-cylinder aluminum heads with roller-finger followers reduce friction
- Includes manual transmission engine harness and flywheel

- Vehicle harness and PCM not included
- Use Ford Racing's Wiring, PCM and Installation Kit M-6017-A504V designed for street rod/project car installation
- Does not include alternator, for alternator kit, see M-8600-M50ALT or M-8600-M50BALT
- 2011 5.0L Mustang engine cover kit available, see M-9680-M50
- Remote Mount Filter Adapter M-6881-M50 available for applications requiring oil filter relocation
- Power steering pump bracket available, see M-8511-M50BR. Mount 2005-2010 Mustang power steering pump to crate engine
- Engine mount bosses and bellhousing mount pattern common to 4.6L modular engines
- Direct replacement for 2012 Mustangs with engine code CG-397-AA
- Photo and specs may vary. These features apply for engine code CG-397-AA. Engines are this build code or newer while supplies last
- Engine weight: 444 lbs

See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74

FORD RACING CRATE ENGINES

5.0L 4V Ti-VCT ALTERNATOR KIT

M-8600-M50ALT*

See page 129 for details.



**WHILE
SUPPLIES LAST
Limited Quantity!!**

MUSTANG BOSS 302 ALTERNATOR KIT

M-8600-M50BALT*

See page 129 for details.



MUSTANG BOSS 302R 5.0L 4V Ti-VCT POWER STEERING PUMP BRACKET

M-8511-M50BR*

See page 129 for details.



2011 5.0L ENGINE COVER KIT

M-9680-M50*

See page 232 for details.



CONTROLS PACK - 2011 5.0L 4V Ti-VCT MANUAL TRANSMISSION

M-6017-A504V*

See page 200 for details.



FORD RACING CRATE ENGINES



5.0L 4V Ti-VCT ALUMINATOR CRATE ENGINE NATURALLY ASPIRATED

M-6007-A50NA*

Ford Racing has taken the Mustang GT 5.0L 4V Ti-VCT engine and created another in its series of "Aluminator" crate engines built to deliver higher performance. The 5.0 Aluminator NA is built with extreme-duty connecting rods and pistons designed specifically for high-performance applications. Mahle® 11.0:1 compression ratio forged pistons are hard anodized with Graphal low-friction coating. The connecting rods are premium Manley® H-beam with ARP® 2000 bolts and fitted with BOSS 302 high-performance bearings.

- Fits 2011-2012 Mustang GT
- 5.0L (302 cubic inches)
- 11.0:1 compression ratio (nominal)
- Mahle® hard-anodized forged pistons with Graphal® low-friction coating
- Manley® H-beam connecting rods with ARP® 2000 bolts
- BOSS 302 connecting rod bearings
- Light-weight Aluminum Cylinder Block M-6010-A50L4V features cross-bolted main bearing caps and thick main bearing bulkheads for bottom-end strength
- Large rear sump oil pan with 8 qt. capacity features optimized oil drainback and windage tray to control oil and improve high-rpm performance
- Tuned composite Mustang GT intake manifold with production drive-by-wire 80 mm throttle body
- Four-valve-per-cylinder aluminum heads with roller-finger followers reduce friction with BOSS Valve Springs M-6513-M50BR
- Ford Racing Engine Cover Kit M-9680-M50
- Includes manual transmission engine harness, 6-bolt pressure plate flywheel and pilot bearing
- Front Cover is modified for Ford Racing supercharger kits M-6066-MGT23TD and M-6066-MGT23PTD
- Includes Colder Heat Range Zero (0) Spark Plugs M-12405-M50
- Includes Ford Racing Oil Filter M-6731-FL820
- Vehicle harness and PCM not included. Use Ford Racing wiring, PCM and Installation Kit M-6017-A504V designed for street rod/project car installation
- Does not include alternator, for alternator kit, see M-8600-M50ALT or M-8600-M50BALT
- Remote Mount Filter Adapter M-6881-M50 available for applications requiring oil filter relocation
- Engine mount bosses and bellhousing mount pattern common to 4.6L modular engines
- Engine weight approximately 444 lbs



5.0L 4V Ti-VCT ALUMINATOR CRATE ENGINE FOR SUPERCHARGED APPLICATIONS

M-6007-A50SC*

Ford Racing's 5.0L Mustang "Aluminator" crate engine for supercharged applications uses advanced features like Twin Independent Variable Camshaft Timing (Ti-VCT) to deliver big power. Unlike the factory 5.0L engine, the "Aluminator" is built with low-compression forged pistons and H-beam connecting rods to meet the demands of forced induction.

- Fits 2011-2012 Mustang GT
- 5.0L (302 cubic inches)
- 9.5:1 compression ratio for supercharged applications (nominal)
- Mahle® hard-anodized forged pistons with Graphal® low-friction coating
- Manley® H-beam connecting rods with ARP® bolts
- Light-weight Aluminum Cylinder Block M-6010-A50L4V features cross-bolted main bearing caps and thick main bearing bulkheads for bottom-end strength
- Large rear sump oil pan with 8 qt. capacity features optimized oil drainback and windage tray to control oil and improve high-rpm performance
- Tuned composite Mustang GT intake manifold with production drive-by-wire 80 mm throttle body
- Four-valve-per-cylinder aluminum heads with roller-finger followers reduce friction with BOSS Valve Springs M-6513-M50BR
- Includes manual transmission engine harness, 6-bolt pressure plate flywheel and pilot bearing
- Front Cover is modified for Ford Racing supercharger kits M-6066-MGT23TD and M-6066-MGT23PTD
- Includes Colder Heat Range Zero (0) Spark Plugs M-12405-M50 for supercharging
- Includes Ford Racing Oil Filter M-6731-FL820
- Vehicle harness and PCM not included. Use Ford Racing wiring, PCM and Installation Kit M-6017-A504V designed for street rod/project car installation
- Does not include alternator, for alternator kit, see M-8600-M50ALT or M-8600-M50BALT
- Remote Mount Filter Adapter M-6881-M50 available for applications requiring oil filter relocation
- Engine mount bosses and bellhousing mount pattern common to 4.6L modular engines
- Engine weight approximately 444 lbs

NOTE: Due to 9.5:1 compression ratio, custom tuning is required for optimum performance.

- Shown with optional 5.0L Mustang Engine Cover Kit M-9680-M50



FORD RACING CRATE ENGINES



5.0L 4V Ti-VCT MUSTANG BOSS 302 CRATE ENGINE

M-6007-M50B*



Ford Racing's aluminum 5.0L Mustang BOSS 302 crate engine is a modern 5.0L V8 that uses advanced features like Twin Independent Variable Camshaft Timing (Ti-VCT) and high-flow CNC cylinder heads to deliver 444 horsepower and 380+ lb-ft of torque (with premium fuel).

- 11.0:1 compression ratio
- Light-weight aluminum cylinder block features cross-bolted main bearing caps and thick main bearing bulkheads for bottom-end strength
- Features large sump 8.5 qt. oil pan with revised oil pan baffling for improved oil control under hard cornering
- Revised composite intake system with shorter runners, inspired by Ford Racing's Daytona Prototype engine program
- 80 mm single bore drive-by-wire throttle body
- High-strength aluminum-alloy cylinder heads with fully CNC-machined ports and chambers for exceptional high-rpm airflow without sacrificing low-speed torque

- Sodium-filled exhaust valves for improved heat dissipation
- Forged aluminum pistons and upgraded sinter-forged connecting rods for improved strength
- Includes manual transmission engine harness and flywheel
- Vehicle harness and PCM not included
- BOSS 302 crate engine shown with optional Ford Blue Coil Pack Covers M-6P067-M50B and NVH Insulator Pads CR3Z-6N041-A sold separately
- Engine mount bosses and bellhousing mount pattern common to 4.6L modular engines
- Photo and specs may vary
- Engine weight: 444 lbs

See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74



5.0L 4V Ti-VCT engine install in a SN95 Mustang

REAL POWER. REAL PERFORMANCE. REAL SUBSTANCE.

X302 CRATE ENGINE

FORD RACING POWER – VALUE PRICED



Ford Racing E303 Cam



Ford Racing X306 Heads



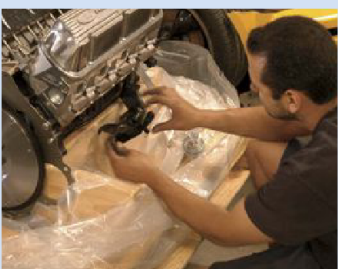
Mahle® Forged Pistons



Precision Remanufactured Ford Block

Designed, developed and tested by
Ford Racing Engineers

Built to deliver reliable power for
your street or project car



www.fordracing.com

FORD RACING CRATE ENGINES



Photo may vary

306 CUBIC INCHES 340 HP CRATE ENGINE M-6007-X302*



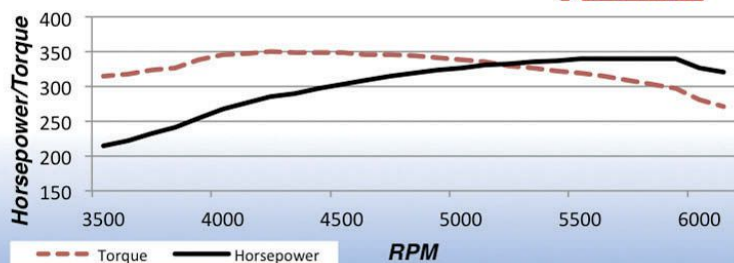
You want **Ford Racing Engine Performance Value?**

You got it with the Ford Racing 306 Cubic Inches 340 hp Crate Engine! No other small block Ford can say that it has been developed from the ground up and tested by the people that know how to make a Ford run best—Ford Racing engineers.

These are the same engineers that design and build 500+ hp Ford Racing crate engines, 1,000+ hp Pro Stock engines and 200+ mph NASCAR engines. X302 features a mix of the best OEM, Ford Racing and aftermarket parts to deliver strong street performance at an outstanding value. This is the perfect replacement engine for a vintage muscle car, late model project, truck or street rod. Add your intake, distributor and water pump and the X302 is ready to run. And unlike the imitators, no other crate engine has the Blue Oval heritage and Ford Racing Engineering and Technical support.

- 340 hp @ 5500 rpm
- 350 lb-ft of torque @ 4200 rpm
- 302-based small block Ford engine
- Displacement 306 cu. in.
- 4.030" bore x 3.00" stroke
- OEM precision remanufactured 5.0L block
- Cast iron remanufactured crankshaft
- Remanufactured production steel connecting rods
- Forged Mahle® pistons
- Ford Racing Hydraulic Roller Camshaft M-6250-E303
- .498" camshaft lift
- Camshaft duration 220° @ .050"
- Ford Racing aluminum 64cc chamber Cylinder Heads M-6049-X306
- 1.94" intake valves and 1.54" exhaust valves
- 9.0:1 compression ratio
- 1.6:1 ratio roller rocker arm
- "Ford Racing" logo Chrome Valve Covers 302-070. See page 227
- Stamped Steel Dual Sump Oil Pan M-6675-A50, fits most Fox body cars
- Distributor not included, steel gear required
- Unleaded premium fuel recommended
- Initial ignition timing 12 degrees, total ignition timing 34-36 degrees
- Maximum recommended rpm: 5800 rpm
- 50 oz.-in. imbalance rotating assembly (common to 1981 and newer 302s)
- Engine power rating based on long tube headers, Edelbrock® RPM air gap 7521 intake manifold w/650 Holley® carb and premium unleaded pump gas

X302 340 HP/350 LB-FT TORQUE



- Water pump not included. Use Water Pump M-8501-G351 for standard rotation applications; Water Pump M-8501-C50 for reverse rotation applications (1986-1993) Mustangs. For short serpentine or 1994-1995 Mustangs, use kit M-8501-A50; short V-belt, use Water Pump M-8501-E351S. For full details, see other water pumps and timing chain covers
- Flywheel not included. Requires 50 oz.-in. imbalance flywheel M-6375-B302 (T-5) or flexplate M-6375-A50 (AOD)
- Can be used in kit cars, street rods, Mustangs, Fox-bodied cars and trucks
- **IMPORTANT WARRANTY INFORMATION!** Power-adders such as superchargers, turbos or nitrous not recommended. **Use of power-adders voids the warranty.** See Ford Racing BOSS series of crate engines, such as M-6007-X302B or M-6007-X302E, if you plan power-adder enhancements

INSTALLATION NOTES: See engine installation and tuning tips on page 48. Some or all of the following items may need to be changed from your original engine or modified for proper installation:

- A different performance oil pan and pickup may be required for your application. Call the Techline at (800) FORD788 for more information
- The timing chain cover will work with most standard rotation water pumps
- Fuel Pump Eccentric M-6287-B302 installed, allows use of a mechanical fuel pump
- For other transmission applications use the proper 50 oz.-in. imbalance flywheel
- Intake Gaskets M-9439-A50 required
- Firing order 1-3-7-2-6-5-4-8 (5.0L HO and 351W order)
- Built with current available parts. Photo and specs may vary
- Shipping weight approximately 425 lbs

FORD RACING CRATE ENGINES



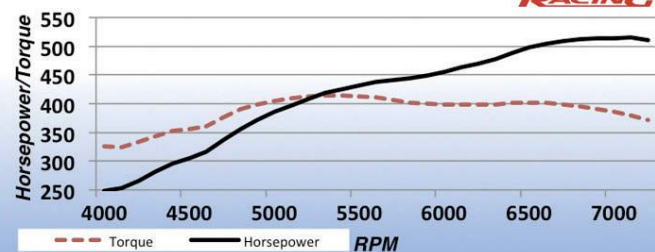
331 CUBIC INCHES 500 HP BOSS CRATE ENGINE M-6007-Z331P*



Ford Racing developed the Z331P crate engine to be used in high-performance applications where a high-revving 500+ horsepower engine is needed. The engine is perfect for vintage racing or open track Mustangs that use a traditional 289 or 302 type small block Ford. The engine is built around a BOSS 302 8.2" deck block with a short 3.100 stroke and roller camshaft. The Z331 delivers performance that's reminiscent of the Trans Am days.

- 515 hp @ 7100 rpm
- 415 lb-ft torque @ 5300 rpm
- 302-based small block Ford engine
- Displacement 331 cu. in.
- 4.125" bore x 3.100" stroke
- BOSS 302 8.2" deck
- SCAT® forged steel crankshaft
- SCAT® forged steel H-beam connecting rods
- Forged Mahle® pistons w/floating wrist pins
- Solid roller camshaft
- .525" camshaft lift
- Camshaft duration 258°/266° @ .050
- Ford Racing Aluminum "Z" Cylinder Heads M-6049-Z304P
- 2.08" intake valves and 1.60" exhaust valves
- 11.9:1 compression ratio (nominal)
- 1.65:1 ratio roller rocker arms
- Ford Racing SFI-approved vibration damper
- Ford Racing BOSS cast aluminum polished finish valve covers
- High-performance rear sump 7 qt. capacity oil pan with windage tray and scraper
- Edelbrock® high-performance water pump
- Distributor not included
- Premium leaded 110 octane minimum fuel recommended
- 32° ignition timing
- Maximum recommended rpm: 7000 rpm
- Internal balanced. Use neutral balance flywheel

Z331P 515 HP/415 LB-FT TORQUE



- Engine power rating based on long tube headers, Parker Funnelweb intake w/750 Demon® carb and 1" carb spacer
- Depending on your application, a different timing cover, water pump, performance oil pan and pickup may be required. See installation notes
- **Race Application — No Warranty**

INSTALLATION NOTES: See engine installation and tuning tips on page 48. Some or all of the following items may need to be changed from your original engine or modified for proper installation:

- A different performance oil pan and pickup may be required for your application. Call the Techline at (800) FORD788 for more information
- The timing chain cover will work with most regular water rotation pumps
- Fuel Pump Eccentric M-6287-B302 installed, allows use of mechanical fuel pump
- A standard rotation water pump is installed on the engine. Other applications may require different water pumps and timing chain covers found on pages 126-127
- Intake Gaskets M-9439-A50 included
- Firing order 1-3-7-2-6-5-4-8
- Built with current available parts. Photo and specs may vary
- Shipping weight approximately 465 lbs

See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74

FORD RACING CRATE ENGINES



Photos may vary

363 CUBIC INCHES 500 HP BOSS CRATE ENGINES

M-6007-Z363FT* Front Sump Oil Pan

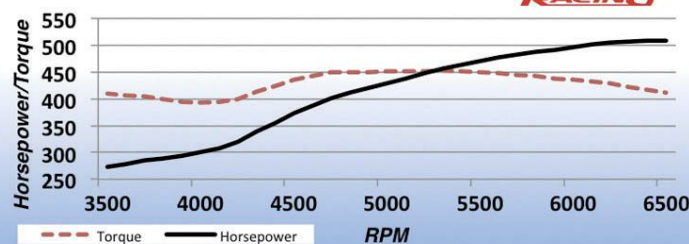
M-6007-Z363RT* Rear Sump Oil Pan

Following the old hot rodding adage that there is no substitute for cubes, Ford Racing takes the popular 302-based stroker to the max with the 500 horsepower Z363 crate engine. By taking the bore out to 4.125", the displacement of the popular 347 stroker has been increased to 363 cubic inches. Combined with an improved Mahle® piston, the Z363 makes 50 more horsepower and 50 lb-ft of torque than the Z347 that it replaces. Nothing but the best parts are used inside including: forged crankshaft, forged I-beam connecting rods with floating piston pins and a high-performance oiling system. Built with the BOSS 302 block and Z304D aluminum heads, Z363 fits many of the vehicles originally built with a 289 or 302 8.2" deck height block. Ford Racing engineers designed Z363 to work both on the street and the strip with strong torque curve that delivers over 390 lb-ft from 3500 to the 6500 rpm redline. With a compression ratio of 10.0:1, Z363 runs on unleaded premium pump gas.

- 500 hp @ 6500 rpm
- 450 lb-ft @ 5300 rpm
- 302-based small block Ford engine
- Displacement 363 cu. in.
- 4.125" bore x 3.400" stroke
- 302 8.2" deck block
- SCAT® forged steel crankshaft
- SCAT® forged steel I-beam connecting rods
- Forged Mahle® pistons
- Hydraulic roller camshaft
- .580"/.602" camshaft lift
- Camshaft duration 232°/240° @ .050"
- Ford Racing Aluminum "Z" Cylinder Heads M-6049-Z304DA
- 2.02" intake valves and 1.60" exhaust valves
- 10.0:1 compression ratio (nominal)
- 1.65:1 ratio roller rocker arms



Z363 RT/FT 500 HP/450 LB-FT TORQUE



- Ford Racing SFI-approved vibration damper
- Ford Racing Cast Aluminum Black Wrinkle Finish Valve Covers w/"BOSS" Script M-6582-BOSS
- High-performance front or rear sump 7 qt. oil pan and windage tray and scraper
- Edelbrock® high-performance water pump
- Includes Ford Racing Intake Manifold Gasket M-9439-A50
- Does not include distributor, intake or flywheel
- Unleaded premium fuel required
- 32° BTDC @ 4000 rpm ignition timing
- Maximum recommended rpm: 6500 rpm
- Internal balanced. Use neutral balance flywheel
- Engine power rating based on long tube headers, Edelbrock® intake manifold #2928 Super Victor® w/750 Holley® carb and 1" carb spacer
- Depending on your application, a different timing cover, water pump, performance oil pan and pickup may be required. See installation notes

See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74

FORD RACING CRATE ENGINES



Photos may vary

427 CUBIC INCHES 450 HP "X" HEAD CRATE ENGINES

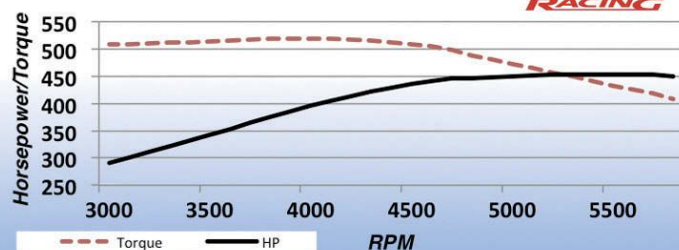
M-6007-X427FRT
M-6007-X427FFT



Built on Ford Racing's new BOSS 351 block, the "X" head 427 crate engine is engineered and built to deliver a strong and flat torque curve. That translates into tire-smoking acceleration for street rods, kit cars and muscle cars. It also delivers power and torque for light duty pickups and SUVs.

- 450 hp @ 5600 rpm
- 520 lb-ft torque @ 4500 rpm
- 351-based small block Ford engine
- Displacement 427 cu. in.
- 4.125" bore x 4.00" stroke
- BOSS 351 9.5" deck block
- SCAT® forged steel crankshaft
- SCAT® forged steel I-beam connecting rods
- Forged Mahle® pistons w/floating wrist pin
- Hydraulic roller camshaft
- .580"/.602" camshaft lift
- Camshaft duration 232°/240° @ .050"
- Ford Racing Aluminum 64cc Chamber Cylinder Heads M-6049-X306
- 1.94" intake valves and 1.54" exhaust valves
- 10.5:1 compression ratio
- 1.60:1 ratio roller rocker arms
- Ford Racing cast aluminum black wrinkle finish 427 Cobra script valve covers M-6582-W457B
- Steel 7-quart oil pan with windage tray and scraper
- Long-type standard rotation water pump included
- Distributor not included. MSD distributor #85840 recommended (distributor modifications necessary for intake clearance)
- Unleaded premium fuel required
- Maximum recommended rpm: 5600 rpm
- Internal balanced. Use neutral balance flywheel
- Front sump pan fits most kit cars
- New block, oil and water pumps, performance oil pan and high-performance harmonic balancer
- Can be used in kit cars, street rods, Mustangs, Fox-bodied cars and trucks

X427 FRT/FFT 450 HP/520 LB-FT TORQUE

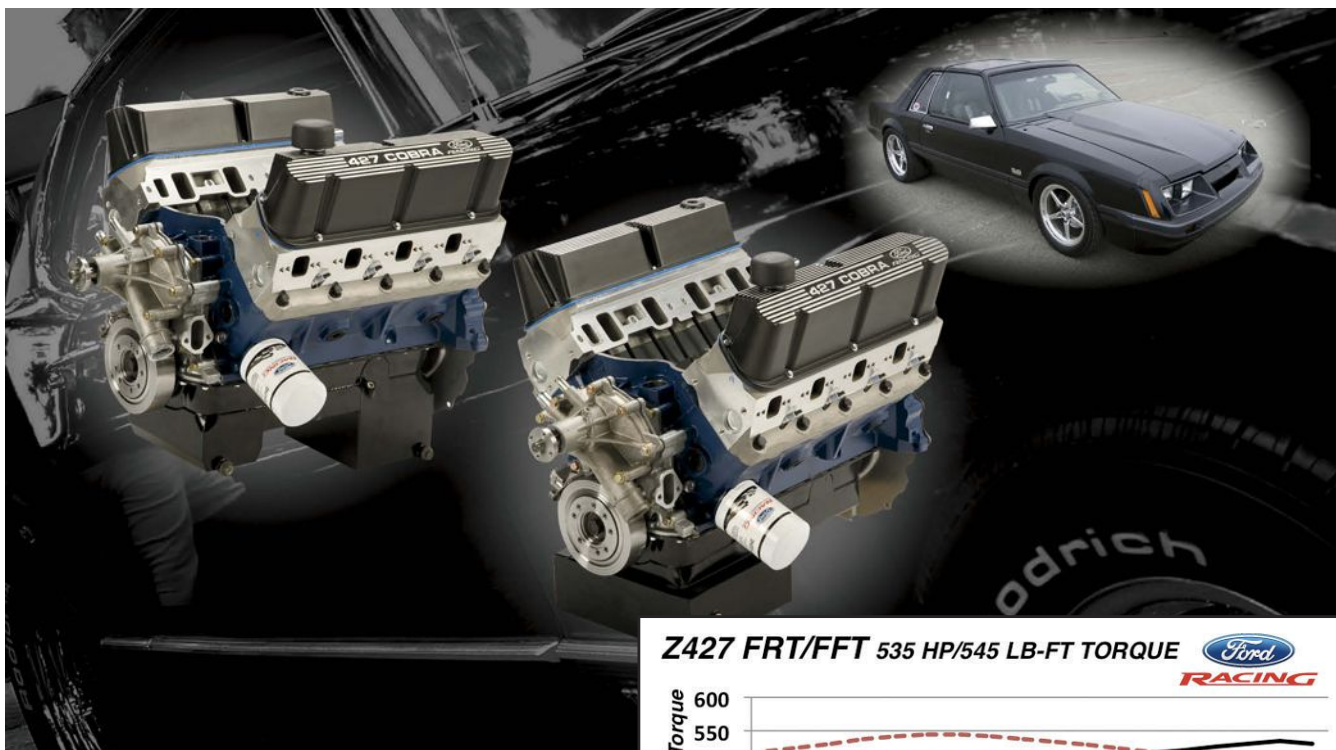


- Depending on your application, a different timing cover, water pump, performance oil pan and pickup may be required. See installation notes

INSTALLATION NOTES: See engine installation and tuning tips on page 48. Some or all of the following items may need to be changed from your original engine or modified for proper installation:

- This engine has a performance oil pan and pick-up, regular rotation timing cover and regular rotation water pump and non-EFI valve covers
- A different performance oil pan and pickup may be required for your application. Call the Techline at (800) FORD788 for more information
- The timing chain cover will work with most regular rotation water pumps
- Fuel Pump Eccentric M-6287-B302 installed, allows use of mechanical fuel pump
- A standard rotation water pump is installed on the engine. Other applications may require different water pumps and timing chain covers
- The Valve Covers M-6582-W427B should fit most non-EFI applications, optional valve covers (sold separately)
- The Damper M-6316-D302 may require a spacer for pulley alignment
- Flywheel not included, the engine is neutral balanced
- Firing order 1-3-7-2-6-5-4-8 (5.0L HO and 351W order)
- Built with current available parts. Photo and specs may vary. Does NOT include distributor or intake manifold

FORD RACING CRATE ENGINES



427 CUBIC INCHES 535 HP CRATE ENGINES

M-6007-Z427FFT* Front sump oil pan

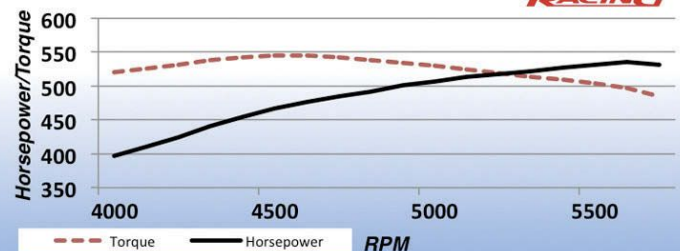
M-6007-Z427FRT* Rear sump oil pan

The company that created the famous 427 FE engine announces a modern version of the legendary motor. Built on Ford Racing's new BOSS 351 block, the 427 crate engine is engineered and built for drivability and durability while still offering a throaty growl. Ideal for street rods, kit cars and all Ford projects requiring big power in a reliable small block package.

- 535 hp @ 5600 rpm
- 545 lb-ft @ 4500 rpm
- 351-based small block Ford engine
- Displacement 427 cu. in.
- 4.125" bore x 4.00" stroke
- BOSS 351 9.5" deck block
- SCAT® forged steel crankshaft
- SCAT® forged steel I-beam connecting rods
- Forged Mahle® pistons w/floating wrist pin
- Hydraulic roller camshaft
- .576"/.600" camshaft lift
- Camshaft duration 242°/248° @ .050"
- Ford Racing Aluminum "Z" Cylinder Heads M-6049-Z304DA with 2.02" intake valves and 1.60" exhaust valves
- 2.02" intake valves and 1.60" exhaust valves
- 10.5:1 compression ratio
- 1.65:1 ratio roller rocker arms
- Ford Racing cast aluminum black wrinkle finish "427 Cobra" Script Valve Covers M-6582-W427B
- Steel 7-quart oil pan with windage tray and scraper
- Long-type standard rotation water pump included
- Distributor not included. MSD distributor #85840 recommended (distributor modifications necessary for intake clearance)
- Includes Ford Racing M-9439-A50 Intake Manifold Gaskets
- Unleaded premium fuel required
- 32° @ 4000 rpm ignition timing
- Maximum recommended rpm: 5600 rpm
- Internal balanced. Use neutral balance flywheel
- New block, oil and water pumps, performance oil pan and high-performance harmonic balancer



Z427 FRT/FFT 535 HP/545 LB-FT TORQUE



- Can be used in kit cars, street rods, Mustangs, Fox-bodied cars and trucks
- Depending on your application, a different timing cover, water pump, performance oil pan and pickup may be required. See installation notes

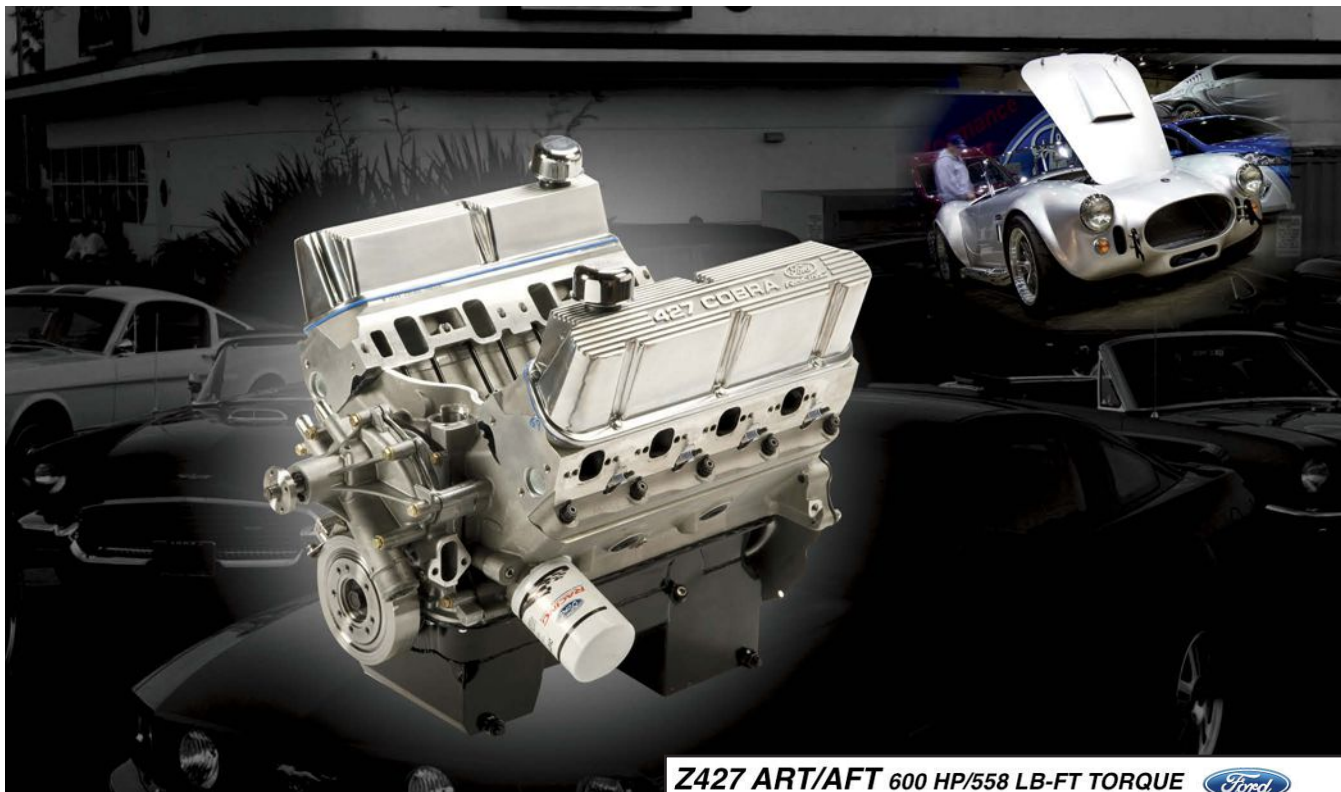
See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74

INSTALLATION NOTES: Some or all of the following items may need to be changed from your original engine or modified for proper installation:

- This engine has a performance oil pan and pickup, regular rotation timing cover and regular rotation water pump and non-EFI valve covers
- A different performance oil pan and pickup may be required for your application. Call the Techline at (800) FORD788 for more information
- The timing chain cover will work with most regular rotation water pumps
- Fuel Pump Eccentric M-6287-B302 installed, allows use of mechanical fuel pump
- A standard rotation water pump is installed on the engine. Other applications may require different water pumps and timing chain covers
- The Valve Covers M-6582-W427B should fit most non-EFI applications, optional valve covers (sold separately)
- The Damper M-6316-D302 may require a spacer for pulley alignment
- Flywheel not included, the engine is neutral balanced
- Firing order 1-3-7-2-6-5-4-8 (5.0L HO and 351W order)
- Built with current available parts. Photo and specs may vary

FORD RACING CRATE ENGINES



427 CUBIC INCHES 600 HP ALUMINUM CRATE ENGINES



M-6007-Z427AFT* Front sump oil pan

M-6007-Z427ART* Rear sump oil pan

Ford Racing announces an aluminum version of the legendary 427 motor. Built on Ford Racing's aluminum Z351 block, the 427 crate engine is engineered and built for maximum power. The engine is ideal for track ready cars and Ford projects requiring big power in a light-weight package.

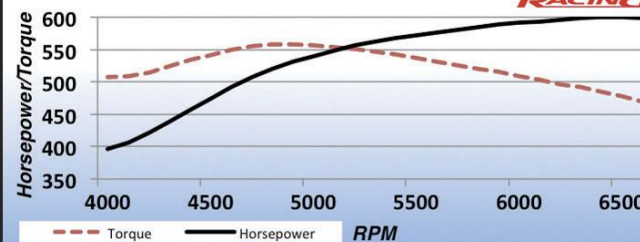
- 427 cubic inches
- 600 hp @ 6500 rpm, 558 lb-ft @ 5000 rpm
- 11.0:1 compression ratio (nominal)
- Ford Racing Aluminum 4-bolt Main Block M-6010-Z351
- Forged Mahle® pistons
- Forged steel H-beam connecting rods
- Solid roller cam
- Intake duration 258° @ .050" intake
- Exhaust duration 260° @ .050" exhaust
- Valve lift intake .644"
- Valve lift exhaust .653"
- Roller rocker arms (1.65:1 ratio)
- Rocker arm stud girdle
- Double Roller Timing Chain M-6268-B302
- Forged steel crankshaft
- High-performance oil pan
- CNC ported Ford Racing Aluminum "Z" Cylinder Heads M-6049-Z304P with 2.08" intake valves and 1.60" exhaust valves
- New block, oil and water pumps, performance oil pan and high-performance harmonic balancer
- Can be used in kit cars, street rods, Mustang, Fox-bodied cars and trucks
- Depending on your application, a different timing cover, water pump, performance oil pan and pickup may be required. See installation notes

• **Does not include intake manifold or distributor**

See Also...

- Crate Engine Warranty - Page 281
- Engine Tips & Specs - Pages 70-74

Z427 ART/AFT 600 HP/558 LB-FT TORQUE



INSTALLATION NOTES:

See engine installation and tuning tips on page 48. Some or all of the following items may need to be changed from your original engine or modified for proper installation:

- This engine has a performance oil pan and pickup, regular rotation timing cover and regular rotation water pump and non-EFI valve covers
- A different performance oil pan and pickup may be required for your application. Call the Techline at (800) FORD788 for more information
- The timing chain cover will work with most regular rotation water pumps
- Fuel Pump Eccentric M-6287-B302 installed, allows use of mechanical fuel pump
- A standard rotation water pump is installed on the engine. Other applications may require different water pumps and timing chain covers, see pages 126-127
- The Valve Covers M-6582-W427P should fit most non-EFI applications, optional valve covers (sold separately)
- The Damper M-6316-D302 may require a spacer for pulley alignment, see page 130
- Flywheel not included, the engine is neutral balanced
- Intake Gaskets M-9439-A50 required
- Firing order 1-3-7-2-6-5-4-8 (5.0L HO and 351W order)
- Built with current available parts. Photo and specs may vary.

Does NOT include distributor or intake manifold

FORD RACING CRATE ENGINES

REAL RACING ENGINES

Ford Racing Sealed Engines are built to professional racing series standards and deliver reliable lasting performance. These aren't built from repackaged production parts—but real racing parts like forged crank, rods and pistons with full floating piston pins. Based on premium race blocks, these engines deliver reliable and consistent performance lap after lap. These engines are accepted by the major asphalt Late Model Stock series with more sanctioning bodies and tracks adding these to their rules every year.



M-6007-S347JR*

- 350 hp
- 400 lb-ft of torque
- BOSS 302 block
- "X" aluminum head
- Competes with GMPP "603"



M-6007-D347SR*

- 415 hp
- 400 lb-ft of torque
- BOSS 302 block
- "Z" aluminum head
- Competes with GMPP "604"

Need assistance getting a Ford Racing Sealed Engine approved for your Racing Series or Track? Call the Ford Racing Techline at (800) FORD788



Augie Grill – Pro Late Model Champion – D347SR



M-6007-S374W*

- 540 hp
- 470 lb-ft of torque
- BOSS 351 block
- CNC ported "Z" aluminum head
- The cost-effective alternative to a built engine for asphalt and dirt



M-6007-S374D*

- 590 hp
- 495 lb-ft of torque
- BOSS 351 race block
- CNC ported "Z" aluminum head
- For Super Late Model Racing

Detailed technical specs and parts list for all of the Ford Racing Sealed Circle Track engines can be found on the web at fordracingparts.com/competition



George Foley and Leon Gonyo – S374W – Modified

THESE ARE AMONG THE MANY SANCTIONING BODIES AND RACE TRACKS THAT HAVE ACCEPTED FORD RACING SEALED ENGINES



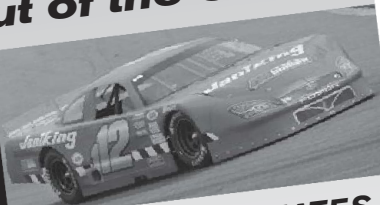
POWER TO WIN RIGHT OUT OF THE CRATE



RACING
www.fordracing.com
fordracingparts.com/circletrack

Pole Setting Power – Right out of the Crate

Augie Grill takes Rattler PLM pole with an out of the box Blue Oval fresh and factory sealed from Ford Racing.



D347SR BLUE OVAL DOMINATES RATTLER PRO LATE MODEL – TOP 5 FINISHERS

Elliott – Pollard – Grill – Davidson – Hemric

Jeff Fultz drives new Ford Racing S374DCRA Super Late Motor to 3rd.

Engines are in stock and ready to ship.



S374W – Built Engine Power at a Crate Price

S374W Runs 1-2 At Airborne Speedway



George Foley wins



Leon Gonyo finishes 2nd

D347SR BLUE OVAL DOMINATES WORLD CROWN 125 PRO LATE MODEL

Augie Grill wins

Augie won with an out of the box – Blue Oval fresh and factory sealed from Ford Racing



D347SR : “Blue Ovals” Dominate Crate Racing From North to South

Blue Ovals 1-2 at Toledo

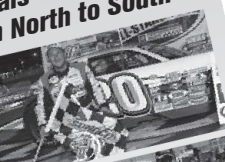
- Brian Campbell Wins CRAJey's
- All-Star Tour and sets new track record
- Eddie Hoffman finishes 2nd

Blue Oval win UARA

- Garrett Campbell wins UARA Newport

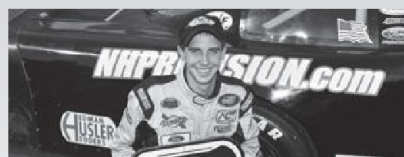
Blue Ovals 1-4-5 at Pensacola

- Hunter Robbins wins
- DJ Vanderley takes 4th
- Bubba Pollard 5th



FORD S347JR DOMINATES ACT INVITATIONAL AT LOUDON

Joey Pole drives from 28th to win



Wayne Helliwell Jr. takes second

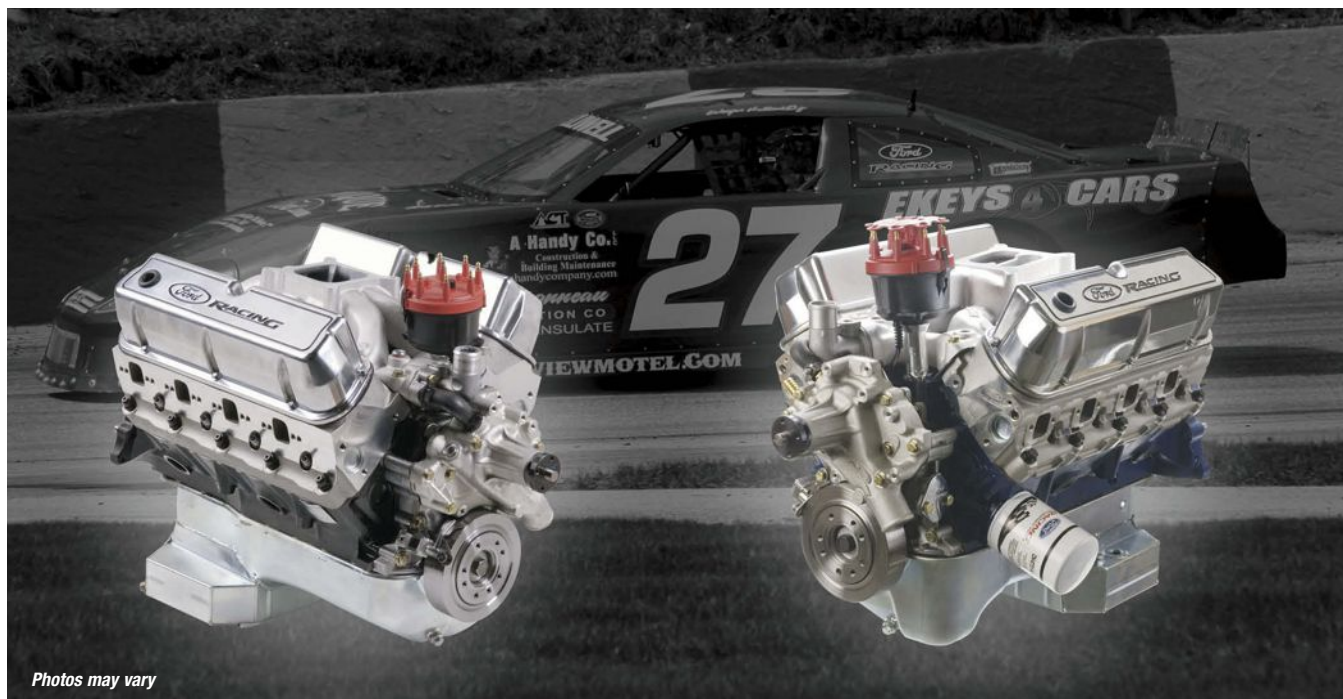


Joey Laquerre drives from 29th to finish 8th



NO BLUEPRINTING NECESSARY

FORD RACING CRATE ENGINES



Photos may vary

347 CUBIC INCHES 415 HP SEALED CRATE ENGINE

M-6007-D347SR*



Ford Racing Sealed Engines are built to professional racing series standards and deliver reliable lasting performance. These aren't built from repackaged production parts, but real racing parts like forged crank, rods and pistons with full floating piston pins. Based on the Ford Racing BOSS 302 block, these engines deliver reliable and consistent performance lap after lap.

- Built for racing series that require a sealed or "crate" racing engine
- 347 cubic inches – 4.030" bore – 3.400" stroke
- BOSS 302 race block
- 415 hp @ 6000 rpm – 400 lb-ft @ 4900 rpm (with headers and a 650 CFM Holley® carburetor, not included)
- 10.0:1 compression ratio (nominal)
- SCAT® forged crankshaft
- SCAT® forged steel cap screw connecting rods
- Forged Mahle® pistons with floating pins
- Hydraulic Roller Camshaft M-6250-F303, .528" lift intake and exhaust, duration at .050" is 226 degrees intake and exhaust
- Double Roller Timing Chain Set M-6268-A302
- High-performance 7-quart rear sump circle track oil pan
- Ford Racing Aluminum "Z" Cylinder Heads M-6049-Z304DA with 2.02" intake valves and 1.60" exhaust valves
- 1.65:1 ratio roller rocker arms
- Edelbrock® Victor Jr.® Intake Manifold M-9424-D302
- Edelbrock® water pump
- SFI-approved vibration damper
- MSD® billet distributor
- ARP® head studs
- "Ford Racing" polished aluminum circle track valve covers
- High-volume oil pump
- Engine is sealed for circle track competition where rules allow
- Engine weight as equipped is 431 lbs (includes 7 quarts of oil)
- Additional technical information can be found at www.fordracingparts.com/circletrack
- Competes directly with the GMPP "604" crate engine
- Engine is internally balanced, "0" balance flywheel required
- Flywheel is not included
- **Race Application - No Warranty**

347 CUBIC INCHES 350 HP SEALED CRATE ENGINE

M-6007-S347JR*



Ford Racing Sealed Engines are built to professional racing series standards and deliver reliable lasting performance. These aren't built from repackaged production parts, but real racing parts like forged crank, rods and pistons with full floating piston pins. Based on the Ford Racing BOSS 302 block, these engines deliver reliable and consistent performance lap after lap. S347JR has been approved for use in the American Canadian Tour (ACT) Late Model series.

- Built for racing series that require a sealed or "crate" racing engine
- 347 cubic inches – 4.030" bore – 3.400" stroke
- BOSS 302 Race Block M-6010-BOSS302
- 350 hp @ 5500 rpm – 400 lb-ft of torque @ 4000 rpm (with headers and 2V 500 CFM Holley® carburetor, not included)
- 10.5:1 compression ratio (nominal)
- SCAT® forged crankshaft
- SCAT® forged steel cap screw connecting rods
- Forged Mahle® pistons with floating pin
- COMP Cams 35-410-04 hydraulic roller camshaft .533" lift intake and exhaust, duration at .050" is 206 degrees intake and exhaust
- Double Roller Timing Chain Set M-6268-A302
- High-performance 7-quart rear sump circle track oil pan
- MSD® billet distributor
- Ford Racing Aluminum "X" Cylinder Heads M-6049-X307 with 1.94" intake valves and 1.54" exhaust valves
- 1.60:1 ratio Roller Rocker Arms M-6564-B351
- Edelbrock® Performer® RPM Air-Gap dual-plane aluminum intake manifold
- Edelbrock® water pump
- MSD billet distributor
- High-volume Oil Pump M-6600-D2
- "Ford Racing" polished aluminum circle track valve covers
- High-performance SFI-approved Vibration Damper M-6316-D302
- Engine weight as equipped is 414 lbs (includes 7 quarts of oil)
- Engine is sealed for circle track competition where rules allow
- Competes against GMPP "603" crate engine
- Additional technical information can be found at www.fordracingparts.com/circletrack
- Engine is internally balanced, neutral balance flywheel required
- Flywheel not included
- **Race Application - No Warranty**

FORD RACING CRATE ENGINES



374 CUBIC INCHES 540 HP SEALED CRATE ENGINE M-6007-S374W*

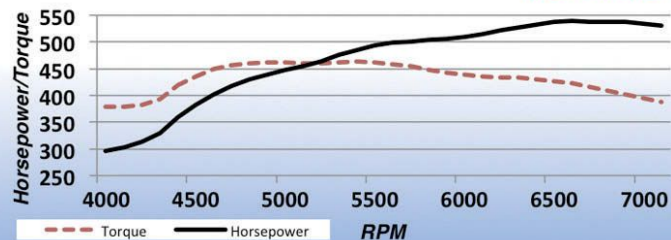


Ford Racing expands its line of sealed racing engines with the new 540 horsepower S374W engine developed for asphalt and dirt circle track racing. Ford Racing Sealed Engines are built to professional racing series standards to deliver reliable and lasting performance. These aren't built from repackaged production parts, but real racing parts that starts with the Ford Racing BOSS 351 block, adds an Eagle® forged steel crankshaft, steel H-beam rods and forged Mahle® pistons with full floating pins and are topped with CNC ported "Z" heads.

Specifications:

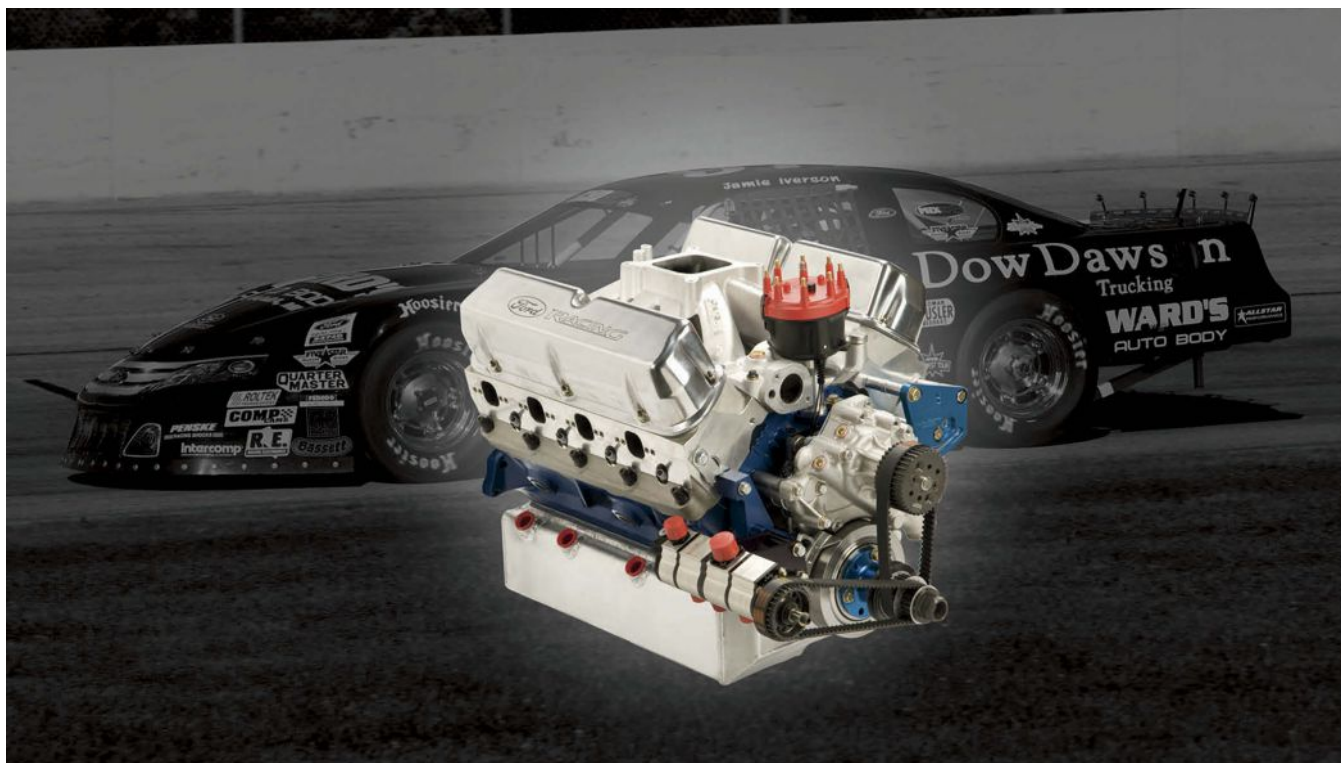
- Designed and developed for short track asphalt and dirt circle track racing where spec or sealed engines are required
- 374 cubic inches (4.125" bore x 3.500" stroke)
- 9.2" deck BOSS 351 block with 4-bolt mains
- 540 hp @ 7000, 470 lb-ft torque @ 5100 rpm w/750 cfm 4-bbl carb
- 11.0:1 compression ratio
- Forged steel Eagle® crank, Eagle® steel H-beam connecting rods
- Mahle® forged pistons
- M-6049-Z304P "Z" CNC Ported Aluminum Cylinder Heads w/2.08" intake and 1.60" stainless steel valves
- Edelbrock® Super Victor® Intake manifold
- Solid roller tappet camshaft
- 1.65:1 roller rocker arms
- M-6268-B302 Double Roller Timing Chain
- 7-quart rear sump oil pan (Steel)
- Edelbrock® water pump
- SFI-approved harmonic balancer

S374W 540 HP/470 LB-FT TORQUE



- MSD® billet distributor
- "Ford Racing" polished aluminum circle track valve covers
- Factory-sealed for asphalt and dirt circle track competition
- Each engine is dyno-tested and provided with the dyno run data
- Competes with GMPP CT-525 crate engine
- Additional technical information can be found at www.fordracingparts.com/circletrack
- Built with current available parts. Photo and specs may vary
- **Race Application - No Warranty**
- See Also...
- Engine Tips & Specs – Pages 70-74

FORD RACING CRATE ENGINES



374 CUBIC INCHES 590 HP SEALED RACING ENGINE M-6007-S374D*



Ford Racing takes its line of sealed circle track racing engines to new power levels with the 590 hp S374D Super Late Model engine. This engine has been developed and tested for short track competition in Super Late Model race series. Each S374D is hand-assembled to professional racing specs and standards and dyno-tested to validate its power level. Ford Racing BOSS 351 block and "Z" CNC ported heads are mixed with the highest quality brand name aftermarket components to create a package that delivers consistent lap after lap performance. The S374D is designed for sanctioning bodies that recognize sealed racing engines and is a cost-effective alternative to custom-built racing engines.

- 374 cubic inches (4.125" bore – 3.500" stroke)
- BOSS 351 block race block – 9.2" deck
- 590 hp @ 7300 rpm – 495 lb-ft of torque @ 5500 rpm w/750 cfm 4-bbl carb
- 505 hp @ 6600 rpm – 460 lb-ft of torque @ 5100 rpm w/500 cfm 2-bbl carb
- 11.0:1 compression ratio
- Callies crankshaft and H-beam connecting rods
- Mahle® forged pistons
- M-6049-Z304P "Z" CNC Ported Aluminum Cylinder Heads w/2.08" intake and 1.60" stainless steel valves
- Edelbrock® Super Victor® intake manifold
- Solid roller camshaft
- 1.65:1 roller rocker arms and stud girdle
- M-6268-B302 Double Roller Timing Chain
- Dailey 4 stage dry sump oil pump
- Williams aluminum oil pan
- KRC front drive oil and water pump w/power steering pump mount included
- Edelbrock® water pump
- SFI-approved balancer
- MSD® billet distributor
- Factory-sealed for asphalt and dirt circle track competition
- Each engine is dyno-tested and provided with the dyno run data
- Additional technical information can be found at www.fordracingparts.com/circletrack
- Built with current available parts. Photo and specs may vary
- **Race Application - No Warranty**

374 CUBIC INCHES 590 HP CRA SEALED RACING ENGINE M-6007-S374DCRA*



Ford Racing takes its line of sealed circle track racing engines to new power levels with the 590 hp S374DCRA Super Late Model engine. This engine is identical to the M-6007-S374D Sealed Racing Engine, but is sealed and certified for competition in the CRA Super Series-sanctioned events along with other Late Model series that recognize CRA Super Series rules. This also includes trackside tech service at all CRA Super Series events.

- 374 cubic inches (4.125" bore – 3.500" stroke)
- BOSS 351 block race block – 9.2" deck
- 590 hp @ 7300 rpm – 495 lb-ft of torque @ 5500 rpm w/750 cfm 4-bbl carb
- 505 hp @ 6600 rpm – 460 lb-ft of torque @ 5100 rpm w/500 cfm 2-bbl carb
- 11.0:1 compression ratio
- Callies crankshaft and H-beam connecting rods
- Mahle® forged pistons
- M-6049-Z304P "Z" CNC Ported Aluminum Cylinder Heads w/2.08" intake and 1.60" stainless steel valves
- Edelbrock® Super Victor® intake manifold
- Solid roller tappet camshaft
- 1.65:1 roller rocker arms
- M-6268-B302 Double Roller Timing Chain
- Dailey 4 stage dry sump oil pump
- Williams aluminum oil pan
- KRC front drive and oil and water pump w/power steering pump mount included
- Edelbrock® water pump
- MSD® billet distributor
- Factory-sealed with Ford Racing and CRA Series-approved seals for asphalt and dirt circle track competition
- Each engine is dyno-tested and provided with the dyno run data
- Additional technical information can be found at www.fordracingparts.com/circletrack
- **Race Application - No Warranty**

FORD RACING CRATE ENGINES

5.4L 4V FORGED IRON SHORT BLOCK SUPERCHARGED

M-6009-C54SC4*



- Fits 2007-2010 Shelby GT500
- 5.4L cast iron block
- Forged steel 8-bolt Crankshaft M-6303-M54
- Forged steel H-beam connecting rods
- Forged aluminum 16cc dish pistons
- Includes oil pump
- Approximately 8.1:1 compression ratio when used with Mustang SVT 4V 5.4L 52.7cc heads
- Built with all new parts
- Will accept 2V and 4V cylinder heads
- Will not work with 3-valve cylinder heads
- Block configured for use with 2007-2010 Shelby GT500 water pump
- See www.fordracingparts.com for other applications



4.6L 3V SHORT BLOCK

M-6009-463V*



- New production Mustang 4.6L 3-valve short block assembled in Ford Motor Company's Romeo Engine Plant
- Aluminum block with cast iron crankshaft
- Production connecting rods
- Production hypereutectic pistons
- Includes oil pump
- 9.8:1 compression with 3V 50.3cc cylinder heads
- Built with all new parts



FORD RACING CRATE ENGINES

331 CUBIC INCHES BOSS SHORT BLOCK

M-6009-331F*



- 331 cubic inches
- BOSS 4-bolt Main Block M-6010-BOSS302 – 8.2" deck height
- Mahle® forged aluminum 4.125" bore pistons with valve reliefs for Z304, N351, GT-40 and other inline valve Windsor cylinder heads. 7cc effective dome volume, check valve to piston clearance
- .005" below piston to deck height nominal
- Eagle® 3.100" stroke forged steel crank
- Eagle® forged steel H-beam connecting rods with floating pin
- Hydraulic roller camshaft compatible
- Neutral balance rotating assembly
- Recommended cylinder head fasteners M-6065-BOSS Head Bolts, M-6014-BOSS Studs or M-6014-Z304 Studs, depending on application
- Designed for M-6049-X306/X307/Z304DA Cylinder Heads. Not designed for production 302/351W or M-6049-Y302/Y303/X302/X303/X304/X305 Cylinder Heads
- Assembled and ready for your heads, cam and timing chain set
- Requires Head Gaskets M-6051-R351
- Built with all new parts
- Photo and specs may vary



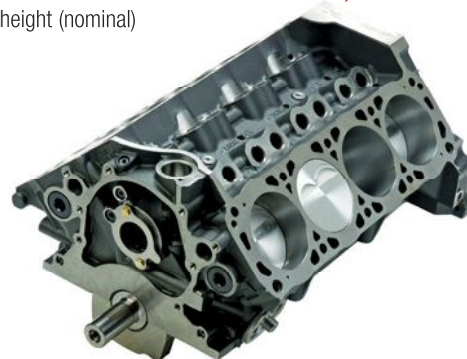
363 CUBIC INCHES BOSS SHORT BLOCK

M-6009-363



The Ford Racing 363 short block lets you build it your way by adding your choice of heads, cam, intake and oil pan. Its the perfect foundation to build a powerful 8.2" deck engine for your vintage muscle car, street rod, Fox body or late model Mustang. This is the same short block used in the 500 hp Z363 crate engine. By taking the bore out to 4.125", the displacement of the popular 347 stroker has been increased to 363 cubic inches. Nothing but the best parts are used inside, including forged crankshaft, forged I-beam connecting rods with floating piston pins and the BOSS 302 block. The 363 short block fits many of the vehicles originally built with a 289 or 302 8.2" deck height block.

- 302-based small block Ford engine
- Displacement (cu. in.): 363
- 4.125" bore x 3.400" stroke
- BOSS 4-bolt Main Block 302 M-6010-BOSS302; 8.2" deck height; .010" below piston to deck height (nominal)
- SCAT® forged steel 3.400" stroke crankshaft
- SCAT® forged steel I-beam connecting rods
- Forged Mahle® aluminum pistons, with reliefs for Z304D, Z304P, N351, GT-40 and other inline valve Windsor cylinder heads. 6cc valve pockets
- Hydraulic roller camshaft compatible
- Internally balanced
- Recommended cylinder head fasteners M-6065-BOSS Head Bolts, M-6014-BOSS Studs or M-6014-Z304 Studs, depending on application
- Designed for M-6049-X306/X307/Z304DA Cylinder Heads. Not designed for production 302/351W or M-6049-Y302/Y303/X302/X303/X304/X305 Cylinder Heads
- Assembled and ready for your heads, cam and timing chain set
- Requires Head Gaskets M-6051-R351
- Built with all new parts
- Photo and specs may vary



427 CUBIC INCHES BOSS SHORT BLOCK

M-6009-427F*



- 427 cubic inches
- BOSS 4-bolt Main Block M-6010-BOSS351 9.5" deck height
- Mahle® forged aluminum 4.125" bore pistons with valve reliefs for Z304, N351, GT-40 and other inline valve Windsor cylinder heads. 17cc effective dish volume, check piston to valve clearance
- .005" below piston to deck height nominal
- SCAT® 4.000" stroke forged steel crank
- SCAT® forged steel H-beam connecting rods with floating pin
- Hydraulic roller camshaft compatible
- Neutral Balance rotating assembly
- Recommended cylinder head fasteners M-6065-BOSS Head Bolts, M-6014-BOSS Studs or M-6014-Z304 Studs, depending on application
- Designed for M-6049-X306/X307/Z304DA Cylinder Heads. Not designed for production 302/351W or M-6049-Y302/Y303/X302/X303/X304/X305 Cylinder Heads
- Assembled and ready for your heads, cam and timing chain set
- Requires Head Gaskets M-6051-R351
- Built with all new parts
- Photo and specs may vary



FORD RACING CRATE ENGINES

WE THOUGHT YOU OUGHT TO KNOW

This is not a how-to book. It's basically a listing of currently available Ford Racing Performance Parts. The pieces can be bought by professionals, professional amateurs, weekend hobbyists or rank beginners. A certain amount of automotive skill is assumed in presenting the parts. Modifying an engine, be it a complete assembly or a bare block, requires experience and know-how. If you don't know, ask someone who does. Read up and find out all you can **before** putting down your bucks for those long dreamed of pieces. And if at all possible, consult an experienced engine builder. You may find it to your advantage to have him do a portion or all of the heavy machining and wrenching.

What we have here are just a few of the key bits of information and specs. The idea is to help keep midnight thrashing to a minimum, because parts don't go together right, or there's more to a job than you imagined.

COMPRESSION RATIO

Increasing the compression ratio (CR) is often one of the first engine performance modifications. Squeezing the air-fuel mixture into a smaller space increases its temperature and ease of ignition; thus the rate at which heat is extracted from the fuel. Engineers call it "thermal efficiency." Simply put, it means that increasing the compression ratio increases horsepower.

Henry Ford's Model "T" has a CR of 3.6:1. High-performance engines operate in the area of 12.5:1. Most of today's stock production engines are about 8.5:1.

NOTE: Turbocharged engines typically have a **lower** CR than normally aspirated engines. Thus, if you add a turbo, you may want to **lower** the CR, depending on performance level.

DETONATION

Increasing the CR changes the rate at which fuel burns. Spark knock (detonation) will occur if certain modifications are not performed. Here are two of the most important:

Ignition Spark Timing—Increasing the CR requires installation of new distributor springs to change advance curve.

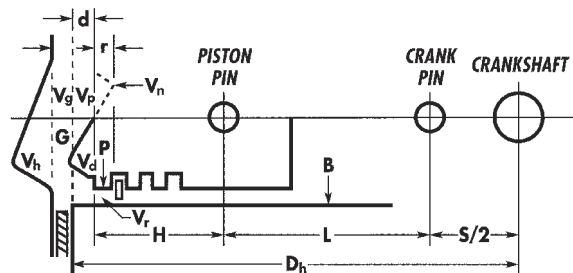
Fuel Octane Rating—Increasing the CR requires gasoline with a high octane rating (with anti-knock components to control detonation). This is not a problem with engines that burn alcohol, because it has a naturally high octane number. Engines that run on alcohol require a high CR to compensate for the fact that it generates less heat.

MODIFICATION TECHNIQUES

Common techniques to increase CR include:

- (1) Installation of a thinner head gasket.
- (2) Installation of "domed" or "pop-up" pistons. Check for adequate "piston-to-valve" clearance at TDC. Camshafts with more overlap require more clearance. A good rule of thumb is 0.080" for intakes and 0.100" for exhausts.
- (3) Removal of metal from deck face of block or cylinder head. You can safely mill off 0.010" to 0.040" (0.050" max.) from most engines.

COMPRESSION RATIO CALCULATION



SYMBOL	DIMENSION	VALUE	REMARKS
B	Bore	4.000 in	$B^2 = 4.000 \times 4.000 = 16.000$
G	Gasket Bore	4.100 in	$G^2 = 4.100 \times 4.100 = 16.810$
P	Piston Top Land Diameter	3.965 in	$P^2 = 3.965 \times 3.965 = 15.721$
S	Stroke	3.500 in	
S/2	Crank Throw	1.750 in	
L	Con Rod Length	6.000 in	
H	Compression Height	1.440 in	
Dh	Deck Height	9.200 in	
r	Ring-to-Top Piston	0.250 in	
d	Piston to Deck	0.010 in	$D^h - H - L - S/2$
t	Gasket Thickness	0.040 in	
V	Cylinder Volume	720.7cc	$\pi/4 \times B^2 \times S \times 16.387$
V ^r	Volume Above Top Ring	.9cc	$\pi/4 \times (B^2 - P^2) \times r \times 16.387$
V ⁿ	Valve Notches Volume	4.0cc	
V ^d	Dome Volume	10.4cc	
V ^p	Piston-to-Deck Volume	2.1cc	$\pi/4 \times B^2 \times d \times 16.387$
Vg	Gasket Volume	8.7cc	$\pi/4 \times G^2 \times t \times 16.387$
Vh	Volume Head	60.2cc	
V ^{cl}	Volume Clearance	65.5cc	$V^r + V^n + V^p + V^g + V^h - V^d$
CR	Compression Ratio	12.0	$\frac{V + V^{cl}}{V^d}$

NOTE: 1) Math reduction; $\pi/4 \times 16.387 = 12.87$

The precise amount is limited by block deck height, casting thickness, valve-to-piston clearance, etc.

NOTE: Also modify the intake manifold to maintain port alignment.

COMPUTING COMPRESSION RATIO

Compression ratio is defined as the ratio between the Total Volume (Cylinder Volume plus Clearance Volume) above the piston at BDC and the Clearance Volume above it at TDC.

Calculations for a 351 CID engine are illustrated. The formula is: $CR = \frac{V + V^{cl}}{V^d}$

Pay particular attention to the following points:

Clearance Volume (V^{cl})—This is the volume above the piston (actually above top piston ring) at TDC. It consists of several small volumes.

Cylinder (Swept) Volume (V)—Determined by cylinder bore and stroke (indicated by movement of piston from TDC to BDC).

Cylinder Head (Combustion Chamber) Volume (Vⁿ)

Volume (Vⁿ)—The irregular shape of the combustion chamber requires measurement (popularly called "cc'ing") with a glass burette and colored liquid, such as A.T. fluid. This catalog lists "nominal" values for Ford Racing heads.

Valve Notches Volume (Vⁿ)—Fill notches with soft clay and make level with top of piston. Remove clay with small knife and drop into graduated cylinder (filled with liquid to convenient point). Note change in level of liquid (indicating volume of notches made by clay).

Domed Piston Volume (V^d)—Dome values are combination "net" values of V^d and Vⁿ.

For compression ratio calculations, they should be used as follows:

- **Pop-Up** pistons have a "positive" dome value, which reduces the volume above the piston and thus must be subtracted (see example above).
- **Dished pistons** have a "negative" dome value. It must be added to compute clearance volume.

MAKE ALL CALCULATIONS WITH ACCURATE MEASUREMENTS OF ACTUAL PARTS. CATALOG VALUES ARE "NOMINAL" SPECIFICATIONS AND MAY VARY FROM ACTUAL SIZE.

VALVE TRAIN

When modifying production engines for performance, here are a few things to keep in mind.

CAMSHAFTS

- When replacing a cam, it's a good practice to install new related components such as a distributor gear, tappets, springs, retainers, etc. It's especially important that new tappets be installed.
- Never use hydraulic lifters with a mechanical cam or solid tappets with a hydraulic cam. The ramps are not compatible.
- Be sure your valve train can handle the timing events and lobe lift of your performance cam. Check for adequate piston-to-valve clearance, spring bind and retainer-to-valve clearance, spring bind and retainer-to-valve seal clearance.
- Be sure to use camshaft and lifter prelube when installing the cam, to prevent scoring the lobes during break-in. Engine oil by itself (regardless of quality or viscosity) is not enough!
- Mechanical cams require lash adjustment. If production head is designed for hydraulic cam, modification is usually required.
- Many design changes have occurred over the years, which affect the front of the block—especially the small V8s. Be sure you check items such as the cam thrust plate, cam spacers, cam gear, fuel pump eccentric, timing chain, cam gear alignment and front cover clearance.
- Refer to the Ford Racing "Camshaft Usage" chart for performance characteristics of cams based on their duration.
- Refer to the "Camshaft Specifications" chart (page 108) for detailed data on Ford Racing camshafts.

FORD RACING CAMSHAFT USAGE

The durations shown in this chart are S.A.E. durations. The descriptions within each group of cams show performance characteristics and basic modification recommendations required to achieve desired performance.

DURATION (SAE)	PERFORMANCE CHARACTERISTICS	ENGINE/VEHICLE USAGE AND MODIFICATIONS
270-290	Good idle quality and low rpm torque.	Use with stock or slightly modified engine, stock axle gears and with A.T. or M.T.
290-300	Fair idle quality. Good low-to-mid-range torque and horsepower.	Will work with stock or modified engine. Can use stock axle gears and with A.T. or M.T.
300-320	Rough idle quality. Good mid-to-high rpm torque and horsepower.	Use with M.T. or high stall A.T. Requires improved carburetion, ignition and exhaust systems. Engine will have lower vacuum than stock.
320-340	Rough idle quality. Good mid-to-high rpm torque and horsepower. For all-out competition only.	Use with M.T. or very high stall A.T. Requires improved carburetion, ignition and exhaust systems. Engine will not provide enough vacuum for accessories. Axle gear ratios must be properly selected.

ROLLER TAPPET CAMSHAFT

Most engines are designed with hydraulic or mechanical flat tappet camshafts, which meet the needs of regular production engines that seldom see 6000 rpm. Flat tappet cams are more than adequate for many competition engines. For ultra-high performance applications where durability and high rpm capability are paramount, however, roller tappet camshafts are very popular. As the name implies, a cylindrical roller "rolls" over the cam lobe, instead of "sliding" as does a conventional flat tappet. This not only allows a roller tappet to follow a more radical cam lobe profile, but it reduces friction and lessens tappet scuffing of the cam lobes.

Ford introduced hydraulic roller tappet camshafts on the 1985 Mustang (and Mark VII LSC) with 302 (5.0L) High Output engine. Here is a brief description of components.

Roller Tappet—Longer than flat tappet, because of roller. Hydraulic portion functions like a standard flat tappet.

Roller Tappet Camshaft—Machined from steel, instead of typical iron used for flat tappet cam. Cam lobes specially ground and hardened to withstand loads of roller tappets. Do not attempt to use with flat tappets!

Roller Tappet Block—Longer, production 5.0L hydraulic roller tappet requires higher tappet boss than block for flat tappet cam. Thus, 5.0L hydraulic roller tappet cam cannot be used in block designed for flat tappet cam. However, flat tappet camshafts can be used in roller tappet blocks.

Roller Tappet Distributor Gear—Machined from steel and specially hardened to be compatible with billet-steel roller camshaft. Do not attempt to use cast iron gears designed for flat tappet cams.

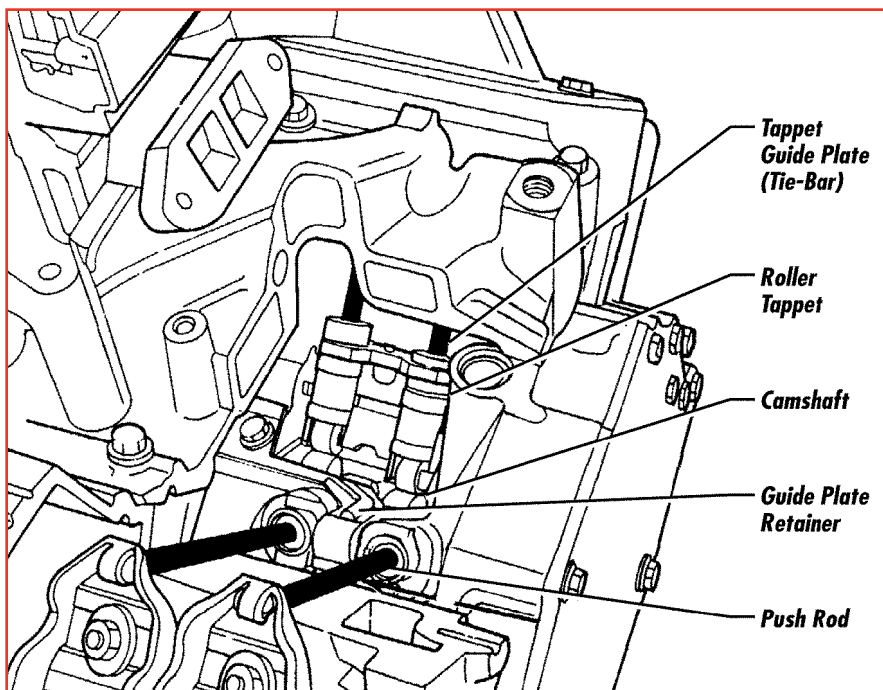
Roller Tappet Push Rod—Push rods are shorter than those designed for flat tappet cam engine, because of longer roller tappet. Rocker arm end has hardened ball that is copper plated to resist wear by rocker arms rubbing on push rod (which don't rotate). A small bracket encircles one end of push rod as reminder to install that end upward (on 1985-1986 models only).

Roller Tappet Guide Plate—Holds roller tappets in alignment with camshaft lobes (flat tappets rotate). Must be installed with "UP" marking upward.

Roller Tappet Guide Plate Retainer—Made of spring steel. Fits in valley cover area to hold guide plates in position.

ROLLER ROCKER ARMS

Most production engines use stamped steel or cast iron rocker arms, as described on page 73. As the push rod moves one end upward—the rocker arm pivots on a ball or sled-type fulcrum—and the other end pushes the valve downward. Although "sliding" friction exists at each point, this design is okay for street engines and even many performance applications.



FORD RACING CRATE ENGINES

ROLLER ROCKER ARMS

Light-weight aluminum roller rocker arms, however, provide many advantages for continuous high rpm operation. They're mounted on needle bearings and feature a cylindrical roller that "rolls" over the valve tip to move it downward. This reduces friction, heat and wear, and only requires about half the horsepower to operate the valve train. And valve train stability is greatly increased. Roller rockers reduce valve stem wear and valve guide wear to an absolute minimum, because the roller doesn't push the valve from side to side as it is opened, as occurs with standard rocker arms, as they "slide" over the valve tip.

Ford Racing offers roller rocker arms in several ratios for the Ford Racing V6, small block V8s and big block 429/460 V8s.

FORD RACING ROLLER TAPPET CAMSHAFTS

Ford Racing offers roller tappet camshafts for the following engines:

5.0L (302) HO

M-6250-B303* Roller Camshaft only

M-6250-E303* Roller Camshaft only

M-6250-F303* Roller Camshaft only

M-6250-X303* Roller Camshaft only

M-6250-Z303* Roller Camshaft only

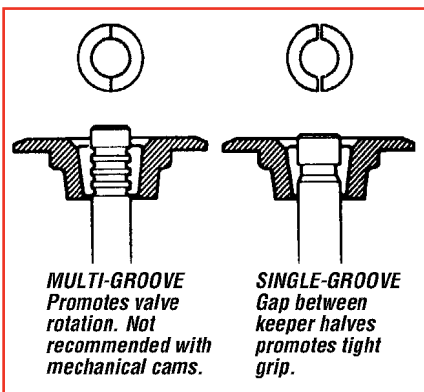
VALVE SPRING RETAINERS AND KEEPERS

Currently Ford Racing only offers retainers and single-lock groove keepers in a 7-degree design. They are compatible with all Ford Racing valve springs for the Ford Racing V6, small block V8s and big block 429/460 V8s. 10-degree retainers/keepers are available from aftermarket suppliers. Do not attempt to interchange 7-degree retainers with 10-degree keepers and vice versa.

Single-lock groove keepers are recommended for high-performance engines. Production 351C (except BOSS and HO), 351M and 400 engines use multi-groove keepers (to promote valve rotation). If you modify for any extended high-revving performance, replace the valves, retainers and keepers with a single-lock groove design.

POSITIVE-TYPE OIL SEALS

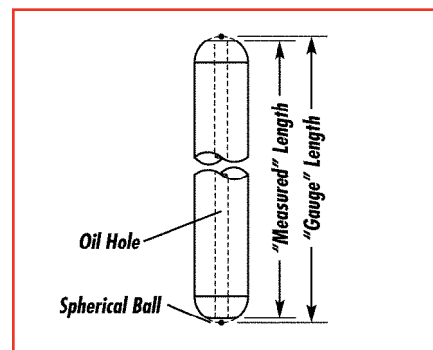
Positive-type oil seals are recommended on OHV performance engines to prevent oil from running down the valve past the valve guide and into the combustion chamber and contaminating the air-fuel mixture. The cylinder head must be machined as illustrated to accept the oil seal.



CAMSHAFT TIMING DEGREE WHEEL

No camshaft installation is complete without checking camshaft timing events. Use a timing degree wheel to check for correct camshaft installation.

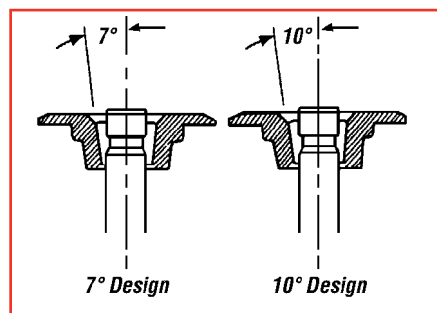
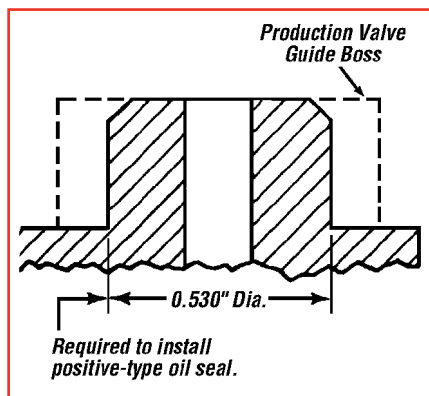
For modular engines, use Camshaft Timing Kit M-6266-D46.



VALVE PUSH RODS

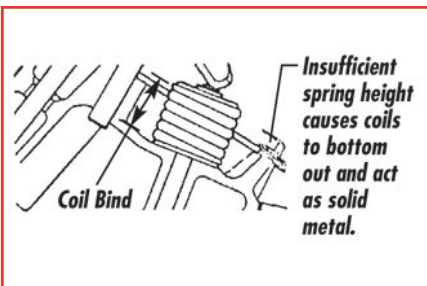
Hardened push rods are required on valve trains that use a guide plate (because they rub against the plate). Do not use non-hardened push rods.

Push rod length is important to maintain correct valve train geometry. The process of drilling an oil hole down the center removes some material from the spherical ball at each end. Push rods are described by "Gauge" length (the distance between the ends before drilling the oil hole). The actual "Measured" length is usually about 0.025" shorter than the gauge length.



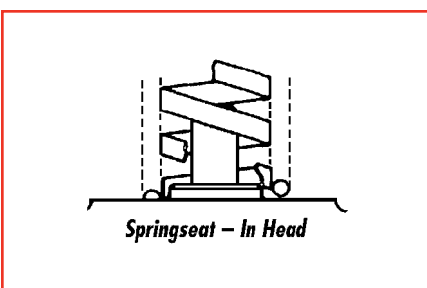
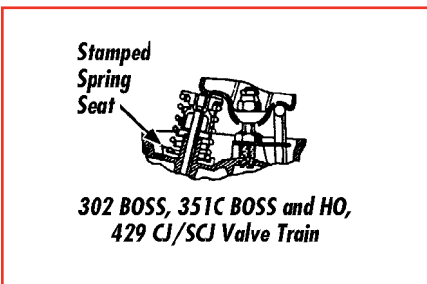
VALVE SPRINGS AND THINGS

Valve springs are a critical part of valve train operation. They're designed to exert a specific load at a specific installed height, thus spring selection and installation are important. A single spring is generally used for stock engines. Dual or triple springs are often necessary for performance applications to increase the load for a given installed height. If installed height isn't sufficient to handle camshaft lobe lift, coil bind may occur.



Installed spring height is the distance from the spring seat to the bottom of the valve retainer. Shims can be used under the spring to change spring height. If installed under stamped seat, shims and seat must have same outside diameter. Spring seats on most production engines consist of a boss machined in the head, on which the spring pilots. On stock performance engines (302 BOSS, 351C BOSS and HO, 429 CJ/SCJ and BOSS) the head is flat and the spring sits in stamped spring seat.

Ford Racing offers spring seats for use with Ford Racing aluminum cylinder heads to prevent damage to the spring seat area.



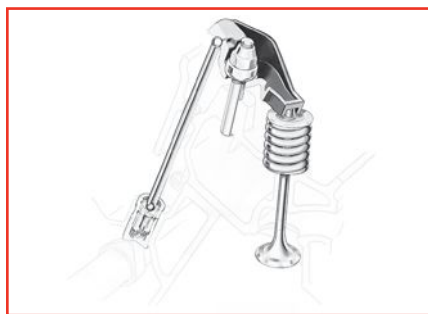
ROCKER ARMS AND STUDS

429 BOSS, FE engines and some 4-cylinder rocker arms are shaft-mounted, while others are individually mounted (in several ways), as shown in the illustration. A non-adjustable stud is used in production engines with hydraulic cams. Mechanical camshafts require rocker arm adjustment to set valve lash (hydraulic cams with anti-pump-up lifters also require adjustment).



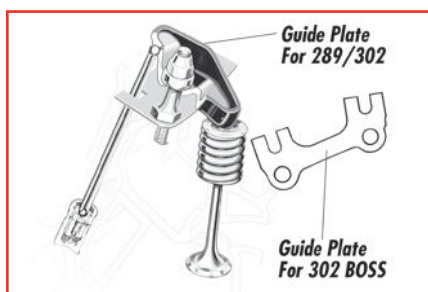
This is a conventional rocker arm with close-tolerance slot in head to guide push rods and maintain rocker arm alignment. Can be used with mechanical or hydraulic camshafts.

USAGE: All 289 high-performance and 1963-1966 1/2 standard 289.



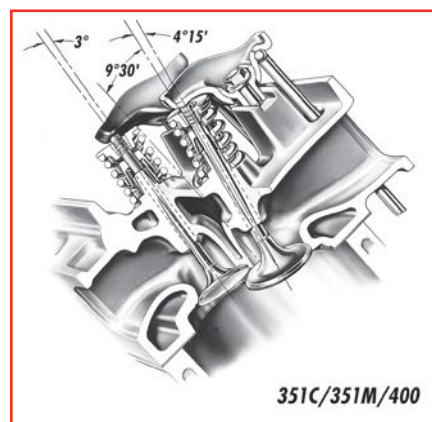
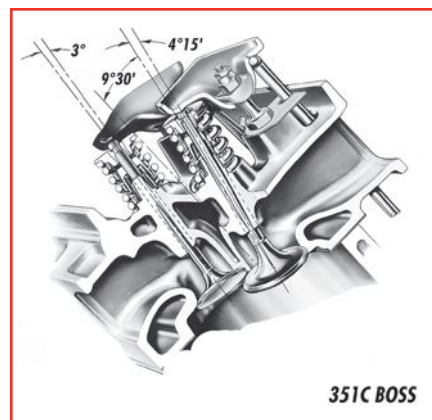
Shown here is a "rail" rocker arm with "loose-fit" hole in cylinder head for push rods. The U-shaped rocker arms maintain alignment. Can only be used with hydraulic camshafts.

USAGE: 1966 1/2-1968 standard 289 1968-1976 302 and 351W.

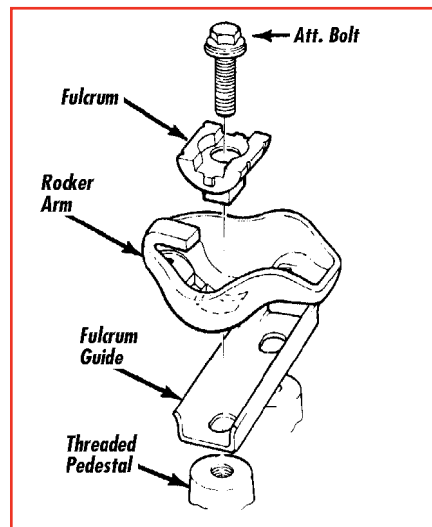


Here is a modified valve train to convert rail rocker arm design for mechanical cam. Requires conventional rocker arms, guide plates, hardened push rods (they rub on plates) and threaded adjustable rocker studs. Requires different guide plate than the one used with a similar 302 BOSS setup.

USAGE: 289/302/351W with mechanical camshaft.



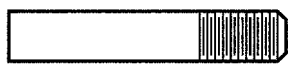
The illustration above is typical of 351C-351M-400 canted valve engines (429-460 engines are similar). The rocker arm is mounted on a slotted pedestal, moves on a "sled" fulcrum and is retained by a bolt. 351C BOSS engines use the 302 BOSS type valve train (also used on 429 CJ/SCJ), 1968-1972 429/460 with hydraulic camshafts use a screw-in positive stop stud. 1973 and later 429/460 have the 351C-type slotted pedestal.



A modified pedestal is used on 1978 and later 302/351W engines. A stamped fulcrum guide is used with each pair of rocker arms.

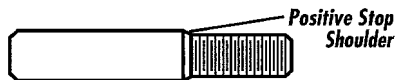
ENGINE BUILDING TIPS AND SPECS

ROCKER STUD COMPARISON



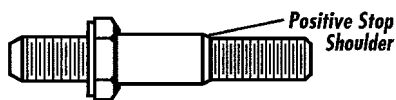
Press-in stud with adjustable rocker nut.
NOT recommended with mechanical camshafts.

USAGE: Standard 289 and 1968 302.



Press-in positive stop stud. Cannot be adjusted to set lash with mechanical camshaft.

USAGE: 1969-1976 302/351W.



Screw-in, positive stop stud.

USAGE: 1968-1972 429 with hydraulic camshaft.



Screw-in, adjustable stud. Required for mechanical camshaft (and hydraulic with anti-pump-up lifters).

USAGE: 289 Hi-Performance, 302 BOSS, 351C BOSS and HO and 429 C/J/SCJ.

CYLINDER HEAD WATER PASSAGE MODIFICATION

As described on this page, cylinder heads for 351C/351M/400 engines have a water outlet passage in the combustion face, whereas 289/302/351W heads have a water outlet passage in the intake manifold face of the head. Heads can be interchanged, if provision is made for appropriate water passages.

TO INSTALL CLEVELAND-TYPE HEADS (351C/351M/400) ON A WINDSOR-TYPE BLOCK (289/302/302 BOSS/351W)

1. Drill a 0.800" diameter hole in the intake manifold face of the head as illustrated.
2. Plug square hole in cylinder head. Install heads with Cleveland-type head gasket.
3. Use intake manifold gasket to match intake manifold.

NOTE: If BOSS-type heads (302 or 351C) are used in either procedure, remember they have larger rounded ports than conventional heads; thus a unique BOSS-type intake manifold gasket is required.

...AND IF YOU HAVE 302/351 FORD RACING ALUMINUM HEADS ①

These heads come with a tapped .75" pipe thread hole in the combustion face, but no hole in the intake manifold face.

If your application requires external water outlets, see diagram below.

TO INSTALL ON WINDSOR-TYPE BLOCK (289/302/302 BOSS/351W)

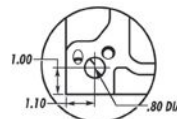
1. Install pipe plug in hole. Finish so it doesn't protrude above head face.
2. Drill a 0.800" diameter hole in the intake face as shown or use the .75" pipe thread external water outlet valve provided in the front and rear ends of Ford Racing heads produced after July, 1984.

TO INSTALL ON CLEVELAND-TYPE BLOCK (351C/351M/400)

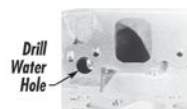
1. Requires no special head work.

NOTE: ① Heads produced after 6/1/1985 do not have .75" pipe threads at front and rear of head face and must be drilled and tapped as shown in illustration.

WATER TRANSFER HOLE LOCATION FOR 289/302 BOSS/351W

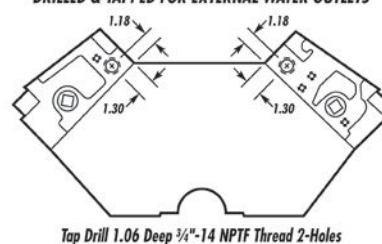


COMBUSTION FACE - FORD RACING HEAD



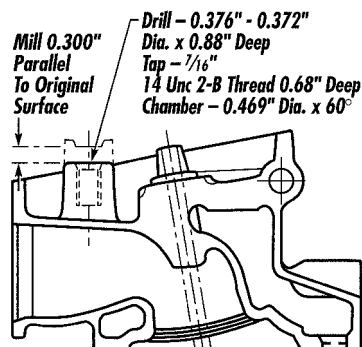
INTAKE FACE - FORD RACING HEAD

TYPICAL FORD RACING ALUMINUM HEADS DRILLED & TAPPED FOR EXTERNAL WATER OUTLETS



Tap Drill 1.06 Deep 3/4"-14 NPTF Thread 2-Holes

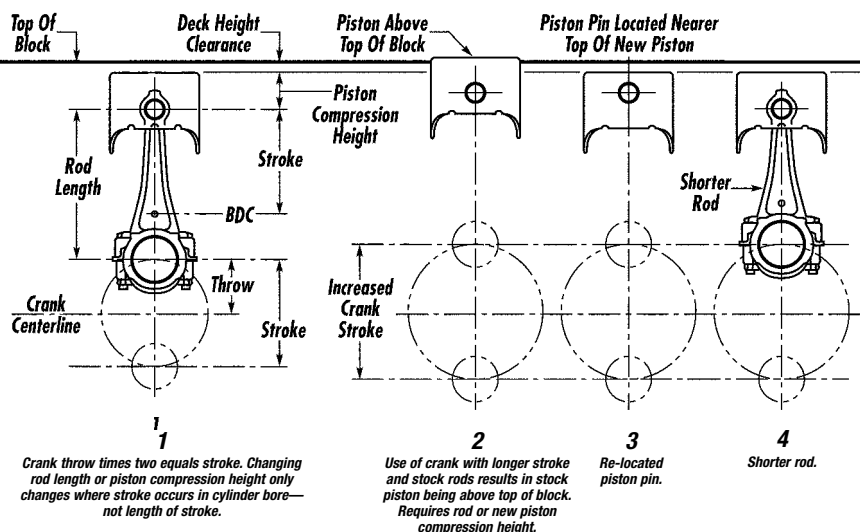
HEAD MODIFICATION FOR MECHANICAL CAM



Pedestal type cylinder heads for hydraulic cams can be modified to accept a mechanical cam (351C/351M/400 shown). Machine at right angles to the existing hole—not the bottom of the head. The valves operate at compound angles. With 302/351W type pedestals, measure from the top of the pedestal.

All 302/351W	.230"
All 351C/351M/400	.300"
1973-1995 429/460	.300"
1968-1972 429/460	.230"

BORING AND STROKE FUNDAMENTALS



FOUR-CYLINDER ENGINE SECTION

1.6L OHV "KENT" ENGINE

Open-wheel racing enthusiasts associate this overhead valve design with the long-lived international Formula Ford series, the starting point for many professional drivers. Most of the combustion chamber is in a dished piston, where the mating cylinder head face is nearly flat. Production for European models (Cortina, Capri and Fiesta) is now phased out. Ford Racing sold numerous production-type parts for Formula Ford competition.

1.6L/1.8L/1.9L/2.0L SOHC "CVH" OR "SPH" ENGINES

The two-valve CVH (Canted Valve Hemispherical) engine was introduced with the 1981 Escort and later used in Focus. The layout is also called "cam in head," because it resembles classic overhead valve geometry. A single overhead camshaft lifts up hydraulic lash adjusters, linking individually mounted rocker arms to valves "canted" at angles relative to the cam axis, as well as front to rear, to match the shallow hemispherical chamber. Manufactured at Dearborn Engine Plant, it was replaced by the Duratec® HE engine family.

1.6L/1.8L/2.0L DOHC MAZDA® ENGINES

In the early 1990s, Mazda®-manufactured four-valve engines were shared with Ford applications. The 1.6L was introduced on 1991 Australian-made Mercury Capri (including a turbocharged variant), the 1.8L on 1991 Escort GT and the 2.0L on the 1993 Probe. Ford Racing parts were not developed for this iron block architecture, which was replaced by the Zetec® and eventually Duratec® I-4 engine families.

1.8L/2.0L DOHC ZETEC® ENGINES

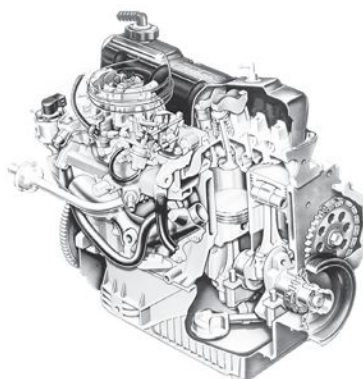
Based on the CVH engine bore centers, this iron block four-valve was developed for the 1994 Mondeo/Contour world car, and later shared with the Escort and Focus. Manufacturing sites were Cologne, Bridgend (Wales) and Chihuahua (Mexico). Launched with hydraulic bucket tappets, it was later converted to light-weight mechanical (solid) tappets. Ford Racing parts were developed with its Focus usage, including a 170 horsepower Focus SVT, the USAC® Ford Focus Midget Series and SCCA® F2000. The production Zetec® was superseded by the Duratec® I-4.

2.0L/2.3L/2.5L SOHC ENGINES

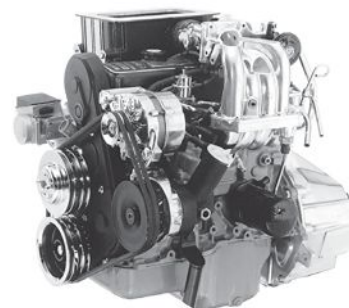
Ford's first North American metric engine featured a belt-driven overhead cam and finger follower valve train, while retaining traditional cast iron block and head. The 2.3L SOHC was the base engine of numerous 1974-1997 models, including Mustang, Pinto, Fairmont, Ranger and early Aerostar vans. A turbo version was launched with the new 1979 "Fox" Mustang, with a second



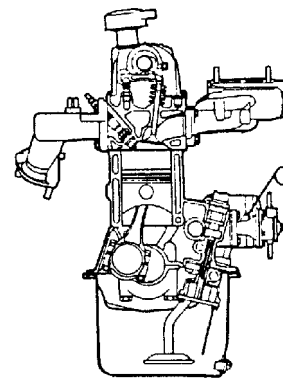
1.6L/1.9L CVH



2.3L/2.5L HSC



2.3L OHC (Turbo-Intercooled)



2.0L OHC

generation port-fuel-injected (PFI) turbo powering the 1983 Thunderbird Turbo Coupe, Mustang SVT and later the Merkur® XR4Ti. A twin-spark plug head with Ford's first coil-pack distributorless ignition was introduced on 1989 Ranger and 1991 Mustang models. The Ranger also offered a smaller bored 2.0L version in the mid 80s; its last iteration was the stroked 2.5L 1998-2000 Ranger. Lima (Ohio) Engine Plant provided most production, supplemented by Taubate (Brazil). Ford Racing parts were developed for the SOHC, including a partnership with Esslinger® Engineering for an aluminum cylinder head. Ongoing racing usage includes the SCCA® F2000 series.

A European 2.0L SOHC was produced for 1971-1974 cars. While conceptually similar, it was dimensionally unique in terms of bore, stroke, bore spacing, block deck height and crankshaft journal diameters.

2.2L 3V SOHC PROBE ENGINE

The 1989 Probe launched with a Mazda®-sourced overhead cam three-valve (2 intake, 1 exhaust), in naturally aspirated and turbo versions.

2.3L/2.5L OHV "HSC" ENGINES

The 1984-1994 Tempo/Topaz 2.3L High Swirl Combustion (HSC) engine resembles Ford's classic cast iron push rod 200 cid I-6, with two cylinders removed. The 1986-1990 Taurus offered a 2.5L version, but most customers wisely chose an available V6.

1.1L/1.3L/1.6L DOHC "ZETEC® SE" ENGINES

Ford's first aluminum block I-4 arrived with the 1997 Fiesta. Primary design work was contracted to Yamaha®, with original manufacturing at Ford's Valencia (Spain), and later at Bridgend (Wales) and Taubate (Brazil) plants. In this compact design, double overhead cams actuate mechanical bucket tappets. The 2011 Fiesta will be the first North American production application.

2.0L/2.3L/2.5L DOHC "DURATEC® HE" ENGINES

Mazda® led design of this aluminum block world-engine that replaced five other large four-cylinder engine families starting in 2001, with manufacturing in Japan, Mexico, Dearborn and Spain. North American applications include Focus, Fusion and Escape, with a specific late closing intake cam (Atkinson Cycle) on hybrid applications. The "Duratec®" name was originally applied to V6 engines with some common displacements, so the internal designation remains "New I4."

V6 SECTION

2.0L/2.5L/3.0L DOHC 4V "DURATEC" ENGINE

The small engine compartment of the 1994 Contour (Mondeo in Europe) required a compact design, with a short forged steel crank and rear-mounted cam-driven water pump. An aluminum block casting process was licensed from Cosworth® that rotates the sand mold during metal solidification to improve quality. Subsequent applications included Taurus, Cougar, Escape, Mazda® MPV, Mazda® 6, Freestyle, 500 and Fusion. Initial concept design work was contracted to Porsche® Engineering, resulting in a full main bearing girdle similar to the Porsche 928 V8. Roller finger follower (RFF) aluminum cylinder heads resemble the 4.6L 4V, although more compact. The 1999 Contour SVT tuned the 2.5L to 200 horsepower, with Extrude-Hone cylinder heads improving airflow. Low-profile mechanical bucket tappet heads were developed for the 3.0L Jaguar® S-Type/Lincoln LS packages, and later applied to the All-Wheel-Drive X-Type in 2.0L (European sales), 2.5L and 3.0L variants. Produced at Cleveland Engine Plant, all versions are now updated with variable cam timing (VCT) and identified internally as the "D30." Aftermarket V6 applications have included the turbocharged Noble® sports car from South Africa. Aston Martin®'s 6.0L V12 is based on this architecture.

2.5L DOHC 4V PROBE ENGINE

The 1993 Probe used this all-aluminum Mazda® design; shared with the Mazda® 626 and further developed for the Mazda® Millenia's Lysholm® supercharged Miller®-cycle. Mazda® replaced this engine family with Ford-designed V6s.

2.8/2.9/4.0L OHV/SOHC 2V "COLOGNE" ENGINE

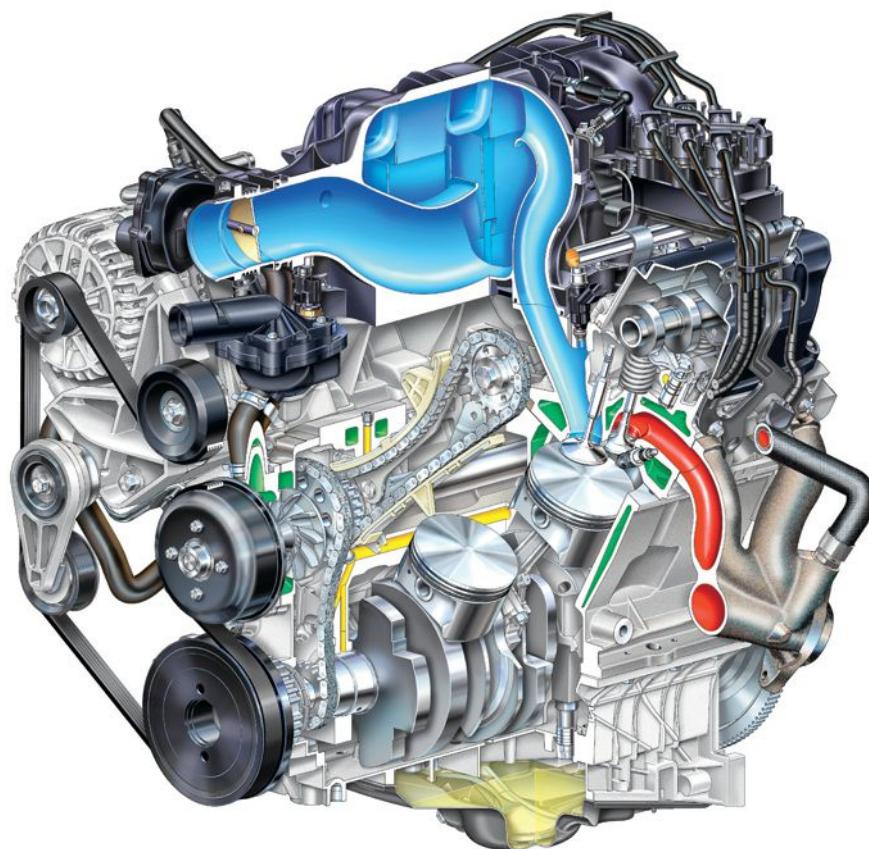
Ford of Germany developed a 1961 1.2L OHV 60-degree V4 to a 2.8L/2.9L V6 for North American Capri, Bronco II, Mustang II, Ranger, and Merkur® Scorpio sales, then expanded it to 4.0L for the 1991 Explorer. The original push rod layout was converted to Modular-style single overhead cam 2V heads for 1997 Explorer and 2001 Ranger, using a jackshaft in original block camshaft bore to drive the right hand cam chain from the rear, and the left hand cam chain from the front. A main bearing bridge, structural oil pan and 2nd order balance shaft were offered for improved NVH. Mustang and Land Rover® applications were added starting in 2004. Ford Racing sells parts for 2005-2010 Mustang.

3.0L OHV 2V "VULCAN" ENGINE

A traditional cast iron block and head push rod design introduced for 1986 Taurus, the Lima (Ohio)-produced Vulcan was later used in Ranger, Tempo, Aerostar, Windstar and the first-generation Probe.

3.0L/3.2L DOHC 4V "SHO" ENGINES

The Yamaha®-designed and -built 3.0L SHO



(Super High Output) program was initiated for a late-1980s' Ford SVT mid-engined sports car, code named GN34. When the GN34 was cancelled, the engine was picked up for the 1989-1995 Taurus SHO. 3.0L versions used a five-speed manual; the 3.2L version was used in 1993-1995 automatic transmission applications. The high-revving SHO V6 used a cast iron block and 4V heads with bucket tappets.

3.5L/3.7L DOHC 4V "DURATEC" 35" AND "DURATEC" 37" ENGINES

Code named "Cyclone" in development, this all-aluminum design uses a deep-skirt die cast block with cast-in liners, six-bolt main bearing caps, forged steel crank and mechanical bucket tappet heads with intake variable cam timing (IVCT). Launched for the 2007 Edge, it is now used in all of Ford's North American mid-sized and large front wheel drive vehicles, typically coupled to the new 6F transmission. Lincoln and Mazda® applications increase bore size for 3.7L displacement. "EcoBoost" versions premiering in 2010 models use Gas Turbo Direct Injection (GTDI) twin turbochargers to increase power and torque, without fuel economy loss. Manufacturing sites

are Lima (Ohio), Cleveland and Hiroshima (Mazda® applications).

3.8L/3.9L/4.2L OHV 2V "ESSEX" ENGINES

Named for the Essex (Ontario) Engine Plant, the 1982 3.8L used a 90-degree bank angle, like a V8's, for numerous rear wheel drive car applications. Front wheel drive applications started with the 1988 Taurus/Sable and Continental, then the 1994 Windstar. A first-order balance shaft was added to select applications beginning in 1988. The 1989-1995 Thunderbird SC (Super Coupe) added a 90 cubic inch Eaton® Roots-style intercooled supercharger.

Split-port cylinder heads were introduced with the 1996 Windstar, and then in all 4.2L applications. The 95 mm stroke (vs. 86 for the 3.8L) 4.2L launched in the 1997 F-150 and Econoline, replacing the 4.9L I-6. A two-millimeter stroke increase created the "new" 3.9L from the 3.8L in 2004. 3.8L/3.9L usage in the 1994-2004 Mustang resulted in some aftermarket performance parts.

SMALL BLOCK V8 289/302/351W/351C/351M/400

SIX WAYS TO BUILD A WINNER

Ford manufactured millions of small block V8s, and Ford Racing parts are available for many of them. You have a choice of six engines to modify (eight if you count two high-performance BOSS versions). So, you've got great flexibility working for you, whether you begin with a complete engine assembly or a bare block. All have four-inch bores, but there are differences that affect parts interchange. For example, the water passages described on page 78. Here's a brief description of Ford small blocks.

289/302

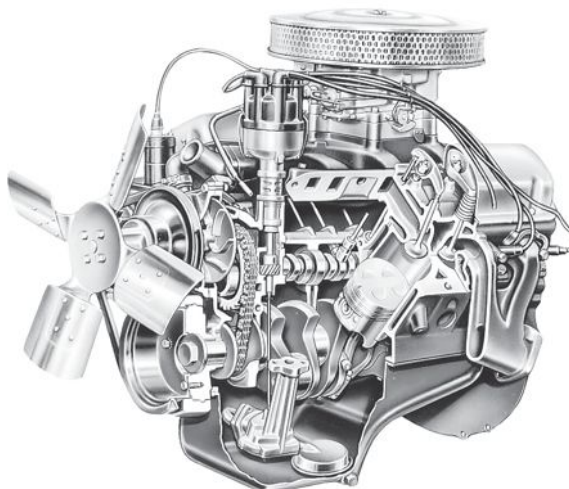
The 289 was produced from 1963 through 1968, and the 302 from 1968 to 2001. They're very similar, except for stroke. Of special interest is the 289 4V Hi-Performance engine (1963-1967) with mechanical camshaft, threaded rocker arm stud (adjustable) and a recessed spring seat. Most other 289/302 (1968-1976) engines use a press-in stud. 1978 and later 302 engines use a modified pedestal as shown on page 73. Many 289/302 parts fit earlier 221/260 engines (which had smaller bores). They also had less metal around the bores, so you can't overbore to come up with a 289. The 1985 model Mustang GT introduced a new high-output 302 with roller tappet camshaft. Electronic fuel injection was added in 1986.

302 BOSS

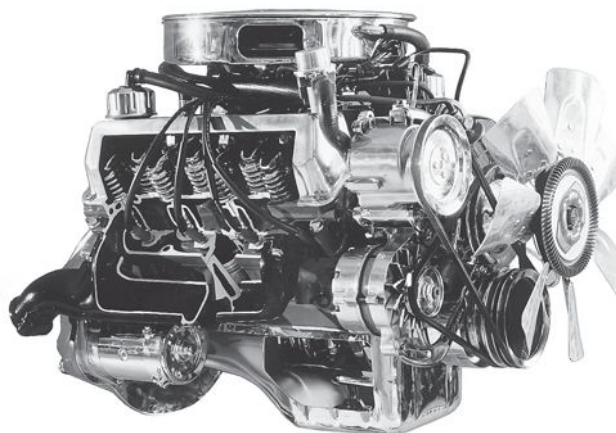
This is certainly one of Ford's all-time super engines. The 302 BOSS (1969-1970) proved to be very competitive in 5-liter TransAm racing. It featured big breathing heads with canted valves, mechanical cam, stamped rocker arms with a threaded adjustable stud, push rod guide plates, forged crankshaft, 4-bolt main caps (#2, #3 and #4 journals), beefy con rod with spot-face for .375" bolt and forged pistons.

351W (WINDSOR)

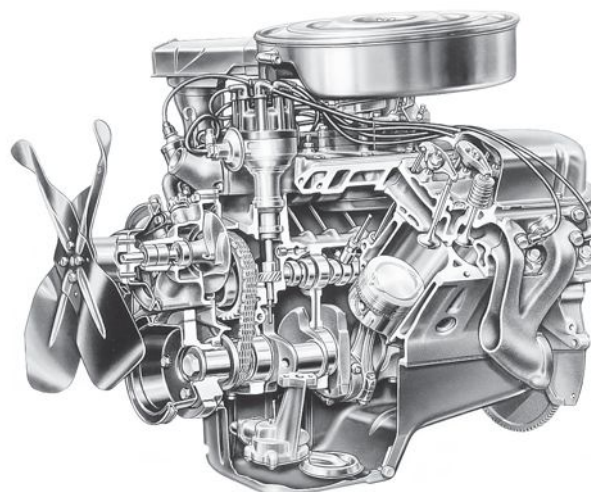
The Windsor Engine Plant builds this engine; hence the name. Normally, this isn't important. But another engine, the 351C (for Cleveland Engine Plant), has the same displacement. That's about all they have in common. So, it's always important to differentiate between the two. The 351W is a beefier block than the 289/302, but has the same bore spacing (4.38") and bore diameter (4.00"), so heads retrofit. A higher deck height requires a unique intake manifold. Main journals (3.00") are larger than the 289/302 (2.25"). Camshafts interchange, but the 351W has a different firing order: 1-3-7-2-6-5-4-8 vs. 1-5-4-2-6-3-7-8 for the 289/302, except 1982 and later 302 HO which use the 351W firing order. The 351W has been used from 1969 to 1998. In 1994 the cylinder block was modified to accept a hydraulic roller camshaft for the F-150 truck. The 1995 Cobra "R" Mustang used a 351W engine that was very similar to the Lightning engine. The Modular engines eventually replaced the 351W.



289 Hi-Per

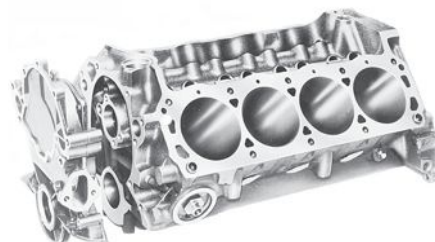
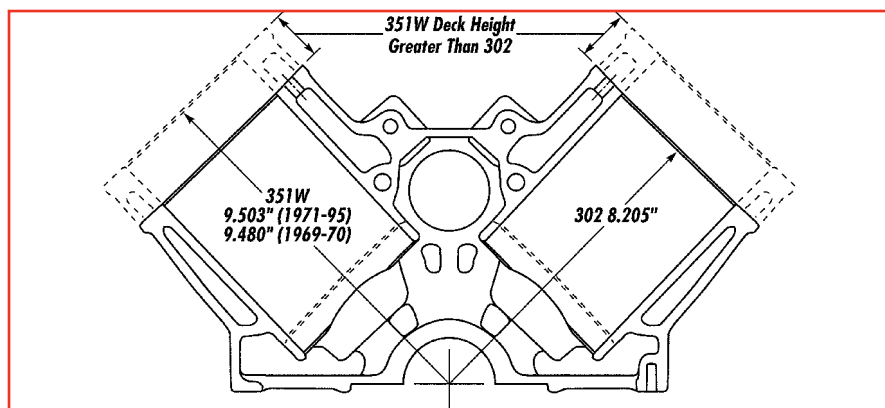


302 BOSS

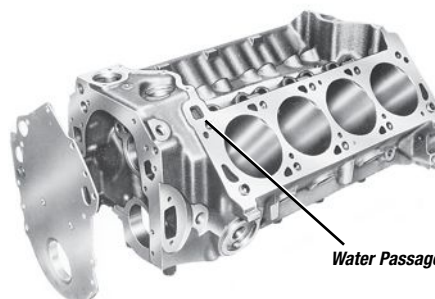
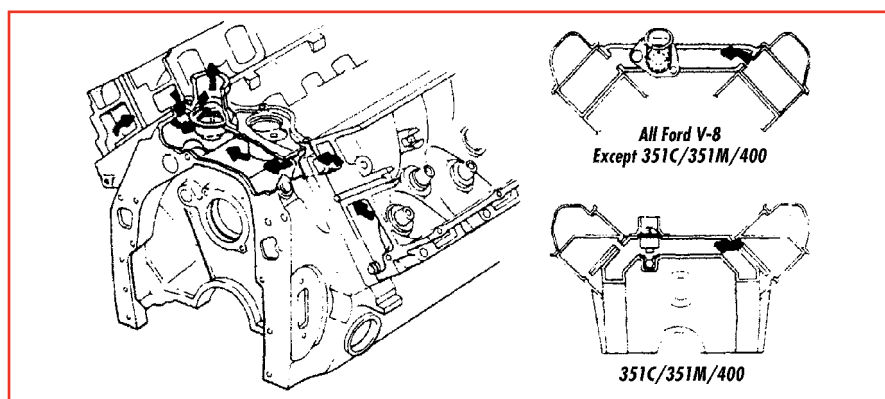


351W

SMALL BLOCK V8 (CONTINUED)



289/302/351W



351C/351M/400

351C (CLEVELAND)

The 351C entered the scene in 1970 and was produced until 1974. It has canted valves with multi-groove keepers, hydraulic cam, pedestal-mounted rocker arms with "sled" fulcrum seats that are retained with cap bolts. Heads for 2V induction have open chambers with rounded ports, while 4V heads have "quench" combustion chambers with larger rounded intake and exhaust ports. A 351C Cobra Jet appeared in 1971 with 4-bolt main caps, which was carried over in 1972 as the 351C-4V with open chamber heads.

351C BOSS

The 351C BOSS also appeared in 1971. It had 4-bolt main caps and the 4V-type quench chamber head with pedestals machined to accept a 302 BOSS-type valve train and mechanical cam. The con rod featured a 180,000psi .375" bolt. In 1972, open chamber heads were used with a flat-top piston, and the name changed to 351C HO.

351M (MODIFIED) AND 400

The 351M and 400 are similar in design to the 351C, but there are subtle differences. Both the 351M and 400 blocks are 1.100" taller and have larger main journal diameters. Engine mounts are unique. Bellhousing pattern is the 429/460 design.

WINDSOR VS. CLEVELAND WATER PASSAGES

289/302/351W engines use a front cover and water exits the intake manifold face of the cylinder head through the intake manifold to radiator. 351C/351M/400 engines do not use a front cover. The block is extended and covered with a flat stamping. Water exits the combustion face of the head and into the block, and then to the radiator. Windsor and Cleveland heads physically interchange, but some modification is required to accommodate the differences in water passages. See page 74 and above for details.

FORD RACING 302/351 FORD RACING WATER PASSAGES

Several different water passage hole patterns have been used on 302 Ford Racing and 351 Ford Racing cylinder blocks and heads since their introduction. Engine assemblers should lay the head gasket on the block and the cylinder head (with front of the gasket toward the front of the engine) to make sure there is a path for coolant flow from the block into the head. In some cases, holes may have to be drilled in the block or head, or punched in the gasket. Current Ford Racing cylinder head gaskets are listed on page 124.

FORD RACING 302/351 "FORD RACING" ENGINE BLOCKS

Ford Racing has designed several "Ford Racing" blocks for maximum performance competition. They're designed for small block engine builders who want to use existing 302/351C or 351W components. 302/351 Ford Racing engines constructed with Ford Racing block and Ford Racing cylinder heads are not available as complete assemblies.

When ordering parts, consider these key points:

- 302 Ford Racing Block (M-6010-R302)—can be used with all 289/302/302 BOSS applications.
- 351 Ford Racing Blocks (M-6010-E351 thru M-6010-W351)—can be used with all production 351W applications, except those relating to crankshaft main bearing diameter. The 351 Ford Racing block is machined for the smaller 351C-type bearings. Ford Racing crankshafts feature the smaller 351C main journals that are compatible with these blocks. The block is available in two deck heights (9.500" and 9.200"), so either Windsor or Cleveland components can be used topside. Requires 289/302/351W-type camshaft.
- If 302/351 Ford Racing heads are used on 302/351 Ford Racing blocks, the Ford Racing-type intake manifolds are required.

4.6L/5.4L V8 AND 6.8L V10 “MODULAR”

The Modular engine design focuses on low friction, best-in-class sealing, long-term durability and increased bottom-end stiffness for reduced noise/vibration/harshness. Common features are deep skirt block with cross bolting, chain-driven overhead camshafts, direct-mounted accessories (air conditioning compressor, power steering pump and alternator), valley-mounted water pump, fully counterweighted crankshaft with cross-drilled oil feeds, powdered metal connecting rods, steel camshafts and aluminum heads with low-friction roller finger follower valve train. The head bolts extend past the cylinder bores into the bearing webs, reducing bore distortion and providing a better seal of the steel head gaskets. A specific description of each type follows.

4.6L SOHC 2V/3V

The 4.6L SOHC (2V) was introduced for the 1991 Lincoln Town Car followed by the 1992 Crown Victoria and 1994 Thunderbird. Made primarily at the Romeo Engine Plant, it is the basis for all Modular engines, replacing the classic 5.0L (302 cid) OHV. The original block is cast iron with a nodular iron crankshaft. Cylinder heads use in-line valve design with one intake and one exhaust valve per cylinder. Spark plugs are angled inboard, towards the top of the engine, for improved serviceability. A press-fit piston pin was used for initial car applications, and replaced by floating pins by 2002.

4.6L 2V truck applications started with the 1996 F-150. With the high demand for V8 engines, production was soon shared between Windsor and Romeo. Windsor-built 4.6L engines use a Windsor-machined cast iron block, sharing a bearing cap design with the 5.4L, and a mix of Windsor (8-bolt flange) or Romeo (6-bolt flange) machined crankshafts.

For 1996 model year, the Mustang GT moved from the 5.0L Cleveland to a Romeo-made 4.6L 2V. Production moved to Windsor for the freshened 1999 Mustang, piloting the “Performance Improved” (PI) heads and cams with 260 horsepower. All Romeo 4.6L 2V applications migrated to the PI design for 2001 models, allowing Mustang GT engine production to return to Romeo. The 2001 model Mustang “Bullitt” featured intake, throttle body and exhaust changes for a 265 horsepower rating.

The 2002-2005 Explorer combined the aluminum block (see 4.6L 4V) with 2V heads; this combination was also used briefly by the Expedition SUV. Initial production used cylinder heads specially machined on the block face for an added O-ring seal around the block’s oil feed; a subsequent head gasket upgrade enabled regular head usage. Aluminum block castings switched

in-cycle from Windsor-sourced (Cosworth® process) to Nemak®-Monterrey® sand castings, with lower bulkheads strengthened by chilling during solidification.

The 2005 4.6L 3V Mustang GT combined this Romeo-machined aluminum block with the 5.4L’s 3V cylinder heads, variable cam timing (VCT) and high-flow oil pump, for 300 horsepower. The head bolt threads were raised to accommodate a common head bolt for 3V and 2V heads. Early 2005 models were assembled at Essex Engine Plant until December 2004, when production was shifted to Romeo, but the design was unaffected by this change. The 2005-2006 Mustang GTs have a block-mounted “cold side” thermostat, where the 2007-2010 models are re-plumbed to the more conventional “hot side” thermostat on the cylinder head crossover. Cam covers were made of magnesium for 2005-2006 models, then switched to aluminum for 2007-2008, then reverted back to lighter magnesium. The Mustang alternator is equipped with a one-way-clutch pulley to reduce audible belt chirp in fast shifts, on 2005-2010 manual transmission and 2005-2008 auto transmission applications.

To hit 315 horsepower in the 2007-2008 Mustang “Bullitt,” Ford Racing’s air induction and exhaust changes were combined with a retuned crankshaft damper enabling higher peak engine



speed. Similar changes were applied to the 319 horsepower 2007 Shelby GT. The freshened 2010 Mustang GT also achieves a 315 horsepower rating with intake, exhaust and calibration changes. 4.6L 3V truck applications, using the cast iron block and a long-runner intake manifold with single-bore throttle body, arrived for 2006-2010 Explorer and 2009-2010 F-150.

4.6L DOHC 4V

The Romeo-made 4.6L DOHC was first introduced in the 286 horsepower 1993 Lincoln Mark VIII. The Teksid®-cast (Italy) aluminum block includes four-bolt main bearing caps, also cross-bolted for added support. Chains borrowed from the 4.6L 2V connect the crank to the intake cams, which use short secondary chains to drive the exhaust cams. A high-flow oil pump, select fit main bearings and floating piston pins improve NVH and oil pressure robustness. Electronically controlled and vacuum-actuated Intake Manifold Runner Control (IMRC) allowed one set of the cylinder head’s dual intake ports to be throttled closed, and then opened for peak power; a system upgraded to fully electronic control for 1995 model on-board-diagnostic (OBD) emissions requirements.

The 1995 Lincoln Continental 4.6L 4V was the Modular V8’s first and only front-wheel-drive application, using a unique Windsor-cast (Cosworth® process) aluminum block. To protect

4.6L/5.4L V8 AND 6.8L V10 “MODULAR” (CONTINUED)

transmission durability, the engine was detuned via late intake valve closing, a fuel economy technique later applied to Ford hybrid engines. The transverse engine vehicle packaging created the legacy of this application: 100 mm bore centers and tight bore offset used for all 4.6L/5.4L/6.8L engines.

The 1996 Mustang SVT Cobra increased 4V performance to 305 horsepower with cylinder head intake port revisions and a new side-entry intake manifold. Durability enhancements included a fully counterweighted steel forged crankshaft for the higher engine speeds with a manual transmission, in addition to a crankcase windage tray, handling-baffled oil pan and patented full-flow oil cooler. Power rating increased to 320 horsepower in 1999, with “tumble port” cylinder heads enabling deletion of the Intake Manifold Runner Control. The Cobra was relaunched for 2001 model year, with intake manifold improvements supporting better robustness to the 315 horsepower rating. The Cobra also transitioned from the Teksid®-cast to Windsor-cast aluminum block; function was unaffected.

An Eaton® Roots-style supercharger was added for the 390 horsepower 2003-2004 Mustang SVT Cobra, code named “Terminator.” Because of the high cylinder pressures, Romeo’s aluminum block was replaced with the 2V’s cast iron block. The new Terminator left a gap in the Mustang

line-up, going down to the 260 horsepower 4.6L 2V Mustang GT, so the original SVT Cobra engine was revised for the 305 horsepower 2003-2004 Mustang Mach 1 feature car, including a working shaker hood scoop mounted to the engine and available automatic transmission (with cast crankshaft). 2003-2005 Lincoln Aviator and 2003-2004 Mercury Marauders also featured this base engine. Early 2003 and 2005 model production used the Nemak®-Monterrey®-cast aluminum block; later 2003 and 2004 production used the Windsor-made (Cosworth® process) aluminum castings.

Ford Racing’s 5.0L “Cammer” crate engine is based on a big bore version of the 4.6L 4V. There are other ways to achieve this iconic displacement: some 5.0L short blocks have been created with only stroke increase, and others have combined bore and stroke increase.

5.4L SOHC 2V/3V

To replace the 5.8L OHV, a longer-stroke version of the 4.6L was developed for 1996 F-150. The 5.4L’s under-square geometry creates challenges such as higher piston speeds and less stiff crank geometry. To maintain good NVH and durability, numerous changes were made to beef up the original 4.6L, such as a forged steel heat-treated crank with eight-bolt flange, stronger head casting material and redesigned tight main bearing cap alignment dowels. Longer stroke and connecting

rods drove a higher block deck height. Select fit main bearings and floating piston pins were adopted from the 4.6L 4V. A high-strength cast iron crank was developed for 2V Econoline applications.

Cylinder head layout, port design and camshaft timing have been tied to the 4.6L development. The 1996 two-valve original swirl port was upgraded to the “Performance Improved” (PI) port and camshaft in 1999 for F-150 and Expedition. F-250/F-350 Super Duty and Econoline followed in 2000.

300 horsepower arrived in 2003, with the three-valve cylinder head for Falcon (Australia) and the redesigned 2004 model F-150, and came to Expedition and F-Series Super-Duty applications for 2005. The truck intakes used a Charge Motion Control Valve (CMCV) port throttle, similar to the original 4.6 4V IMRC, to shroud the two intake ports. This CMCV was deleted for 2009 5.4L models, with slight chamber changes restoring in-cylinder motion. The three-valve layout drives tight packaging of the centrally mounted spark plug, so a special long-reach plug design was developed; this plug design migrated to a smaller diameter (12 mm cylinder head thread) in early 2008.

Originally branded “Triton” for F-Series, E-Series and Expedition applications, the 5.4L is most associated with the Windsor Engine Plant, but engine assembly and machining have also been supplemented by the Essex Engine Plant nearby.

For performance applications, the 1999-2000 F-150 SVT Lightning used a 360 horsepower 5.4L 2V with an Eaton® Roots-style supercharger, upgraded to 380 horsepower for 2001-2004 models, with a detuned version offered in the 2002-2003 Harley-Davidson® edition F-150. The 2007-2008 F-150 Harley-Davidson® edition was also offered with a retrofitted Roots-style supercharger. Of course, Ford Racing offers performance parts for the 5.4Ls.

5.4L DOHC 4V

The combination of Romeo 4V cylinder heads and the Windsor 5.4L bottom end began with the limited production 2000 SVT Cobra “R,” hand-assembled at Ford’s Engine Manufacturing Development Operations. New Cobra “R” cylinder head castings incorporated open intake ports. A standard Windsor steel crank was rebalanced for higher strength connecting rods.

For the next 5.4L 4V application—1999 to 2004 Lincoln Navigator—regular Romeo 4.6L 4V heads, with smaller tumble ports (see 4.6L 4V), were used to optimize drivability and emissions.



4.6L/5.4L V8 AND 6.8L V10 “MODULAR” (CONTINUED)

A long runner intake targeted low-end torque and mid-range performance.

Ford Performance Vehicles (FPV) in Australia adopted the 5.4L 4V for their 2004 Falcon and Falcon Ute. Engine assembly is contracted to Prodrive Engineering, using a mix of North American- and Australian-sourced components. 2009 models are now developed to over 425 horsepower.

The Ford GT mid-engined super car combined a new aluminum block with Cobra “R” cylinder heads, using a special compact cam drive, a production-based steel crankshaft rebalanced for unique connecting rods, a belt-driven external oil pump and Lysholm® supercharger. Romeo Engine Plant Niche Assembly Line even attached each dry sump oil tank for testing, then shipping it strapped to the engine for vehicle installation. While the GT production ended in 2006, Ford Racing continues to offer performance components.

5.4L 4V supercharged production continues on the Romeo Niche Line for the Mustang Shelby Cobra GT500. This design reverted to some more conventional components: cast iron Windsor block, a Roots blower and regular oil pan. Launched for 2007 with 500 horsepower, Ford Racing offers several intake, exhaust and calibration options for more performance. The 2008 Shelby® GT500KR (“King of the Road”) model incorporated these changes for a 540 horsepower rating. The 2010 model GT500 adds dual knock sensors, also achieving 540 horsepower. In 2011, the GT500 engine was updated with an aluminum block that featured Plasma Transferred Wire Arc (PTWA) cylinder liner coating. In addition to the light-weight block, horsepower was bumped up to 550 horsepower.

6.8L SOHC 2V/3V

The 5.4L added two cylinders for the 1997 6.8L Econoline, with a cylinder head-mounted balance shaft and steel split pin crankshaft for even firing. The Windsor-made 6.8L also replaced the big block 7.0L/7.5L in Super-Duty (F-250, F-350) and Motorhome applications. All 2V applications utilized the PI cylinder head starting in 2000.

The three-valve upgraded performance to over 350 horsepower for 2005 Super-Duty and Motorhome chassis. The 6.8L 3V head is similar to the 5.4L 3V. The 3V also employs a dual-mode intake manifold with an electrically actuated Long-Short Runner Control (LSRC) valve. The 6.8L's cam-driven balance shaft precludes Variable Cam Timing, since the balance shaft must remain in phase with the crankshaft.

Ford Power Products offers 6.8Ls modified for Compressed Natural Gas (CNG) generator usage, large hybrid gas/electric buses and a supercharged version for hydrogen-powered buses.



OTHER V8 ARCHITECTURES

3.4L DOHC 4V “SHO” ENGINE

Yamaha® produced this all-aluminum V8 for 1996 Taurus SHO, as a replacement for the 3.0L/3.2L SHO V6. Its 60-degree design improves crash crush zone in front-wheel-drive vehicles, but requires an internal balance shaft. The architecture was the basis for the 2006 Volvo® V8 (XC90, S80).

3.9L DOHC 4V ENGINE

Lima Engine Plant adopted the Jaguar® AJ 4.0L V8 architecture for the 2000-2005 Lincoln LS and 2002-2005 Thunderbird. This compact architecture used a direct-acting mechanical bucket tappet, and a full main bearing bedplate replacing separate main bearing caps with a structural oil sump. A unique air-assisted fuel injection system was added to optimize emissions, controlled by a 3-way idle air by-pass valve. Another emissions feature was “precision cooling,” with minimized water jacket cross-sectional areas to increase the fluid velocity in the jackets and thereby increase heat transfer. 2003-2006 models added electronic throttle control and variable intake valve timing, with more conventional fuel injection, achieving 280 horsepower.

6.2L SOHC 2V “BOSS” ENGINE

The F-150 SVT Raptor, unveiled at the 2008 SEMA® Show, introduced the new two-valve 6.2L with twin spark plugs and variable cam timing. Built at Romeo Engine Plant, its 115 millimeter bore centers enable bigger valves for better breathing than the Modular V8. The engine will replace 5.4L and most 6.8L engines in F-250/F-350 Super-Duty applications. Ford Racing developed a pre-production engine for the 2008 Baja 1000 and experimental class drag racing. Look for this new cast iron block engine in other future applications.

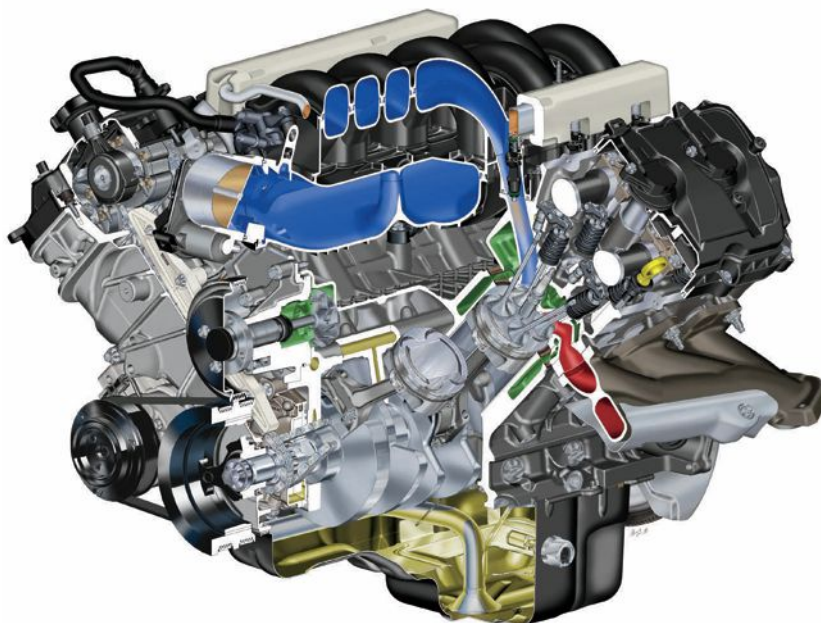
5.0L DOHC 4V "Ti-VCT" ENGINE

Several major Modular 4V upgrades programs were initiated starting in the late 90s, but then shelved. Major issues were high costs of implementing a new design, while existing V8s were enjoying high demand. As a result, other strategies for fuel economy and performance improvement were prioritized, such as 6-speed automatic transmissions. By mid-2007, these factors had changed. With lower demand for large SUVs, modern V8 manufacturing capacity was idled and available for conversion to a new design. In addition, Mustang needed a competitive, affordable and efficient response to other new pony cars, which would offer V8s a third larger than the 4.6L. And Ford's new strategy for fuel economy leadership meant F-150 needed a reduced displacement line-up, plus aluminum blocks to spearhead major vehicle weight reductions. The response was internally codenamed "Coyote", as a homage to the historic high-output V8s campaigned by A.J. Foyt.

The 4.6L architecture supported increasing bore from 90.2 to 92.2 and stroke from 90 to 92.8, while retaining the basic architecture (e.g., bore spacing, block deck height, bearing sizes). That enabled major machining and assembly line re-use. The power increase from the resulting 4951cc displacement alone would be only about 25 horsepower, so to reach the Mustang's 400 horsepower target, specific output would also need to leap—from less than 70 hp per liter, to over 80.

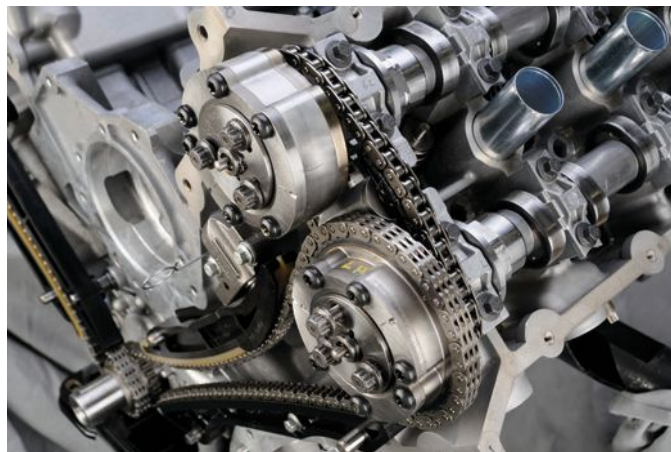
Major airflow improvements were the focus for power density gains, both leveraging new technology and challenging former Modular

2011 MY 5.0L 4 VALVE V8 ENGINE



design constraints. Airflow improvements began with major cylinder head port improvements. While prior Modular V8s required access to head bolts with camshafts and valve train preassembled to the cylinder head, the 5.0L moved camshafts over the head bolts, creating more room for optimal intake and exhaust ports. Compact roller finger followers and hydraulic lash adjusters were other enablers for optimized parts and increased valve lift (12 mm intake, 11 mm exhaust). Twin-Independent Variable Camshaft Timing (Ti-VCT) allowed separate phasing adjustment of intake and exhaust cams for

smooth idle and fuel economy, but available quick response at high rpm. The cam-torque-actuated VCT phasers borrowed components and concepts from both the new 6.2L V8 and latest 3.0L V6, with reduced complexity compared to prior oil-pressure-actuated designs. Throttle body position and intake airflow was optimized by moving the alternator down from the block valley to the side of the block, all enabled by corporation of electric power steering in place of a separate belt driven pump. For Mustang, stainless steel welded headers are added to optimize power and torque,





while fitting within the tight engine compartment.

Even the dipstick was moved, to go directly through the cylinder head, to avoid a compromising exhaust manifold runner routing.

On the bottom end, the 4.6L crank pin was shifted for more stroke, with conventional straight-through oil hole drilling replacing the 4.6L/5.4L's complex cross-drilling. The crank's front nose is revised for a dual-belt accessory belt. A rear-mounted stamped crank sensor wheel, again based on 6.2L and 3.5L, replaced the front-mounted pulse wheel for a more stable signal. While "Modular" from this manufacturing perspective, the new 5.0L would literally recast the basic Modular block design for internal oil and coolant routing, resulting in virtually no potential for component mix-and-match with older Modular engines. The crankcase casting was also strengthened around the main bearing bulkheads, while also opening up more internal breather area around the crank for reduced pumping losses.

Developing 412 horsepower (SAE Net) at 6500 rpm, the 5.0L 2011 Mustang GT revs up to 7000 rpm. For higher volume F-150 truck applications, the 5.0L was re-tuned to optimize fuel economy and torque, with less aggressive intake cams, unique pistons and cast exhaust manifolds, resulting in 360 horsepower.

BOSS 302

The BOSS 302 engine is based on the 5.0 DOHC 4V "Ti-VCT" engine with upgraded parts.

Some of the BOSS-specific parts contributing to the BOSS 302 V8's output and durability include:

- Revised composite intake system with shorter runners, inspired by Daytona® Prototype racing engines, for high-rpm breathing
- Forged aluminum pistons and upgraded sinter-forged connecting rods for improved strength, needed for the higher combustion pressures and engine speeds
- New high-strength aluminum-alloy cylinder heads with fully CNC-machined ports and chambers for exceptional high-rpm airflow without sacrificing low-speed torque
- Lightened valve train components to provide excellent dynamic performance up to speeds well above the engine redline
- Sodium-filled exhaust valves for improved heat dissipation
- Race-specification crankshaft main and rod bearings for higher load capability and improved high-speed durability
- 5W50 full-synthetic oil with engine oil cooler for improved oil pressure and longer-lasting lubrication during extreme racing conditions
- Revised oil pan baffling for improved oil control under racing conditions and during cornering loads greater than 1.0 g
- 2012 Ford Mustang BOSS 302 engine delivers 444 horsepower and 380 lb-ft of torque without the aid of forced induction

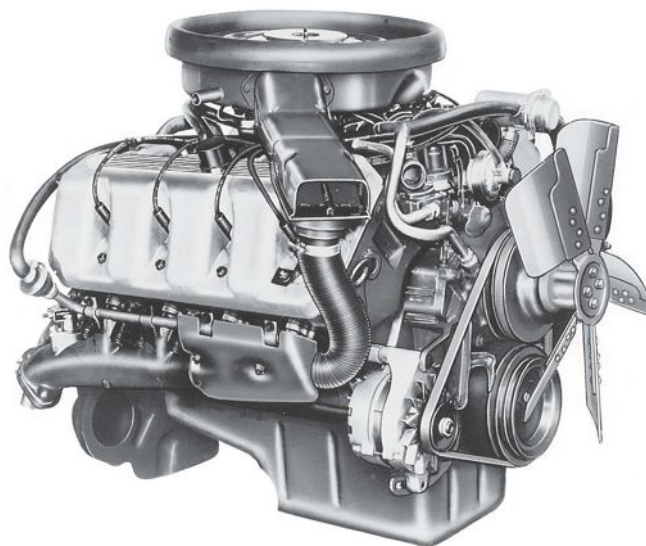
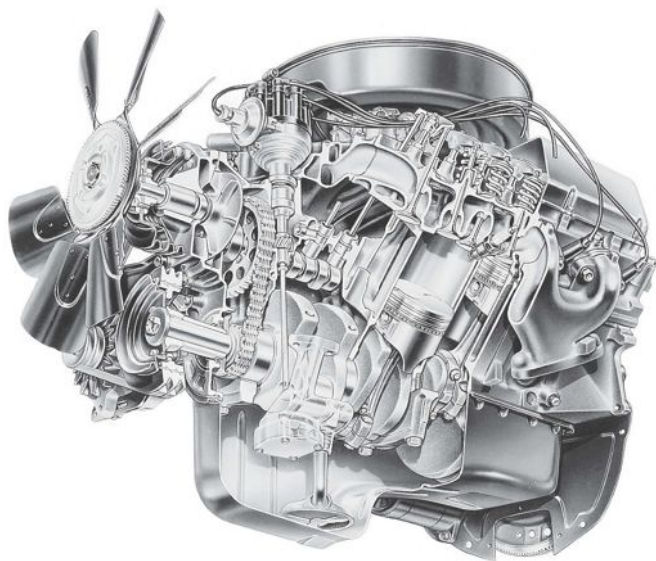
Contrary to normal engine development protocol, the first batch of durability test engines weren't installed in an engine dyno. Instead, thanks to a request from Ford Racing, they went straight to the track.

Ford Racing challenged the BOSS engine team to give them the first available BOSS 302 engines for the January Daytona® race. They got the engines 12 weeks later and the team got five BOSS 302R cars prepped for the January race. It was a fantastic opportunity to be able to get full-on race experience with the engine so early in the program.

The BOSS engines have run reliably all season without a single mechanical failure. BOSS 302R cars have also racked up the most laps led so far this season in Grand-Am racing.

Using race telemetry, the BOSS team has been able to gather on-track data to help optimize engine calibrations, oil pan designs and cooling. In order to engage in virtual racing whenever they needed, the team used the telemetry data to re-create a hot lap at Daytona on the dyno back in Dearborn, allowing further fine-tuning.

Every BOSS 302 owner will benefit from their contributions to the program.



429/429CJ/429SCJ/429 BOSS/460

During The Golden Age of Muscle, high-performance versions of 429/460 engines flashed on the scene like a firefly. The glow was brief—from 1969 to 1971. The memory lingers on. All of those cubic inches! Never again available directly from the factory ready for competition. Luckily, engines and pieces are still around. There are several ways to go, depending on the performance level you want, be it simply a Bracket Drag Racer, or something more potent, like an offshore power boat, big torquing engine for truck pulls or a Pro Stock drag machine. Here's a brief description of production engines to give you an idea of part interchangeability and general performance level.

429/460

The 429 "Thunder Jet" was introduced in 1968. It's your basic passenger car "wedge" engine design with hydraulic cam, 2-bolt main caps and either 2V or 4V carburetor. Cast iron "rail" rocker arms are mounted on non-adjustable, positive stop studs (1968-1972). 1973 and later 429/460 engines use pedestal-mount rocker arms as described for 351C engines on pages 113-114. The 460 is a stroked version of the 429. With modifications, these engines can be used for most competition, except offshore boats or with a supercharger.

429CJ (COBRA JET)

Take a base 429, then add a hotter hydraulic cam, larger CFM carburetor, heads with bigger ports and valves, plus a few other items and you have a 429CJ. 1970 engines had 2-bolt mains; 1971 models 4-bolts. Engines built before 11/1/1969 use an adjustable, non-positive stop rocker arm stud, so a mechanical cam is easily installed.

429SCJ (SUPER COBRA JET)

Now, we're talking about an engine you can modify for serious competition. The 429SCJ has 4-bolt main caps (#2, #3 and #4 journals), mechanical cam, adjustable non-positive stop rocker arm studs, stamped rocker arms and push rod guide plates. The pistons are forged aluminum and con rod bolt seats are spot faced. As with the CJ, production ended in 1971.

429 BOSS

This is an all-out competition design with aluminum heads and hemi combustion chambers (technically, they're "crescent-shaped"). The first few hundred in 1969 for NASCAR® competition were called "S" engines; the later street version is a "T" engine. "T" engine con rods are spot faced for a .375" bolt and hex nut. "S" engine con rods are beefier, 0.056" shorter, have wider bearing journals and use a .5" bolt with 12-point nut.



BLOCK CASTING TECH

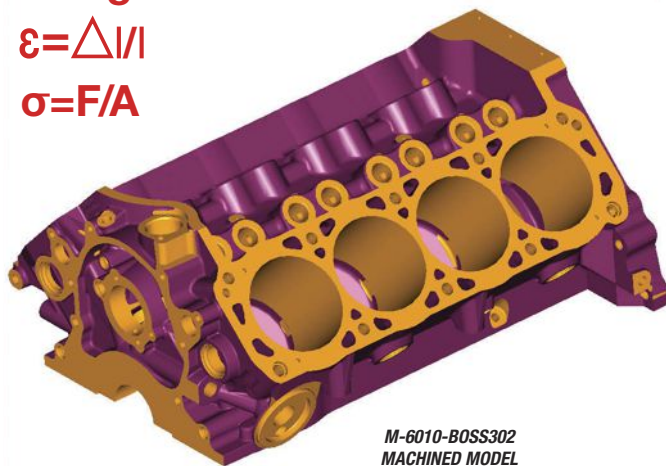
BLOCK CASTING TECH

Ford Racing Performance Parts engineers create cylinder blocks and heads using the latest processes in computer modeling, high-speed machining and casting simulation. These processes were developed while creating components for the NASCAR® racing series. These high-tech processes deliver high-quality components for the track and the street.

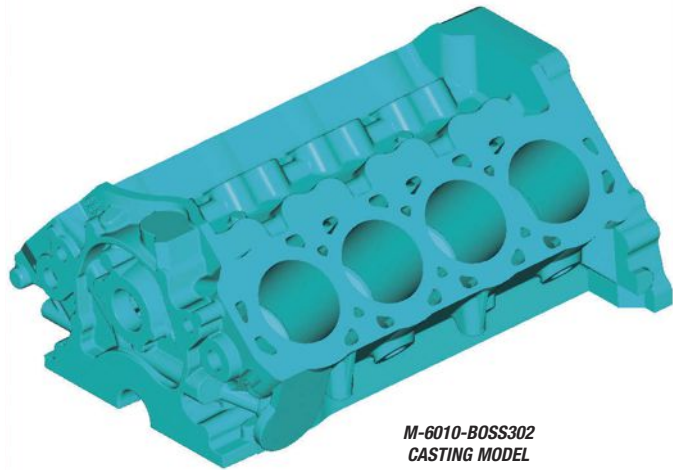
$$v^2=2gh$$

$$\epsilon=\Delta l/l$$

$$\sigma=F/A$$

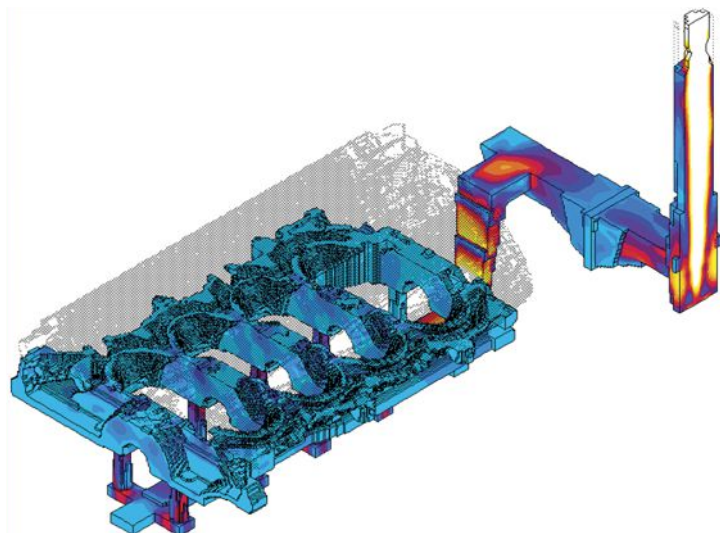


Every new major component at Ford Racing starts out as a detailed solid CAD (computer aided design) model of the casting. The next step is to add the final machining to the model. Once the virtual machining is added to the model, it's ready to be used to determine the mass of the component and to perform CAE (computer aided engineering) analysis. CAE analysis is performed to insure the component isn't over-designed which would create unnecessary weight. The analysis is also used to insure that the component has the required strength and durability for high-performance applications. After the CAE analysis is complete and the results are acceptable, the next step is to insure the component is feasible for casting. This is done with casting simulation software.



The art of making a high-quality casting involves proper metal filtering, keeping metal velocities low and directional solidification. All of this can be done in the virtual casting world with simulation software.

The final step in creating a new cast engine component is machining the molds. The molds are high-speed machined on CNC (computer numerically controlled) machines. The same CAD model that was used for the previous simulations is used for the machining, creating an exact copy of the virtual part. Liquefied metal is poured into sand cores made from the molds. After cooling, the sand cores are broken off leaving the high-quality FRPP component.



ENGINE GROUP PART NUMBER	302 FORD M-6010-BOSS302*	302 FORD M-6010-B302BB*	351 FORD M-6010-BOSS35192*	351 FORD M-6010-BOSS35195*	351 FORD M-6010-BOSS351BB*	351 FORD M-6010-CG351*
Description/Intended Usage	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition
Block Material	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Compacted Graphite Iron
Nominal Deck Height	8.206"	8.206"	9.200"	9.500"	9.500"	9.125"
CID Capacity	363	363	427	454	468	434
Cylinder Design	Siamese	Siamese	Siamese	Siamese	Siamese	Siamese
Cylinder Bore Range	4.000-4.125"	4.000-4.125"	4.000-4.125"	4.000-4.125"	4.000-4.185"	4.000-4.180"
Oil Sump Design	Wet	Wet	Wet	Wet	Wet	Dry
Crankshaft Journal Diameter	2.2480"	2.248"	2.750"	2.750"	2.750"	2.248"
Main Cap Bolts	Four on 2,3,4	Four on 2,3,4	Four on 2,3,4	Four on 2,3,4	Four on 2,3,4	Four
Bearing Cap Material	Nodular Iron	Nodular Iron	Nodular Iron	Nodular Iron	Nodular Iron	Billet Steel
Recommended Max. Stroke	3.400"	3.400"	4.000"	4.250"	4.250"	4.000"
Rear Crankshaft Seal Type	1-Piece	1-Piece	1-Piece	1-Piece	1-Piece	1-Piece
Cam Bearing Design	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam
Oil Filter Mount	Block	Block	Block	Block	Block	Remote
Hyd. Roller Cam. Compatible	Yes	Yes	Yes	Yes	Yes	No
Cam Plug	M-6026-S351	M-6026-S351	M-6026-S351	M-6026-S351	M-6026-S351	M-6026-S351
ENGINE GROUP PART NUMBER	351 FORD M-6010-CG452*	351 FORD M-6010-Z351*	460 FORD M-6010-A460*	NASCAR® FORD M-6010-R500*	NHRA® FORD M-6010-JC50*	NHRA® FORD M-6010-JC51*
Description/Intended Usage	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition
Block Material	Compacted Graphite Iron	Aluminum	Cast Iron	Compacted Graphite Iron	Compacted Graphite Iron	Compacted Graphite Iron
Nominal Deck Height	9.125"	9.500"	10.322"	9.000"	9.125"	9.125"
CID Capacity	434	434	598	—	—	—
Cylinder Design	Siamese	Siamese	Siamese	Non-Siamese	Siamese	Siamese
Cylinder Bore Range	4.000-4.180"	4.000-4.125"	4.360-4.625"	4.000-4.185"	4.590-4.750"	4.590-4.750"
Oil Sump Design	Dry	Wet	Wet	Dry	Dry	Dry
Crankshaft Journal Diameter	2.248"	2.750"	3.000"	2.000-2.250"	2.500"	2.500"
Main Cap Bolts	Four	Four	Four on 2,3,4,5	Four	Four	Four
Bearing Cap Material	Steel	Steel	Nodular Iron	Steel	Steel	Steel
Recommended Max. Stroke	4.000"	4.250"	4.500"	—	—	—
Rear Crankshaft Seal Type	1-Piece	1-Piece	2-Piece	1-Piece	1-Piece	1-Piece
Cam Bearing Design	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	M-6261-R351 Common Journal Dia. Cam Req'd. M-6261-J351 Standard Cam	Std.	Roller	Roller	Roller
Oil Filter Mount	Remote	Block	Block	Remote	Remote	Remote
Hyd. Roller Cam Compatible	No	—	—	—	—	—
Cam Plug	M-6026-S351	M-6026-S351	—	—	—	—

ENGINE BLOCKS

5.0L CAST IRON MODULAR BOSS CYLINDER BLOCK

M-6010-BOSS50*



The BOSS 5.0L block is a 4.6L deck height, 94 mm cylinder bore cast iron block. Cast in Ford's Cleveland plant, it uses a proprietary iron mix to yield the strongest possible casting strength with least porosity and greatest consistency.

NOTE: The BOSS 5.0L modular block does not have a finish milled head deck or cylinder bores. The engine builder will have to mill the deck and finish bores then hone each bore specifically for their combination.

- Siamese 94 mm bore
- 17 mm main web minimal thickness
- 4-bolt main with interference fit nodular iron machined caps
- Increased main web window size for less oil movement and greater power
- Weighs approximately 165 lbs
- Head gaskets for 3V applications use M-6067-3V50, for all others contact Cometic Gasket



MUSTANG GT 5.0L 4V Ti-VCT PRODUCTION ALUMINUM CYLINDER BLOCK

M-6010-A50L4V*



- Mustang GT 5.0L 4V Ti-VCT production aluminum block
- Low-pressure cast 319 aluminum
- Pressed-in thin-wall iron liners
- 92.2 mm bore size
- Cross-bolted nodular iron main bearing caps
- Thicker main webs for added strength
- Machined for piston oil squirters, includes blockoff plugs. Oil squirters not included
- Includes dowels and plugs

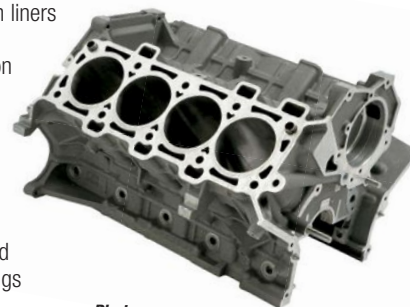


Photo may vary

MUSTANG SVT 5.4L PRODUCTION ALUMINUM CYLINDER BLOCK

M-6010-M54A*



- Original equipment for the 2011-2012 Shelby GT500
- Approximately a 100 lb weight savings over the cast iron 5.4L block
- Design based on M-6010-GT Block with improved oil drainbacks
- Six-bolt main bearing caps for high-performance durability
- Block features Plasma Transferred Wire Arc (PTWA) liner coating, a process that applies a 150-micron composite coating that contains nanoparticles on the internal surfaces of engine cylinder bores, replacing cast iron liners typically used in aluminum engine blocks
- Liner coating provides improved durability and heat transfer, reduced friction and a weight savings compared to the M-6010-GTWS Iron-sleeved Aluminum Block
- Cylinder bores are finish honed 90.2 mm bore, ready to assemble
- All block features are finish machined including head deck and crank bore
- Cylinder liner coating does not require unique piston rings or piston material



4.6L PRODUCTION CAST IRON ROMEO CYLINDER BLOCK

M-6010-D46*



- Production replacement 4.6L SOHC 2V cylinder block
- Great for custom engine builds
- Fully machined



5.4L PRODUCTION CAST IRON CYLINDER BLOCK

M-6010-M54*



- Production 5.4L block
- Windsor-style main cap locators
- 90.2 mm bore size
- Newer casting design features lower-end improvements to minimize noise, vibration and harshness

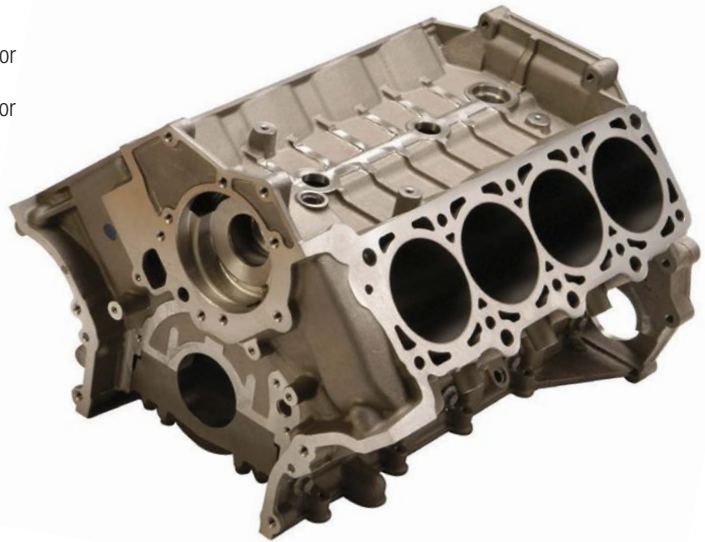


5.0L ALUMINUM CYLINDER BLOCK – ROAD-RACE APPLICATIONS



M-6010-T50*

- The "Cammer" 5.0L block is the foundation of Ford Racing's road racing success. Competing in Grand-Am's Daytona Prototype as well as FIA GT class
- Used in the FR500C Competition Mustangs
- Engineered and optimized to be the ideal road race modular block
- Race-proven revised water jackets and between-bore cross-drilling for improved engine cooling
- Designed for minimal weight while retaining strength and durability for naturally aspirated engine combinations
- Big bore 4.6L aluminum block with cast iron liners
- 94 mm (3.70") cylinder bore size. Stock cylinder bore size 90.2 mm (3.552")
- 227 mm (8.9370") deck height (same as 4.6L)
- Produces 5.0L displacement when used with a 4.6L stock stroke crankshaft, stock length connecting rods and custom 94 mm-diameter pistons
- Cross-bolted main bearing caps
- Requires Water Pump YR3Z-8501-AB/Motorcraft® PW-402 long 87 mm (3.425) Pump or YW7Z-8501-BB/Motorcraft® PW-409 short 65 mm (2.559) Pump
- Replacement Sleeve M-6055-B



1.6L 4-CYLINDER KENT BLOCK



M-6010-16K*

The legendary Formula Ford Kent block is reborn with an all-new iron casting that is stronger than the original!

- Standard 8.200" deck height with extra material for decking
- Cylinder bores semi-finished to 3.186" diameter to allow the engine to be built to desired clearances
- Lifter bore diameter .5155"-.5145"
- Blocks cast from 40,000psi grey iron
- Lower clutch housing bolt bosses reinforced
- Selected areas around main bearing webs strengthened
- Center main will accept upper and lower crankshaft thrust bearing inserts
- Includes cam bearings

1.6L 4-CYLINDER LOTUS BLOCK



M-6010-16L*

The Lotus block features an all-new grey iron casting that is stronger than the original and accepts the Lotus cylinder head.

- Standard 7.900" deck height with extra material for decking
- Machined and delivered with cylinder bores semi-finished at 3.228" - 3.226" (81.99 - 81.94 mm) diameters
- Lifter bore diameter .5155"-.5145"
- Blocks cast from 40,000psi grey iron
- Lower clutch housing bolt bosses reinforced
- Selected areas around main bearing webs strengthened
- Center main will accept upper and lower crankshaft thrust bearing inserts
- Includes cam bearings





FR BOSS 302



Did you know...

The BOSS 302 block features cylinder bores designed for stroker applications without additional clearancing. Durability tested up to 3.400" stroke, some racers have run as much as 3.500" stroke and 9.00 second E.T.s!

FR BOSS 351



	STOCK 302	1969-1970 BOSS 302	FR BOSS 302	1971 BOSS 351	FR BOSS 351 9.2"	FR BOSS 351 9.5"
Main caps	2-bolt cast iron	4-bolt cast iron (2,3,4)	4-bolt nodular iron machined splayed (2,3,4)	4-bolt cast iron	4-bolt nodular iron machined splayed (2,3,4)	4-bolt nodular iron machined splayed (2,3,4)
Siamese bore	No	No	Yes with engineered cross drilling	No	Yes with engineered cross drilling	Yes with engineered cross drilling (BB no cross drilling)
Freeze plugs	Press	Screw in tapered pipe thread	Screw in O-ring sealed straight thread	Press	Screw in O-ring sealed straight thread	Screw in O-ring sealed straight thread
Material	Cast iron	Cast iron	Diesel grade heat treated cast iron	Cast iron	Diesel grade heat treated cast iron	Diesel grade heat treated cast iron
Head bolts	7/16"	7/16"	1/2"	1/2"	1/2"	1/2"
Recommended max. bore	4.030"	4.030"	4.125"	4.030"	4.125"	4.125" (BB 4.185 with sonic check)
Front oil crossover for lifter galley	No	No	Yes	No	Yes	Yes
Main bolts	7/16"	7/16" (all) 3/8" outer (2,3,4)	1/2" (all) 3/8" outer (2,3,4)	1/2" (all) 3/8" (all)	1/2" (all) 3/8" outer (2,3,4)	1/2" (all) 3/8" outer (2,3,4)
Oil galley plugs	Pipe thread and press in	Pipe thread	Screw in O-ring sealed straight thread	Pipe thread and modified locking	Screw in O-ring sealed straight thread	Screw in O-ring sealed straight thread
Hydraulic roller compatible	Yes	No	Yes	No	Yes	Yes
Clutch cross shaft pivot hole	No	Yes	Yes	Yes	Yes	Yes
Rear main seal	1-Piece	2-Piece	1-Piece	2-Piece	1-Piece	1-Piece
CID capacity	347	347	363	408	427	454 (BB 468)

FORD RACING BOSS CYLINDER BLOCKS

Ford Racing engineers have designed the replacement for the legendary BOSS 302 and 351 blocks using the latest technology and manufacturing techniques from both the production and racing worlds. The BOSS block capability has been proven around the world – both on the track and on the street. By preserving many of the dimensions and features from the original 289-351 blocks, the BOSS blocks are compatible as replacements for use in just about any vehicle that used a Windsor-style engine. Cast from diesel grade iron and designed with added material in key areas, BOSS block strength is far superior to any Ford OE block ever produced.

- Nodular iron main caps – splayed 4-bolt pattern on 2, 3, 4, mains. 2-bolt main on first and fifth main caps
- Finished lifter bores – uses stock size 302/351 lifters
- Machined to accept factory hydraulic roller lifter guides and lifter guide retainer
- NASCAR®-inspired revised oiling and cooling system
- Siamese bore with drilled coolant crossover holes to aid cooling – except on big bore versions
- Increased bulkhead material and deck thickness (.500" - .560")
- Threaded core and galley plugs (straight thread port plugs with O-ring)
- Head bolt thread engagement are moved lower in the block to minimize bore distortion and thus requires special length 1/2" head bolts
- Designed for Ford Racing M-6049-X306/X307/C3/D3/Z304DA or Yates®-style cylinder heads. Not designed for production 302/351W or M-6049-Y302/Y303/X302/X303/X304/X305 Cylinder Heads
- Uses common OD cam bearings
- Unique Cam Plug M-6026-S351 included
- Designed to be compatible with the original 302 and 351W blocks and includes the following features:
 - Designed to use stock-type timing cover. Timing Cover M-6059-D351 recommended (includes fuel pump provision)
 - Fits factory Mustang oil pan with custom Oil Pickup Tube M-6622-BOSS302
 - Retains clutch cross shaft pivot hole
 - Original style oil filter location – M-6731-FL1A recommended
 - Original motor mount boss locations
 - Original bellhousing pattern



Block	M-6010-BOSS302	M-6010-B302BB	M-6010-BOSS35192	M-6010-B35192BB	M-6010-BOSS35195	M-6010-BOSS351BB
Bore Size as delivered	3.990" - 3.995"	4.115" - 4.120"	3.990" - 3.995"	4.115" - 4.120"	3.990" - 3.995"	4.115" - 4.120"
Siamesed Bore	Yes	Yes	Yes	Yes	Yes	Yes
Cross Drilled	Yes	No	Yes	No	Yes	No
Maximum Bore Size	4.125"	Sonic test for greater than 4.125"	4.125"	Sonic test for greater than 4.125"		Sonic test for greater than 4.125"
Maximum Stroke recommended	3.400"	3.400"	4.000"	4.000"	4.250"	4.250"
Main Bearings	Main bearing bore same as stock 302	Main bearing bore same as stock 302	Main bearing bore same as stock 351 Cleveland	Main bearing bore same as stock 351 Cleveland	Main bearing bore same as stock 302 stock 351 Cleveland	Main bearing bore same as stock 351 Cleveland
Deck Thickness	.500" - .560"	.500" - .560"	.500" - .560"	.500" - .560"	.500" - .560"	.500" - .560"
Head Bolt Size	1/2-13 UNC					
Lifter Bore Size	.8753" - .8768"	.8753" - .8768"	.8753" - .8768"	.8753" - .8768"	.8753" - .8768"	.8753" - .8768"
Rear Seal Type	1-piece rear seal M-6701-B302	1-piece rear seal M-6701-B302	1-piece rear seal M-6701-B351	1-piece rear seal M-6701-B351	1-piece rear seal M-6701-B351	1-piece rear seal M-6701-B351
Weight	175	175	195	195	205	205
Maximum Displacement	363 cubic inches	363 cubic inches	427 cubic inches	427 cubic inches	454 cubic inches	454 cubic inches
Recommended Parts						
Head Gaskets	M-6051-S331 M-6051-CP331 M-6051-R351 M-6051-B341	M-6051-R351	M-6051-S331 M-6051-CP331 M-6051-R351 M-6051-B341	M-6051-R351	M-6051-S331 M-6051-CP331 M-6051-R351 M-6051-B341	M-6051-R351
Cam Bearings	M-6261-J351 or M-6261-R351					
Head Stud Kit	Head Stud Kit M-6014-Z304, M-6014-BOSS					
Head Bolt Kit	Head Bolt Kit M-6014-BOSS					
Rear Main Seal	M-6701-B302	M-6701-B302	M-6701-B351	M-6701-B351	M-6701-B351	M-6701-B351

ENGINE BLOCKS

BOSS BLOCKS

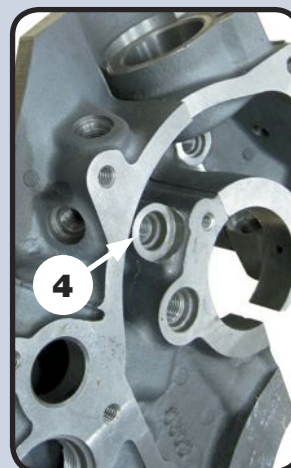
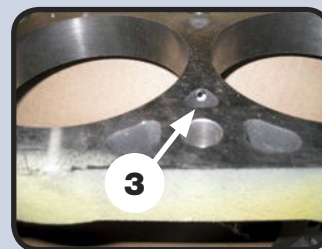
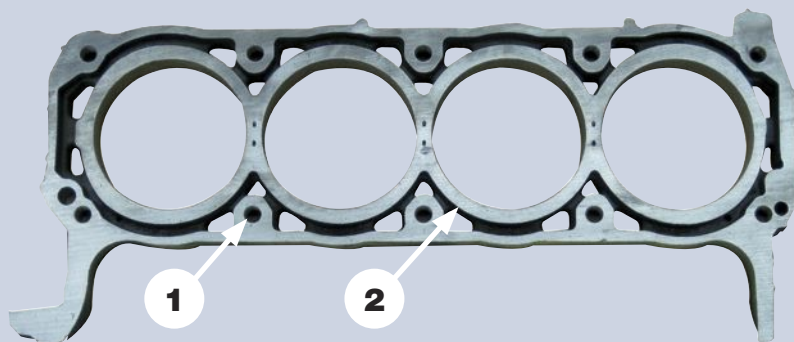
- ▶ 302 to 454 Cubic Engines
- ▶ 8.2" - 9.2" - 9.5" Deck
- ▶ CNC-machined for exacting tolerances of +/- 0.001"
- ▶ The foundation for building power and race-winning performance



"Using a BOSS 351 block as a foundation became a no-brainer. At just under two-grand, the block provides about the best bang for the buck anywhere and hardly costs any more than a stock Windsor block that has been fully machined and blueprinted. But the BOSS block still has some advantages over that, namely it's cast using diesel-grade iron, which exhibits a much greater tensile strength than a stock casting. Plus, there is extra meat in all the critical stress areas.

When you put it all together, you get a block that shrugs off 500-plus horsepower blasts and asks for more."

– Jeff Huneycutt
Project Big-Inch BOSS
5.0 Magazine



- 1 1/2" head bolt columns moved lower in the block to minimize bore distortion and improve clamping force
- 2 Siamese bore with thick cylinder walls and exterior walls
- 3 Drilled coolant crossover holes to aid cooling
- 4 NASCAR®-inspired front feed to both lifter oil galleys

351 SIAMESE BORE LIGHT-WEIGHT CYLINDER BLOCKS DRY SUMP



- 4.180" max bore capacity
- Compacted graphite cast iron material – stronger than grey iron
- 4-bolt main caps and strengthened structural section
- Billet main caps of 4140 steel
- Can be bored and stroked to produce 434 cubic inches
- Siamese cylinder bores
- Bore range from 4.000" to 4.180"
- Dry sump oiling design
- 2.248" main journal diameters (stock 302 size)
- Weighs approximately 157 lbs (33 lbs lighter than grey iron version)
- Main bearing bores—must be honed to fit
- Requires Cam Plug M-6026-S351 included
- "O" ringed – threaded core and galley plugs included
- 9.125" deck height

M-6010-CG452*

- For professional competition
- Lifter bores semi-finished, ready to hone
- Uses common OD Cam Bearings M-6261-J351/R351

M-6010-CG351*

- For Sportsman competition
- NO LIFTER BORES, machining for lifter bores required
- Accepts 42/46 degree lifters
- Uses common OD Cam Bearings M-6261-J351/R351



Partial machined block shown

351 ALUMINUM BLOCK 9.5" DECK



M-6010-Z351*

- High-strength aluminum block, 356-T6 grade aluminum
- Splayed 4-bolt, steel billet main caps on 2,3 and 4
- 2-bolt main caps on 1 and 5
- 4.110"-4.115" bore as delivered, cast iron sleeves 4.125"
- 9.5" deck height, accepts small block timing chain, timing chain cover and oil pump
- 2.75" crankshaft (351C) main journal diameter: 2.9415"-2.9425" diameter finished main bearing bore
- Lifter bores finished .8753"-.8768"
- 2.2032"-2.2052" diameter cam bearing bores. Uses Cam Bearings M-6261-J351/R351
- Maximum stroke 4.250"
- Wet sump oiling system
- Weighs approximately 110 lbs



460 SIAMESE BORE CYLINDER BLOCK



M-6010-A460*

- 10.322" deck height plus or minus .005"
- Cast iron block with 4-bolt main caps on journals 2, 3 and 4
- Nodular iron main caps
- Can be bored/stroked to produce 598 cu. in.
- Siamese cylinder bores
- Bore range from 4.360"-4.600"
- Wet sump oiling design
- 3.000" main journal diameter
- Weighs approximately 275 lbs
- High-strength block for professional competition

NOTE: Siamese blocks are solid casting between the cylinder bores. There are no water passages between them. This is done to increase the strength of the block.



ENGINE BLOCK/HARDWARE

CAMSHAFT BEARINGS

M-6261-R351*



- Fits 302/351 Ford Racing blocks
- Common outer and inner diameter replacement cam bearings for use in M-6010-R302/S302/R351/R352/S351/V351/W351/R451/R452/R453/B302BB/BOSS302/BOSS35192/BOSS35195/BOSS351BB
- Use with custom ground common OD camshaft

M-6261-J351*



- Fits 302/351 Ford Racing blocks
- Common outer diameter service replacement cam bearings for use in M-6010-R302/S302/R351/R352/S351/V351/W351/R451/R452/R453/B302BB/BOSS302/BOSS35192/BOSS35195/BOSS351BB Cast Iron Blocks
- Use with standard camshaft



M-6261-R351 shown

FORD RACING CYLINDER BLOCK CAMSHAFT PLUG

M-6026-S351*



- Service camshaft plugs for Ford Racing Cylinder Blocks M-6010-R302/S302/R351/R352/R353/R354/R355/S351/V351/W351/BOSS302/BOSS351
- Package of 10



OIL GALLERY RESTRICTOR KITS



M-6799-A302 289/302/351W

M-6799-R351* 351 Ford Racing M-6010-R351/R352/S351/V351/W351

Increases oil flow to main bearings by reducing oil to valve train.



M-6799-A302 shown

REPLACEMENT PARTS FOR M-6010-C302/J351/K351/Z351 ALUMINUM BLOCKS

M-6012-A351*

Service replacement cylinder bore sleeve for Ford Racing 302 and 351 aluminum cylinder blocks. Sleeve ID 3.985". Sleeve OD 4.251". Flange thickness .250". Flange diameter 4.500". Sleeve overall length 5.820". The length can be trimmed to fit.

M-6012-B351*

Same as M-6012-A351 except OD is .010" oversize.

M-6012-C351*



- Replacement sleeves for the M-6010-Z351 Block
- Standard 4.280" OD and 4.110"-4.115" ID
- Sold in set of 8



CAMSHAFT BEARINGS - ROLLER



(SOLD IN ENGINE SETS)

These low-friction, roller camshaft bearings only require oil "splash" lubrication. Oil feed holes can be totally blocked off to reduce oil aeration and windage losses. Engine block must be machined to accept bearing size shown in chart.

NOTE: The 351 cam journals are NOT production dimensions. The 429-460 dimensions are production. These roller bearings require an SAE 8620 steel camshaft.



PART NUMBER	APPLICATION	OD DESCRIPTION	ID DESCRIPTION	LENGTH
M-6261-A460*	429/460 Wedge	2.500"	2.125"	0.625"
M-6261-D351*	351 Ford	(1-4) 2.48" (5) 2.28"	(1-4) 2.165" (5) 1.969"	0.787"

NOTES: ① Requires camshaft retainer plate modifications.

PLUG AND DOWEL KITS



M-6026-A302* 289/302/351W

Necessary dowels, cup plugs and pipe plugs for rebuilding production V8 blocks.



M-6026-A302 shown

M-6026-R351*

351 Ford Racing



Necessary dowels, cup plugs and pipe plugs for rebuilding Ford Blocks M-6010-R302/R351/R352/R353/R354/R355/S302/S351/V351/W351.

M-6026-A460*



Use with M-6010-A460 Cylinder Block. Kit includes cam plug, oil gallery plugs, transmission dowels and head dowels.

M-6026-A46

- Kit includes all necessary dowels, drain plugs and cup plugs for rebuilding production 4.6L aluminum block
- Includes threaded drain plugs and water bypass tube



M-6026-A



Service replacement aluminum plug and dowel kit for M-6010-BOSS302/BOSS35192/BOSS35195/BOSS351BB and 351 race blocks with O-ring threaded plugs. Black anodized aluminum plugs with Buna® O-rings for the oil galleries, water drains and core holes. Dowels for front cover, clutch housing and cylinder heads.

M-6026-CI46

Kit includes all necessary dowels, drain plugs and cup plugs for rebuilding M-6010-BOSS50 and M-6010-D46 Blocks. Includes water heater tube.



M-6026-B302*



Fits 289/302/351W/351C Threaded freeze plug (1.25" NPT) kit for all small V8 engine blocks. Does not include dowels.



4.6L/5.4L 2V POWER IMPROVEMENT (PI) CYLINDER HEADS – ASSEMBLED

M-6049-P46* RH 2V

M-6050-P46* LH 2V

- Production 4.6L SOHC 2V Romeo engine aluminum cylinder heads
- Fully machined and assembled with production Mustang GT valve train and camshaft
- Great for custom engine builds
- Less expensive than replacing valve train and remachining a used cylinder head
- Less expensive alternative to aftermarket performance heads
- Can be used on 1996-1998 engines with additional modifications and parts
- 43.9cc/ - 1.5cc combustion chamber
- Raises compression on 1996-1998 engines to 10:1
- Use Head Changing Kit M-6067-D46

NOTE: Requires installation of oil galley plugs (not included).



M-6049-P46 shown



M-6050-P46 shown

4.6L/5.4L RH 3V CYLINDER HEADS

M-6049-N3V* RH

M-6050-N3V* LH

- Production 3V cylinder head
- Finished machined casting with guides and seats installed
- Ready for assembly
- Use Head Changing Kit M-6067-3V46
- Direct replacement for 2008-2010 Mustangs with 12 mm spark plugs
- Heads will fit early cars originally equipped with "High Thread" design spark plugs. Requires spark plug and ignition coil update

NOTE: Engines with late style 12 mm spark plugs can be identified by coil engineering number 8L3E. Engines with early style 16 mm "High Thread" design spark plugs can be identified by coil engineering number 3L3E.



4.6L/5.4L CNC PORTED 3V CYLINDER HEADS – ASSEMBLED

M-6049-N3VPA* RH

M-6050-N3VPA* LH

- New OEM production cylinder head casting
- CNC ported to increase flow and performance
- 53cc combustion chamber (stock head is 51cc)
- Intake runner volume: 202cc (stock 174cc)
- Exhaust runner volume: 73cc (stock 62cc)
- Intake flow rate at .600 lift: 272 cfm
- Exhaust flow rate at .600 lift: 190 cfm (no pipe)
- Assembled with factory guides, production springs, valves, retainers, locks and seals
- Does not include camshaft, followers and hydraulic lash adjusters
- Use Head Changing Kit M-6067-3V46
- Minimize your vehicle down time waiting for a shop to port your heads. Get a brand new head for a little more than the price of exchange!
- No exchange required
- Requires 2008-2010 12 mm spark plugs
- Heads will fit early cars originally equipped with "High Thread" design spark plugs. Requires spark plug and ignition coil update

NOTE: Engines with late style 12 mm spark plugs can be identified by coil engineering number 8L3E. Engines with early style 16 mm "High Thread" design spark plugs can be identified by coil engineering number 3L3E.



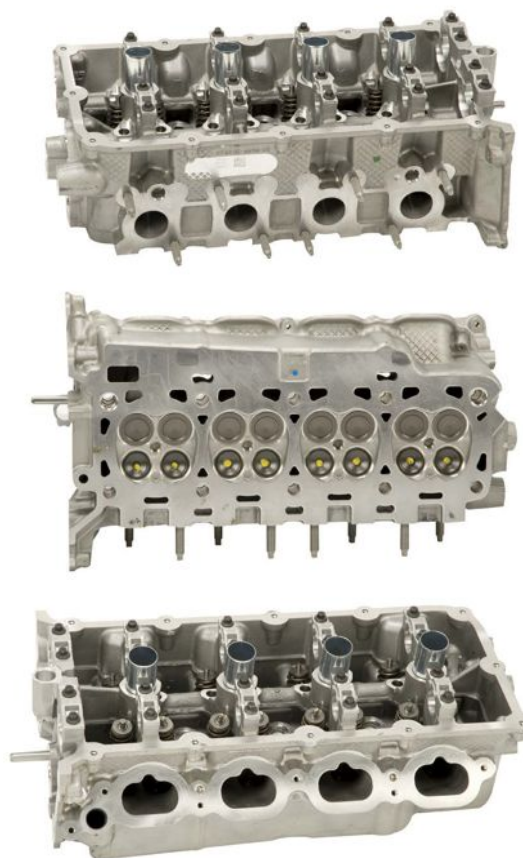
ENGINE COMPONENTS

5.0L DOHC CYLINDER HEAD ASSEMBLIES

M-6049-M50 RH

M-6050-M50 LH

- Production Mustang GT 5.0L 4V Ti-VCT aluminum cylinder head
- Finished machined cylinder head ready to install
- 193cc intake port volume
- 31 mm exhaust valve
- 37 mm intake valve
- Includes intake and exhaust valves, springs and retainers
- Does not include cams or rocker arms
- Use Head Changing Kit M-6067-M50BR

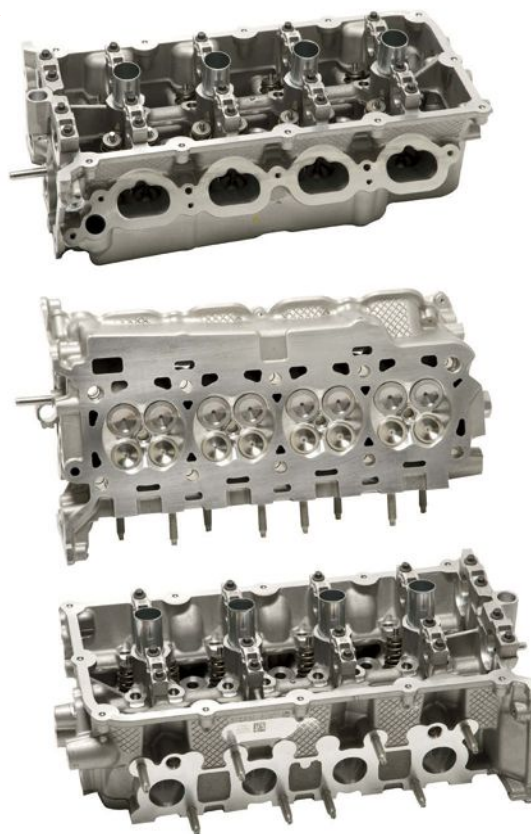


BOSS 302R CYLINDER HEAD ASSEMBLY

M-6049-M50BR* RH

M-6050-M50BR* LH

- Fits 2011-2012 Mustang GT, BOSS 302, BOSS 302S and BOSS 302R
- Production cylinder head used on the BOSS 302 and 302R race car
- Fully CNC'd ports and chambers
- Loaded head assembly minus camshafts, rocker arms and lash adjusters
- 37 mm hollow stem intake valve
- 31.8 mm sodium-filled exhaust valve (31 mm on base 5.0L)
- Increased rate valve springs can support 12 mm intake and 13 mm exhaust max lift (base head is 12 mm/12 mm)
- Intake side flows approximately 4% more than base 5.0L head
- 193cc intake port volume
- Chamber volume nominally 55.6 cc
- Use Head Changing Kit M-6067-M50BR



4.6L/5.4L HIGH-FLOW CNC CYLINDER HEADS

M-6049-463VP3* RH

M-6050-463VP3* LH



- New OEM production cylinder head casting
- 5-axis CNC ported to increase flow and performance
- 48cc combustion chamber (stock head is 51cc)
- Increased size 35 mm intake valves (stock intake valve is 34 mm)
- Increased size inconel 38.5 mm exhaust valves (stock exhaust valve is 37.5 mm)
- Intake runner volume: 214cc (stock 174cc)
- Exhaust runner volume: 73cc (stock 62cc)
- Intake flow rate at .600 lift: 291 cfm
- Exhaust flow rate at .600 lift: 191 cfm (no pipe)
- Fully assembled with bronze guides, light-weight steel retainers, upgraded valve springs
- Includes Ford 4.6L 3-Valve Cam Phaser Limiter Kit
- Does not include camshaft, followers and hydraulic lash adjusters
- Use Head Changing Kit M-6067-3V46
- Requires 2008-2010 12 mm spark plugs
- Heads will fit early cars originally equipped with "High Thread" design spark plugs.

Requires spark plug and ignition coil update

NOTE: Engines with late style 12 mm spark plugs can be identified by coil engineering number 8L3E. Engines with early style 16 mm "High Thread" design spark plugs can be identified by coil engineering number 3L3E.



BOSS 302R HEAD CHANGING KIT

M-6067-M50BR

- Fits 2012 5.0L BOSS 302R DOHC engine
- Improved sealing for high cylinder pressure
- Kit includes multi-layer steel head gaskets and high-strength torque-to-yield head bolts
- Works on base 5.0L Ti-VCT cylinder head



BOSS 302R VALVE SPRING KIT

M-6513-M50BR*

- Valve spring used on 2012 Mustang BOSS 302 engine
- Higher seat pressure than base valve spring
- 8000 rpm compatible
- Use with cams up to 13 mm lift
- Can be used on base 5.0L Ti-VCT head



BOSS 302R EXHAUST VALVE

M-6505-M50BR*

- Sodium-filled for improved heat dissipation
- 31.8 mm diameter, larger than base 5.0L valve
- Same length as base 5.0L valve



BOSS 302R 5.0L INTAKE VALVE

M-6507-M50BR*

- Intake valve used in BOSS 302 cylinder head
- Light-weight, hollow stem
- Same diameter and length as the base 5.0L valve



ENGINE COMPONENTS

MUSTANG SVT 5.4L CYLINDER HEADS



M-6049-MSVT* RH

M-6050-MSVT* LH

- Production Mustang SVT 5.4L cylinder head
- Finished machined bare casting ready for assembly
- Valve guides are installed
- Oil restrictor is included with head
- Valve Kit for Shelby GT500 Head 6C521-MSVT available
- 5.4L 4V S/C Head Changing Kit M-6067-MSVT available
- Ford GT and SVT 5.4L Lash Adjusters M-6500-GT available



FR500C CYLINDER HEADS



M-6049-DAC* RH

M-6050-DAC* LH

- Ford GT heads feature a raised intake port, creating a more direct intake path
- These heads are the final revision of the 2000 Cobra "R" heads
- The most durable highest-flowing Modular engine cylinder heads available
- Used on M-6007-R50 Grand Am Cup Race Engine
- Same as production Ford GT heads but with bronze guides and beryllium copper valve seats
- 52.7cc +/- 1.5cc combustion chambers



DP/MR CYLINDER HEADS



M-6049-DAMR* RH

M-6050-DAMR* LH

- Ford GT head without seats and guides
- Same as used on Mustang FR500GT3, Daytona® Prototype and FIA Ford GT



302/351W "TURBO SWIRL" ALUMINUM CYLINDER HEADS

M-6049-X306*

Assembled head (64cc chamber)

M-6049-X307*

Assembled head (58cc chamber)



THE FAST, EASY WAY TO BOLT ON 65 HORSEPOWER! TRUE BOLT-ON PERFORMANCE

- For use on 289/302/351 Windsor-style engines
- Improved air flow over original GT-40 aluminum heads
- Intake flows approximately 240 cfm at .550" lift (at 28" of H₂O)
- Exhaust flows approximately 170 cfm at .500" lift (at 28" of H₂O)
- Machined for 1.94" Intake and 1.54" exhaust valve diameters
- Ford racing "X" heads use either GT-40 or aftermarket performance intake manifolds
- Intake port volume 178cc, exhaust port volume 62cc
- High-temperature exhaust valve seats. Bronze guides. Thick deck for improved sealing, increased section thickness in critical areas for porting and common rocker bosses for improved strength. Designed for bolt-on rocker arms, machined for tapered seat spark plug or gasketed. Compatible with Ford Racing intakes, headers and valve train components
- High-quality original equipment style 356-T6 aluminum castings, machining and components
- Each aluminum head weighs approximately 22 lbs — approximately 25 lbs lighter than each cast iron GT-40 head
- These GT-40 style heads use AGSF-32C Spark Plugs
- Each head is leak tested prior to assembly
- M-6049-X306 assembled with OEM valve seals, M-6507-J302 Intake Valves, M-6505-G302 Exhaust Valves and M-6513-A50 Valve Springs. The valve springs are compatible with all Ford Racing hydraulic roller camshafts. Spring pressure 123 lbs @ 1.800", 303 lbs @ 1.250"; max lift .600"



- M-6049-X307 assembled with M-6507-J302 Intake Valves, M-6505-G302 Exhaust Valves M-6513-BH Beehive™ Valve Springs. Closed spring pressure is 130 lbs @ 1.800", 318 lbs @ 1.200". Compatible with all Ford Racing roller camshafts and aftermarket hydraulic roller camshafts up to .600" lift
- M-6049-X306 assembled with 7-degree valve locks and retainers
- M-6049-X307 features 10-degree locks and stock valve seals
- Designed to be used on Ford Racing Boss blocks M-6010-BOSS302 or M-6010-B302BB block with Head Gasket M-6051-CP331. Also can be used on M-6010-BOSS35195, M-6010-BOSS35192 and M-6010-BOSS351BB

INSTALLATION NOTES

- Will not fit 1986 5.0L with flat-top pistons unless pistons are notched for valve relief
- Must use Head Bolt Kit M-6065-D289 to install cylinder heads on 289/302 blocks or Head Bolt and Head Gasket Kit M-6051-A50 and Intake Gasket M-9439-A50/A51
- Check rocker arm clearance to valve springs with production rocker arms
- Check your intake manifold for port match. Not all intakes are compatible due to the tall high-flow ports
- Must use M-9439-A50 Intake Gasket
- Designed for Bolt-down Rocker Arms M-6564-B351 for a 1.6:1 ratio. Use M-6564-A50 for a 1.7:1 ratio
- Uses Fel-Pro® exhaust gasket part number 1415

302/351W HIGH-FLOW ALUMINUM CYLINDER HEADS

M-6049-Z304D*

Bare head

M-6049-Z304DA*

Assembled head

M-6049-Z304P*

CNC ported head



BARE HEAD FEATURES

- Cast from prime A356-T6 aluminum
- Fits 5.0L/5.8L Windsor engines
- Heads are cast with high-flow ports
- 20-degree inline valves
- Suggested valve sizes: 2.02" intake and 1.60" exhaust
- Requires competition valve job and bowl blending
- Steel alloy intake and exhaust valve seats installed (no valve job)
- Manganese-bronze valve guides installed with semi-finished ID
- 63cc CNC'd combustion chamber
- Intake port volume as cast: 204cc
- Exhaust port volume as cast: 85cc
- Bare head weighs 27 lbs
- Accepts both tapered seat and gasket style 14 mm spark plugs (Motorcraft® AGSP-32-PP, Autolite® 3924, 3925)
- Requires Guide Plate M-6566-Z304D (not included)
- Requires 7/16" screw-in studs (not included)
- Requires M-6564-F351C or M-6564-F351 Roller Rocker Arms with .150" offset intake push rod cup (not included)
- Uses M-6505-B304 Exhaust Valve and M-6507-A304 Intake Valve (not included)



- Raised exhaust port exit, custom headers may be required
- Fel-Pro® VS13264T Valve Cover Gasket recommended
- Uses Fel-Pro® exhaust gasket part number 1487

ASSEMBLED HEAD FEATURES

- Premium stainless steel 2.02" Intake M-6507-A304 and 1.60" M-6505-B304 Exhaust Valves
- Uses M-6513-BH Beehive™-style valve springs with machined retainers and machined valve locks. Most hydraulic cams can be used with these springs. Spring pressure 130 lbs @ 1.800", 293 lbs @ 1.200" and CB @ 1.085"
- Includes laser-cut Guide Plates M-6566-Z304D for use with 5/16" push rods and 7/16" rocker studs
- Check piston-to-valve clearance including radial valve clearance before installing these cylinder heads on your engine

PORTED HEAD FEATURES

- CNC ported version of M-6049-Z304D Cylinder Head to increase flow on intake and exhaust
- Intake and Exhaust airflow increased approximately 10%
- Bare casting with seats and guides

ENGINE COMPONENTS

302/351W FORD RACING "SPORTSMAN" SHORT TRACK CAST IRON CYLINDER HEAD

M-6049-N351* Bare head
(64cc chamber)



The N351 "Sportsman" cylinder head has been retooled and is now in stock and ready to ship. Designed for Ford engines in NASCAR Late Model Series® Stock Cars, IMCA®, WISSOTA®, UARA® and most other stock car sanctioning groups on 351W engines. Developed by Ford Racing with the help of Robert Yates.

- Bare head (64cc chamber)
- For use in NASCAR Late Model Stock Series®, WISSOTA®, IMCA®, DIRT® and most other stock car sanctioning groups on 351W engines
- Machined for 2.02" intake and 1.60" exhaust valve diameters
- Intake and exhaust valves have been moved .070" to unshroud the intake valve
- Valve angle changed from 20 degrees to 10 degrees to further improve air flow
- Intake port volume 200cc, exhaust port volume 82cc (-/- 2cc nominal)
- Thick deck and reinforced structure for improved sealing, increased section thickness in critical areas and webbed rocker bosses for improved strength. Designed for stud mount rocker arms. Compatible with stock and Ford Racing Intake M-9424-N302
- These heads use .708" reach taper seat spark plugs
- Deck thickness is approximately .400"

INSTALLATION NOTES

- Uses Fel-Pro® exhaust gasket part number 1427
- Requires M-6564-F351C or M-6564-F351 Roller Rocker Arms with .150" offset intake push rod cup (not included)
- Unique header flange required
- Check head bolt length, may require non-stock length head bolt

Parts to assemble M-6049-N351*:

M-6566-D351 Push rod guide plate (pkg. of 8)

M-6527-C311 Rocker arm studs (pkg. of 16)

M-6505-A351* High-flow stainless steel exhaust valve

M-6507-A351* High-flow stainless steel intake valve

M-6514-A50 Retainers (pkg. of 16)

VALVE PUSH ROD GUIDE PLATE

(SOLD IN PKG. OF 8)

See page 73 for installation instructions. Use with mechanical cams, threaded stud, adjustable (non-rail) rocker arms and hardened push rods. May require modification for use with roller rocker arms.

PART NUMBER		CYLINDER HEAD	PUSH ROD DIAMETER
M-6566-D351*		M-6049-N351/N352	.3125"
M-6566-SCJ*		M-6049-SCJ/SCJA/SCJB	.375"
M-6566-Z304D*		M-6049-Z304D/Z304DA	.3125"



VALVE ROCKER ARM STUD (SOLD IN PKG. OF 16)

Requires head to be tapped for threaded rocker arm stud. See page 73 for instructions.

PART NUMBER	APPLICATION	DESCRIPTION
M-6527-C311*	302 BOSS/351C BOSS, 429/460 Wedge	7/16" dia. shoulder with 7/16" dia. threads. ① Mounting length is 1.850". For use with stud girdles.

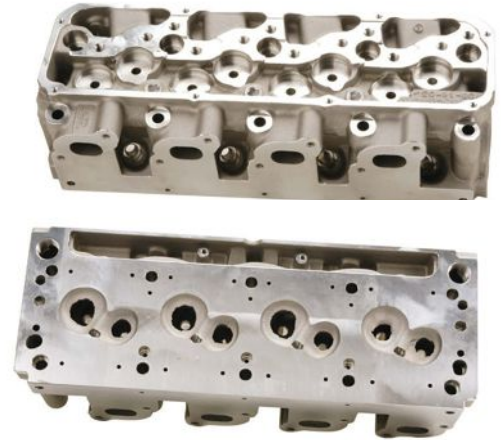
NOTE: ① Mounting length is from face of head to top of the stud.



HIGH-PORT HEAD

M-6049-SC1*

- Unfinished combustion chambers, typical finished volumes range from 40cc to 70cc
- Raised intake and exhaust runners for better airflow and greater power
- Fits 302 and 351 Ford Racing blocks
- Used for Drag, Sprint Car and Circle Track Racing
- Intake and exhaust runner raised .400" over Yates® C3 head for better flow characteristics
- Intake valves up to 2.180" diameter, 5.685" long
- Exhaust valves up to 1.625" diameter, 5.565" long
- Redesigned integral rocker pad for greater stiffness
- Uses Motorcraft® AGS-Series spark plugs
- Cylinder head comes semi-finished. Machining does not include valve seat bores
- Must be ported
- Bronze guides and valve seats included



FORD RACING C3 ALUMINUM CYLINDER HEAD

M-6049-C3*

- Fits 302 and 351 Ford Racing blocks
- Used for Drag, Sprint Car, and Circle Track Racing
- Unfinished combustion chambers, typical finished volumes range from 40cc to 70cc
- Unfinished ports – as cast
- Uses 1.600" diameter exhaust valves
- Uses 2.100" diameter intake valves
- Premium valve seat material compatible with titanium valves
- Added water passages between combustion chambers
- Cast from 356-T6 aluminum
- Uses Motorcraft® AGS-series spark plugs



FORD RACING C35 ALUMINUM CYLINDER HEAD

M-6049-C35*

- Fits 302 and 351 Ford Racing blocks
- Used for Drag, Sprint Car, and Circle Track Racing
- Unfinished combustion chambers, typical finished volumes range from 40cc to 70cc
- Unfinished ports – as cast
- Exhaust valve seat insert bores machined 0.050" undersize
- Intake valve seat insert bores machined 0.050" undersize
- Push rod hole machining omitted
- Valve guide insert bores machined undersize – pilot diameter only
- Premium valve seat material compatible with titanium valves
- Added water passages between combustion chambers
- Cast from 356-T6 aluminum
- Uses Motorcraft® AGS-series spark plugs



ENGINE COMPONENTS

SUPER COBRA JET CYLINDER HEADS



M-6049-SCJ*

Bare head

M-6049-SCJA*

Assembled with M-6513-A351 Hydraulic Roller Valve Springs: closed seat pressure 135 lbs @ 1.850"; open seat pressure 365 lbs @ 1.250"; max lift .700". Machined 7-degree locks and retainers, premium valve seals

M-6049-SCJB*

Assembled with solid roller springs: closed seat pressure 240 lbs @ 1.900"; open seat pressure 625 lbs @ 1.200"; max lift .650". 10-degree locks and retainers, premium valve seals

- Fits 429 and 460 cu. in. engines (except BOSS 429)
- Valve angles and locations to reduce cylinder wall shrouding and improve flow
- Combustion chambers to accommodate the more centrally located valves
- Standard Cobra Jet intake and exhaust manifolds bolt on
- Current valve covers fit
- 2.200" intake valve, 1.76" exhaust valve
- Flows approximately 330 cfm intake and 225 cfm exhaust
- 72cc combustion chambers
- 290cc intake runner, 148cc exhaust runner
- Uses Rocker Arm M-6564-A460
- Uses Motorcraft® AGSP series spark plugs

NOTE: If replacing Ford Racing or production Cobra Jet heads, new intake valve notches are required. Uses Fel-Pro® exhaust gasket part number 1420 and Fel-Pro® intake gasket part number 1231.



FORD RACING 460 "SPORTSMAN" WEDGE-STYLE CYLINDER HEAD



M-6049-C460*

- For use with M-6010-A460 Ford Racing Cylinder Block
- Used for professional competition and serious "Sportsman" racers
- Made from 356-T6 aluminum, with bronze valve guides and a premium valve seat insert material compatible with titanium valves
- Valve angles are 7.5 degrees intake, 8.0 degrees exhaust with no side cant
- Raised intake and exhaust ports
- 65cc wedge-style combustion chamber
- 4.600" recommended bore size (4.500" minimum)
- 2.450" intake, 1.900" exhaust recommended diameters
- Port and combustion chamber design based on Ford Racing 351 Yates® cylinder head



2.3L ALUMINUM CYLINDER HEAD

M-6049-E23A*

D-port aluminum head
Available from: Esslinger® Engineering
1930 Doreen Ave.
South El Monte, CA 91733
Telephone: (626) 444-4919



NASCAR® ENGINE PARTS

FR9 NASCAR® CYLINDER BLOCK

M-6010-R500* 2.250" Main bearings

M-6010-R500-20* 2.000" Main bearings

Features:

- Light-weight compacted graphite iron casting
- Cross-flow cooling
- Cast-in camshaft tunnel
- Inner and outer piston squirter provisions
- Front engine plate mounting (no side mounts)
- Dry sump only design
- 4-bolt steel main caps
- Internal oil passages to the cylinder heads

Specifications:

- Deck height: 9.000"
- Bore spacing: 4.500"
- Camshaft height: 6.150"
- Bore size range: 4.000"-4.185"
- Main journal diameter: 2.000"-2.250"
- Cam bearing diameter: 60 mm roller

Required Components:

- Cylinder Head: M-6049-E1
- Water Manifold: M-8C368-FR9
- Water Pump Assembly: M-8051-FR9

Recommended Use:

- Approved for the NASCAR® Sprint Cup, Nationwide and Truck Series
- Circle track competition

Builder Notes:

- Semi-finished cylinder bores, main bearing bores and lifter bores—must be honed to final size
- The FR9 engine is unique and does not share any components with previous 351 Windsor- or Cleveland-based engines



FR9 NASCAR® CYLINDER HEAD

M-6049-E1*

Fits NASCAR® Engine Block M-6010-R500

Features

- Light-weight A356-T6 aluminum casting
- Cross-flow cooling
- Internal oil passages for valve train lubrication
- Splayed and canted intake valves
- Five-bolt head bolt pattern

Specifications

- Intake valve angle: 11.0° x 4.0°
- Exhaust valve angle: 7.5° x 0°
- Valve spacing: 1.94"
- Intake flange angle: 90°
- Exhaust flange angle: 60°

Required Components

- Cylinder Block: M-6010-R500
- Water Manifold: M-8C368-FR9

Recommended Use

- Approved for the NASCAR® Sprint Cup, Nationwide and Truck Series
- Circle track competition

Builder Notes

- Heads are semi-finished requiring porting and combustion chamber machining
- Valve guides and seats are not included
- Water Manifold M-8C368-FR9 mounts directly to the cylinder heads
- The FR9 engine is unique and does not share any components with previous 351 Windsor- or Cleveland-based engines



HIGH-PORT NASCAR® HEAD

M-6049-D3*

M-6049-D35* Without seats, guides or push rod holes

- Fits 5.0L and 5.8L Ford Racing blocks
- Raised intake and exhaust ports
- Used primarily in NASCAR® and ARCA® racing
- Intake and exhaust runners raised .400" over Yates® C3 head
- Capable of 400 cfm intake, 267 cfm exhaust
- Accepts intake valves up to 2.180" diameter, exhaust valves up to 1.625" diameter
- Integral rocker pad for greater stiffness
- Cylinder head comes semi-finished. Combustion chamber and ports, unfinished
- Bronze guides and valve seat inserts included (not installed)
- Intake manifold mounting bolt holes 90° to mounting flange



351 FORD RACING INTAKES

M-9424-BT58*

M-9424-C58*

- For NASCAR® Nationwide and Truck Series
- Fits 9.200" deck height blocks with M-6049-D3/D35 heads
- Generous wall thickness for custom porting
- 4.00" depth, carb. flange to plenum floor
- Tuned for substantial power improvement over 8500 rpm compared to other aftermarket intakes
- Does not have valley tray (for weight reductions)



NASCAR® ENGINE PARTS

FR9 NASCAR® INTAKE MANIFOLDS

Features:

- For use with M-6049-E1 heads
- A356-T6 aluminum casting
- Plenum and runner interiors are as-cast

Required Components:

- Cylinder head: M-6049-E1

FR9 NASCAR® RESTRICTOR PLATE INTAKE MANIFOLD

M-9424-E551

- Intake Manifold for FR9 Engine Block
- Approved for NASCAR® Nationwide and Truck Series

FR9 NASCAR® INTAKE MANIFOLD

M-9424-E552

- Intake Manifold for FR9 Engine with carburetor
- Approved for NASCAR® Nationwide and Truck Series

FR9 NASCAR INTAKE MANIFOLD - FUEL INJECTION

M-9424-E554

- For use with NASCAR®-mandated fuel injection system
- Casting features bosses to accommodate fuel injector and fuel rail machining
- Approved for 2012 NASCAR® Sprint Cup Series

FR9 NASCAR® INTAKE MANIFOLD

M-9424-E651*

- For use with a carburetor
- Approved for NASCAR® Nationwide and Truck Series



FR9 WATER OUTLET MANIFOLD

M-8C368-FR9*

Features:

- Light-weight aluminum casting
- Straight outlet to accommodate LH or RH radiator water inlet
- Provision for water temperature sensor
- For use with M-6049-E1 Heads

Recommended Use:

- Circle track competition

Builder Notes:

- O-ring sealing provisions are machined into M-6049-E1 Cylinder Head
- The FR9 engine is unique and does not share any components with previous 351 Windsor- or Cleveland-based engines



FR9 WATER PUMP ASSEMBLY

M-8501-FR9

Features:

- Includes water pump and housing
- Light-weight aluminum castings
- EMP Stewart Components® race-proven pump cartridge
- Designed to mount to front engine plate

Recommended Use:

- Circle track competition

Builder Notes:

- The FR9 engine is unique and does not share any components with previous 351 Windsor- or Cleveland-based engines



Builder Notes:

- Intake manifold plenum and runners require porting before use
- The FR9 engine is unique and does not share any components with previous 351 Windsor- or Cleveland based engines



351 FORD RACING SINGLE-PLANE INTAKE MANIFOLD

M-9424-D452*

- Fits 9.200" deck height blocks with M-6049-D3/D35 Heads
- Weighs 19 lbs with generous wall thickness for custom porting
- 4.00" depth, carb. flange to plenum floor
- Tuned for substantial power improvement over 8500 rpm compared to other aftermarket manifolds
- Does not have a valley tray
- Replaces M-9424-W351



NASCAR® INTAKE MANIFOLD

M-9424-D456*

- For use with M-6049-D3/D35 Cylinder Head
- Approved for NASCAR® Nationwide and Truck Series
- Fits 9.000"-9.200" deck height blocks

BOSS 302 MAIN STUD AND BOLT KIT



M-6345-302MS

- Fits Ford Racing 302 BOSS Block M-6010-BOSS302
- Kit contains ten 1/2" main studs, washers and nuts. Six 3/8" bolts and washers



BOSS 351 MAIN STUD AND BOLT KIT



M-6345-351MS

- Fits Ford Racing 351 BOSS Blocks M-6010-BOSS35192, M-6010-BOSS35195 and M-6010-BOSS351BB
- Kit contains ten 1/2" main studs, washers and nuts. Six 3/8" bolts and washers



BOSS 302/351 MAIN BOLT WITH STUD



M-6345-A

- Fits Ford Racing's BOSS 302/351 and production 351W blocks
- 1/2" main bolt with 3/8 stud, provides attachment point for rear sump pickup tube support bracket
- Under hex length 3.450"; hex head thickness .540"; 3/8 stud length .650"
- 100 per box
- Limited supply

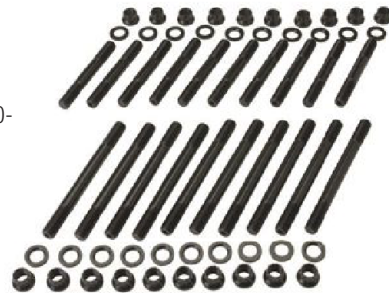


FORD RACING BOSS CYLINDER HEAD STUD KIT



M-6014-BOSS

- 1/2" cylinder head studs required for installation of the Ford Racing M-6049-X306/X307/Z304DA Heads onto the M-6010-BOSS302, M-6010-B302BB, M-6010-BOSS35195, M-6010-BOSS35192, M-6010-BOSS351BB Blocks
 - Includes 12-point nuts and hardened washers
 - Sold in engine sets
- NOTE:** Check header to head stud and nut for clearance.



FORD RACING BOSS BLOCK HEAD BOLT SET



M-6065-BOSS

- 1/2" cylinder head bolts required for installation of the Ford Racing M-6049-X306/X307/Z304DA Heads onto the M-6010-BOSS302, M-6010-B302BB, M-6010-BOSS35195, M-6010-BOSS35192, M-6010-BOSS351BB Blocks
- Includes hardened washers
- Sold in engine sets

CYLINDER HEAD STUD KIT



M-6014-Z304*

- 1/2" cylinder head studs required when installing M-6049-Z304/Z304A/Z304D/Z304DA Heads on a 351W block (except BOSS 351 block)
- 1/2" diameter studs with 12-point nuts and hardened washers
- Sold in engine sets



HEAD BOLT KIT



M-6065-D289*

- Use when installing stock 351W, Ford Racing Cast Iron (M-6049-L302/L303) or Ford Racing Aluminum Head (M-6049-Y302/Y303/X302/X303/X304/X305/X306/X307) on 289/302 blocks
- Kit features 20 ARP® cylinder head bolts with 7/16" diameter thread
- Includes 20 special stepped washers
- Sold in engine sets



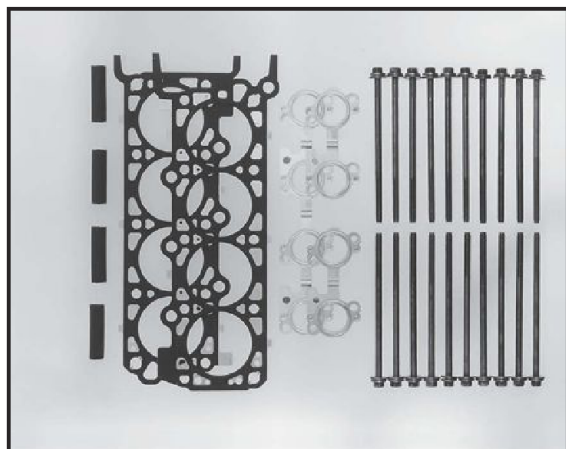
CYLINDER HEAD CHANGING KITS

M-6067-D46* SOHC 2V

M-6067-T46* DOHC 4V



- Contains all components necessary for changing cylinder heads on 1996-2004 4.6L Mustang
- Includes several parts that make this task significantly easier
- M-6067-D46 highly recommended when installing M-6049-D46/P46 Cylinder Heads
- M-6067-T46 highly recommended when installing heads on DOHC 4V naturally aspirated engines (not supercharged)
- Kit includes multi-layer steel head gaskets and high-strength torque-to-yield head bolts



M-6067-T46 shown

3V 4.6L HEAD CHANGING KIT

M-6067-3V46*



- Fits 3-valve 4.6L Modular engine with standard 90.2 mm bore and 3-valve head
- Kit includes multi-layer steel head gaskets and high-strength torque-to-yield head bolts



5.0L 3V HEAD CHANGING KIT

M-6067-3V50*



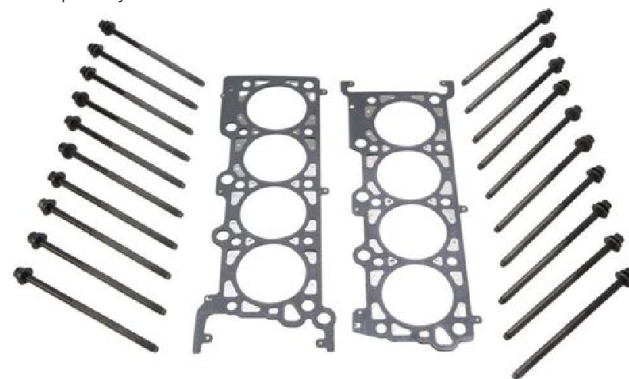
- Fits 5.0L Modular engine with 94 mm bore and 3V heads
- Compatible with M-6010-BOSS50 or M-6010-T50 Blocks with 3V cylinder heads
- Kit includes multi-layer steel head gaskets and high-strength torque-to-yield head bolts

5.4L 4V SUPERCHARGED HEAD CHANGING KIT

M-6067-MSVT



- Fits 5.4L DOHC engines
- Original equipment on 2007-2011 Shelby GT500 and 2008 Mustang FR500CJ race car
- Improved sealing for high cylinder pressure applications
- Kit includes multi-layer steel head gaskets and high-strength torque-to-yield head bolts



PLUG, DOWEL AND MAIN BOLT KIT 5.4L FORD GT

M-6026-GTBLK



- For rebuilding 5.4L Ford GT Aluminum Block M-6010-GTWS
- Includes transmission, front/rear cover and cylinder head dowels
- Includes main cap inner bolts, main studs and main cap side bolts
- Includes water pump cup plug
- Bolts are torque-to-yield and must be replaced after each use



4.6L ALUMINUM BLOCK MAIN CAP BOLT KIT

M-6345-A46



- Fits 4.6L aluminum cylinder block and M-6010-A46NA
- Kit contains main bolts for one block
- Bolts are torque-to-yield and must be replaced after each use



BOSS 302R EXHAUST CAM SET M-6550-M50BR*

- Original exhaust cams on 2012 BOSS 302 and 302R engines
- 13 mm lift and 263 degree duration vs. 11 mm lift and 263 degree duration on base 5.0L engine
- Compatible with M-6049-M50BR and M-6050-M50BR BOSS 302 Cylinder Head
- GT heads: check rocker arm to head casting clearance and clearance as required
- BOSS 302 Valve Spring Kit M-6513-M50BR required with base GT heads
- Custom calibration required
- Sold as pair of camshafts



2012 BOSS 302 LONG DURATION EXHAUST CAM SET

M-6550-M50BEXH*

- Higher lift and longer duration for increased engine performance
- 13 mm lift/290 degree duration (stock 11 mm/263 degree duration)
- Compatible with M-6049-M50BR and M-6050-M50BR Mustang BOSS 302 Cylinder Head
- GT heads: check rocker arm to head casting clearance and clearance as required
- BOSS 302 Valve Spring Kit M-6513-M50BR required with base GT heads
- Use with long tube headers to realize power gain
- Custom calibration required
- Sold as a pair of camshafts

2012 BOSS 302 INTAKE CAM SET

M-6550-M50BINT*

- Higher lift for increased engine performance
- 13 mm lift, 263 degree duration
- Compatible with M-6049-M50BR and M-6050-M50BR Mustang BOSS 302 Cylinder Head
- GT and BOSS heads: check rocker arm to head casting clearance and clearance as required
- BOSS 302 Valve Spring Kit M-6513-M50BR required with base GT heads
- Custom calibration required
- Sold as a pair of camshafts

5.0L 4V Ti-VCT EXHAUST CAM SET

M-6550-M50GTE*

- Longer duration exhaust camshaft for use on Mustang GT 5.0L Ti-VCT engine
- 290 degree duration, 11 mm lift vs. 263 degree duration on stock 5.0L 4V Ti-VCT engine
- Use with long tube headers
- Custom calibration required
- Sold as a pair of camshafts



4.6L 2V CAMSHAFT DRIVE KIT M-6004-462V*

Camshaft drive kit for the 4.6L 2V aluminum or cast iron block. Fits 2001 and newer 4.6 2V engines. Will fit earlier 2V engines, requires RH chain guide dowel pin hole to be drilled and tapped for an insert with 6M X 1.00 internal threads.

Kit includes production:

- Tensioner arms
- Chain guides
- Cover gaskets and front seal
- Primary timing chain
- Chain tensioners
- Camshaft sprockets, spacer and washer
- Crankshaft sprocket
- Trigger wheel
- Includes fasteners



4.6L 4V CAMSHAFT DRIVE KIT M-6004-A464*

Camshaft drive kit for the 4.6L 4V with aluminum block. Kit includes production:

- Tensioner arms
- Chain guides
- Cover gaskets and seal
- Primary and secondary timing chain
- Secondary and chain tensioners
- Camshaft sprockets, spacer and washer
- Crankshaft sprocket
- Trigger wheel
- Fasteners
- Recommended for use with Aluminator short blocks and 4V heads
- Will not fit 1993-1998 camshafts



5.4L 4V MUSTANG SVT CAMSHAFT DRIVE KIT

M-6004-54SVT*

Camshaft drive kit for the Shelby GT500 5.4L 4V engine with an aluminum or cast iron block. Includes reduced diameter cam drive that came on 2007 and newer Shelby GT500.

Kit includes production:

- Tensioner arms chain guides
- Primary and secondary timing chains
- Primary and secondary chain tensioners
- Camshaft sprockets, spacers and washers
- Crankshaft sprocket and diamond-coated washer
- Crank position trigger wheel
- Fasteners



5.4L 4V CAMSHAFT DRIVE KIT M-6004-A544*

Camshaft drive kit for the Ford GT 5.4L 4V engine with an aluminum or cast iron block. Includes standard diameter cam drive that came on the Ford GT. Kit can be used for any 5.4L Navigator-based block engine build.

Kit includes production:

- Tensioner arms
- Chain guides
- Primary and secondary timing chains
- Primary and secondary chain tensioners
- Camshaft sprockets, spacers and washers
- Crankshaft sprocket
- Crank position trigger wheel
- Fasteners



ENGINE COMPONENTS

FORD RACING CAMSHAFTS

The Ford Racing Camshaft Specification chart describes individual cams currently available from Ford Racing. Refer to page 71 for performance characteristics and usage guidelines. See page 112 for valve springs.

SMALL BLOCK V8 HYDRAULIC ROLLER TAPPET CAMSHAFTS

PART NUMBER	ENGINE	ROCKER RATIO	INTAKE EVENTS (0.050")		EXHAUST EVENTS (0.050")		DURATION (SAE)		LIFT (INCHES)		LOBE CENTER	
			OPEN	CLOSE	OPEN	CLOSE	INT.	EXH.	LOBE	VALVE	INT.	EXH.
M-6250-B303* ① ② ③ ⑥	 1985 and Later 302 Roller Cam	1.60	5° BTC	39° ABC	49° BBC	5° BTC	284°	284°	.300 I	.480 I	107°	117°
							224°	224°	.300 E	.480 E		
M-6250-E303 ① ② ③ ⑥ ⑦	 1985 and Later 302 Roller Cam	1.60	0° BTC	40° ABC	40° BBC	0° BTC	282°	282°	.311 I	.498 I	110°	110°
							220°	220°	.311 E	.498 E		
M-6250-F303* ① ② ③ ④ ⑥ ⑧	 1985 and Later 302 Roller Cam	1.60	4° BTC	42° ABC	52° BBC	6° BTC	288°	288°	.320 I	.512 I	109°	119°
							226°	226°	.320 E	.512 E		
M-6250-X303* ① ② ③ ④ ⑥ ⑨	 1985 and Later 302 Roller Cam	1.60	5° BTC	39° ABC	49° BBC	5° BTC	286°	286°	.339 I	.542 I	107°	117°
							224°	224°	.339 E	.542 E		
M-6250-Z303* ① ② ③ ④ ⑤ ⑥ ⑩	 1985 and Later 302 Roller Cam	1.60	7° BTC	41° ABC	51° BBC	3° ATC	290°	290°	.345 I	.552 I	107°	117°
							228°	228°	.345 E	.552 E		



NOTE:

Camshaft intake and exhaust valve events are measured at 0.050" tappet lift. The duration figures in the shaded area are taken at 0.050" tappet lift. This is useful to check the cam with a degree wheel during installation. The solid color is advertised duration. For comparison purposes, add intake and exhaust lobe centers and divide by 2 to calculate "camshaft lobe separation" specification for Ford Racing camshafts.

NOTES:

- ① On EFI engines, performance camshafts work only with mass air induction systems. Will not work with Explorer EEC-V EFI.
- ② Also fits 1994-1997 351W with factory roller cam when used with mass air EFI.
- ③ Stock 5.0L HO cam advertised specs are 266°/266° duration, 0.444"/0.444" lift.
- ④ May require piston modification for piston-to-valve clearance. Valve clearance should be checked.
- ⑤ May require longer push rods.
- ⑥ Hi-Stall torque converter recommended for automatic trans.
- ⑦ Emissions legal with 5-speed manual trans. E.O. #D-225-16.
- ⑧ Great for superchargers. Manual transmission recommended.
- ⑨ Good torque and power up to 6200 rpm. Manual transmission recommended.
- ⑩ Good torque and power up to 6500 rpm. Manual transmission recommended.

2005-2010 MUSTANG GT HIGH LIFT HOT ROD CAM SET

M-6550-3V*

- Give any 3-valve 4.6L or 5.4L a "loopy" idle reminiscent of 1960's muscle cars! No one will believe it's a Modular engine!
- More lift, duration and power than any other camshaft available for use with stock valve train
- Currently being used in Rough Rider off-road race trucks
- Engineered specifically for naturally aspirated applications by the same designers of the stock camshafts
- No other cam manufacturer has the aggressive sound and durability these cams offer
- Excellent upgrade for the 2005-2010 Mustang GT 4.6L-3V engine
- Increases lift from the stock 11 mm to 12 mm
- Intake/exhaust duration of 221/240 degrees (@ 0.050" lift), lobe separation of 110 degrees
- Compatible with production springs, followers and lash adjusters up to 6800 rpm



- Must be used with long tube headers to achieve a significant power gain
- Approximately 50 hp gain with the stock intake manifold and M-6049-N3VPA/M-6050-N3VPA CNC heads at 6500 rpm. Approximately 30 hp gain with stock heads. (with long tube headers and M-9603-M463 Cold Air Kit)
- **Calibration required! Calibration not included!** Recommended WOT cam timing values included



INTAKE VALVES — SINGLE GROOVE (SOLD INDIVIDUALLY)

PART NUMBER	APPLICATION	HEAD DIAMETER	TIP LENGTH	TOTAL LENGTH	DESCRIPTION
M-6507-J302*	GT-40 Head Aluminum M-6049-Y302/X302/X304/ X305/X306/X307	1.940"	0.383"	5.078"	Premium stainless steel, swirl polished, under-cut stem.
M-6507-A304*	 M-6049-Z304/Z304D/ Z304DA	2.020"	0.290"	5.340"	Premium stainless steel.
M-6507-A351*	M-6049-N351/R351	2.020"	0.250"	5.140"	Premium stainless steel.
M-6507-B429*	429/460 Wedge SCJ Aluminum M-6049-SCJ/ SCJA/SCJB	2.200"	0.250"	5.265"	Premium stainless steel.



Intake Valve

EXHAUST VALVES — SINGLE GROOVE (SOLD INDIVIDUALLY)

PART NUMBER	APPLICATION	HEAD DIAMETER	TIP LENGTH	TOTAL LENGTH	DESCRIPTION
M-6505-A351*	M-6049-N351/R351	1.600"	0.250"	5.140"	Premium stainless steel.
M-6505-A429*	429/460 Wedge CJ/SCJ Aluminum M-6049-A429/B429/C429	1.760"	0.250"	5.050"	Premium stainless steel.
M-6505-B304*	M-6049-Z304D/Z304DA	1.600"	0.290"	5.365"	Premium stainless steel.
M-6505-G302*	GT-40 Head Cast Iron M-6049-L302/303 Aluminum M-6049-Y302/ Y303/X302/X303/X304/X305 M-6049-X306/X307	1.540"	0.383"	5.078"	Premium stainless steel, swirl polished, under-cut stem.



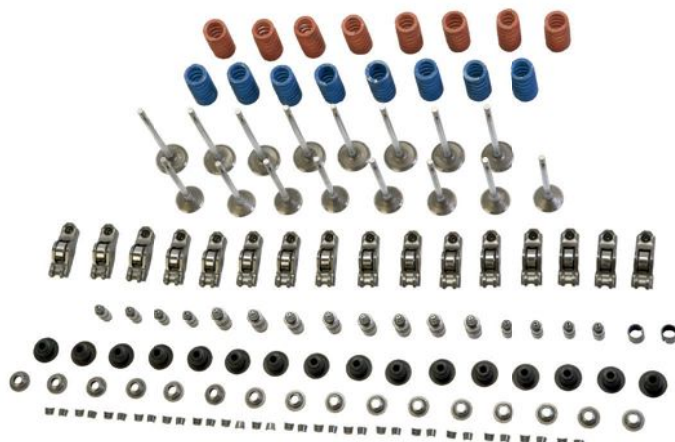
Exhaust Valve

VALVE KIT FOR MUSTANG SVT HEAD

M-6C521-MSVT*



- Production Mustang SVT 5.4L 4V valve kit
- Fits 2007-2011 Mustang SVT 5.4L RH Cylinder Head M-6049-MSVT and Mustang SVT 5.4L LH Cylinder Head M-6050-MSVT
- Includes:
 - Intake and exhaust valves
 - Valve keepers and retainers
 - Roller followers
 - Intake and exhaust hydraulic lash adjusters
 - Cylinder head dowels
- Includes enough parts to assemble one cylinder head
- Camshafts **not** included



MUSTANG SVT 5.4L MODULAR ROCKER ARM SET

M-6529-MSVT



- Original equipment on Ford GT 5.4L engine
- Recommended upgrade for all years 4.6L/5.4L 4V and 2V engines
- 4 grams lighter, stiffer and better engagement on lash adjuster over 4.6L DOHC rocker arms
- Lightest and strongest modular finger follower available for modular 4.6L/5.4L 4V and 2V engines
- Sold in a set of 16 for one head



VALVE LASH AND LIFTER PRE-LOAD

Valve lash and lifter pre-load are commonly referred to as “setting the valves.” This critical assembly process is a key operation for all engine builders and technicians. Setting the valves provides the camshaft lobe profiles to be transferred into valve motion. To attain the performance features designed into the camshaft, the lash or pre-load must be properly set.

Lash vs. Pre-Load

Lash

Valve lash by definition is the gap between the rocker arm and the tip of the valve stem. The rocker arm may have ground radius or a steel roller, and the valve tip is ground perpendicular to the valve stem. This gap is usually measured with feeler gauges and is adjusted by threaded nut. The adjuster nut is locked in position with a set screw. Each valve is adjusted individually.

Valve train systems that have a lash setting must utilize a solid tappet. This tappet can be a solid roller tappet or a solid flat tappet. Solid tappets do not allow any movement within the tappet itself. The system must also provide a means for fine-tuning the lash, in most cases a threaded adjuster and locking device.

Pre-Load

Lifter pre-load by definition is the distance the plunger, inside the tappet, is depressed from the fully extended position. This movement takes place inside the tappet itself. Both hydraulic flat and hydraulic roller tappets contain components that meter and retain a small reservoir of oil. This pre-load correctly positions the plunger into the working range of the tappet body. Total plunger travel is approximately .140".

For hydraulic valve train systems, the lifter pre-load can be adjusted by using a threaded adjuster and locking device, by shimming the rocker arm pedestal and by push rod length.

Setting Lash and Pre-Load

Both lash and pre-load are set when the camshaft is on the base circle. Knowing when the cam is on the base circle is the key to setting the valves correctly. There is one bulletproof way for determining when the lifter is on the base circle and it is displayed on the graph below. A trick for remembering the sequence is to use “I.C.E.” I.C.E. stands for: INTAKE (valve) CLOSES – (lash) EXHAUST. By looking at the chart, it becomes clear that the exhaust must be on the base circle when the intake valve closes. Conversely, for insuring the intake is on the base circle, this condition occurs when the exhaust valve opens. This works for every single cam no matter how high the lift or long the duration.

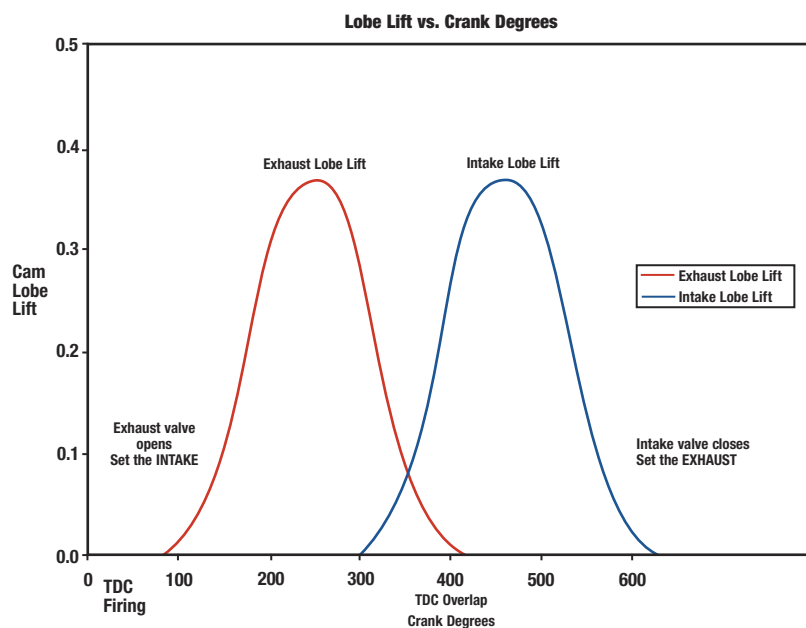
In summary, always remember “I.C.E.”

Intake valve closes (I.C.E.)	Set the EXHAUST VALVE
Exhaust valve opens	Set the INTAKE VALVE

For example:

- Bring cylinder #1 to TDC (FIRING)
- Rotate engine clockwise until the exhaust lifter (or push rod tip) begins to open
- Set the lash or pre-load on the **INTAKE** valve for cylinder #1
- Rotate the engine clockwise until the intake valve opens and just closes
- Set the lash or pre-load on the **EXHAUST** valve for cylinder #1
- Repeat for the rest of the engine

When setting or checking lash and pre-load, don't be in a hurry; for initial engine builds, put one rocker on at a time. If you are checking lash, do one cylinder at a time and mark each valve checked on the corresponding rocker arm with a marker.



CHECKING CAMSHAFT TIMING

In order to check cam timing, you will need some specialty tools. You will need a degree wheel, dial indicator with magnetic base and a heavy wire for a timing pointer. Choose a large diameter wheel as they are easier to read and more durable. Some manufacturers sell kits with a rigid, adjustable pointer that mounts easily to the front of the engine. The other option is a heavy wire that is mounted to the block and bent into position.

Start with placing the dial indicator and stand on the right side block deck to measure travel of the CENTER of piston number 1 (passenger side, front). Bring number 1 to TDC (Top Dead Center) by observing when the dial indicator stops moving. Bolt the degree wheel to the front of the crankshaft, and attach the pointer to the front of the block so that the pointer is positioned at the zero degree reading on the wheel. To find exact TDC, first set the dial indicator to zero at the point of highest piston travel. Next, turn the crankshaft counterclockwise about 90 degrees. Then, slowly rotate the crankshaft clockwise (the normal direction of engine rotation) until the indicator is .030" below the TDC (zero) setting. Note the reading of the degree wheel at this point. Then, continue turning the crankshaft

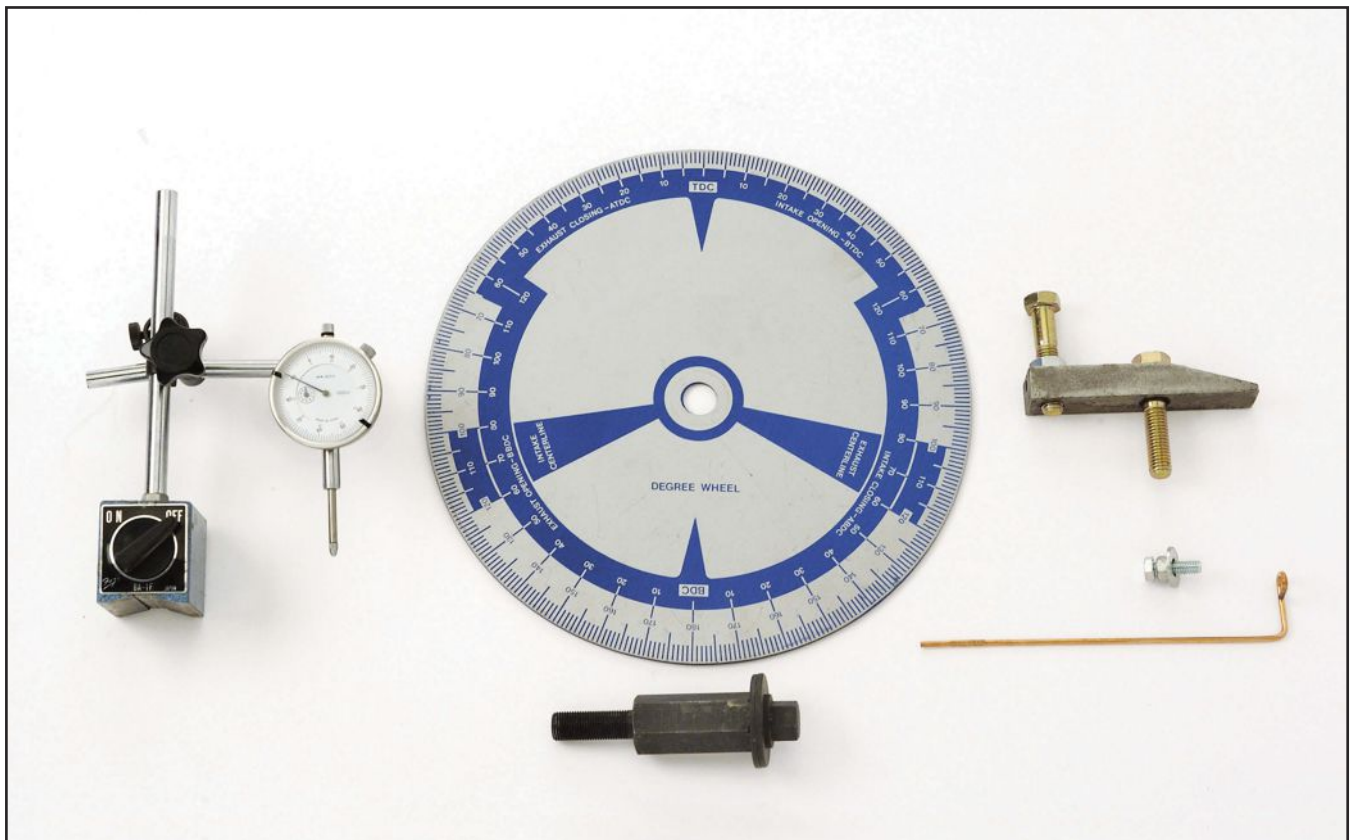
clockwise past the TDC about 90 degrees. Slowly rotate the crankshaft backwards counterclockwise until the same .030" below TDC is seen on the dial indicator. Again, note the degree wheel reading. Next, rotate the degree wheel so the pointer falls at the AVERAGE of the two observed readings. Lastly, relocate the pointer exactly over the zero reading of the degree wheel, and you will have perfectly dialed in TDC. Redo the procedure to satisfy yourself that the setting is correct, and then proceed to measure cam timing.

Install the number 1 cylinder intake lifter in the proper lifter bore. Position the dial indicator so the tip is on the edge of the lifter or in the center of the lifter. Extensions for the dial indicator may be necessary. Carefully line up the dial indicator so the travel of the indicator is linear to the lifter. Rotate the engine and observe the action of the lifter. Make sure the fully open and fully closed positions of the lifter are within the travel range of the dial indicator. Rotate the crankshaft until the lifter is at the highest point of its travel, and set the dial indicator to zero. Continue rotating the engine clockwise until the lifter starts to travel up again. Slowly continue until the lifter is .030" below the point of maximum travel,

and note the reading of the degree wheel. Start rotating the crank again until the lifter is .030" below the maximum travel on the closing side of the cam lobe. Note the degree wheel reading. The AVERAGE of the two readings taken is the location of maximum intake lift ATDC (After Top Dead Center).

Compare this to the installation recommendation of the cam manufacturer, as it should be relatively close. The timing should be within one degree of the recommended setting. If there is a need to adjust the timing, FRPP has multi-index timing chain sets which have nine keyways to adjust cam timing.

NOTE: Many cam manufacturers provide .050" lift cam timing information. To check this, reset the dial indicator to zero with the lifter at zero lift. Then rotate the crank in the clockwise direction until .050" lift is shown on the indicator. Note the intake open degrees. Then proceed clockwise until the intake closing at .050" lift is reached. Compare the readings to the cam card. Together with the maximum lift information, this data will tell you where the cam is degreed. Once corrections are made, measure the cam timing once more to verify the fix was correct.



ENGINE COMPONENTS

VALVE SPRINGS (SOLD IN PKG. OF 16) ①②

PART NUMBER	APPLICATION	TYPE	ID	OD	MINIMUM LOADS – NEW SPRINGS		COIL BIND
					CLOSED	OPEN	
M-6513-A50 	289/302/351W with Ford Racing, GT-40 cylinder heads (pkg. of 16) ⑤⑥	Single ③	0.970"	1.500"	123 lbs @ 1.800"	303 lbs @ 1.250"	1.150"
M-6513-A351 	289/302/351W/460	Dual ④	0.800"	1.460"	135 lbs @ 1.850"	365 lbs @ 1.250"	1.050"
M-6513-BH 	M-6049-Z304DA Ford Racing Cylinder Heads	Single Beehive™ Conical	0.656" 0.885"	1.055" 1.290"	130 lbs @ 1.800"	318 lbs @ 1.200"	1.150"



Valve Spring with Damper

VALVE SPRING NOTES:

- ① Valve springs with the same load rating (but with different color-coded stripes) may be packaged together.
 ② 1977 and later 302 engines have different installed heights for intake and exhaust valves.
 ③ With damper. ④ Requires nylon valve stem seal.
 ⑤ For use on production heads, see below for valve spring retainer chart and notes.
 ⑥ Not recommended with stock rocker arm, may have interference.

VALVE SPRING SEAT (SOLD IN PKG. OF 16)

For use with aluminum cylinder heads to prevent damage to valve spring seat area.

PART NUMBER	CYLINDER HEAD USAGE	SPRING OD	OD CUP	ID CUP	SEAT DESCRIPTION	
					MATERIAL	THICKNESS
M-6536-SCJ 	M-6049-B429	1.550"	1.680"	0.577"	Machined Steel	0.062"
M-6536-BH 	M-6049-Z304DA	1.290"	1.300"	0.880"	Machined Steel	0.060"



VALVE SPRING RETAINERS (SOLD IN PKG. OF 16 PAIR)

PART NUMBER	APPLICATION VALVE	SPRING	DESCRIPTION	SPRING OD	RETAINER OD	STEP DIMENSIONS	
						1ST STEP	2ND STEP
M-6514-A50 	Single lock groove. 11/32" dia. stem.	M-6513-A50 M-6513-B351 M-6049-N351 and all GT-40 ①②	7° Machined Steel	1.500"	1.375"	1.060"	0.675"
M-6514-B50 	Single lock groove. 11/32" dia. stem.	M-6513-A50 ②	7° Machined Steel	1.500"	1.375"	1.060"	0.675"
M-6514-BH 	Single lock groove. 11/32" dia. stem.	M-6513-BH	10° Machined Steel	1.055"	1.045"	0.640"	



NOTES: ① Use of M-6514-B50 Retainers on 1979-1995 production valves of 5.0L (302) HO and production GT-40 engines eliminates exhaust rotators and will result in 1.800" intake and exhaust spring "installed height." ② With Ford Racing stainless steel valves.

VALVE SPRING KEEPERS (SOLD IN ENGINE SET PKG. OF 16 PAIR)

PART NUMBER	TYPE AND USAGE RECOMMENDATIONS
M-6518-B351 	Machined and hardened. 7° design with single lock groove. For all-out competition and use with titanium valves.
M-6518-BH 	Machined and hardened. 10° design with single lock groove. For use with 10° retainers only! + .050 installed height



BRONZE VALVE GUIDE KIT

- M-6510-XRBVG**** Sold in sets of 4 
- Replacement bronze valve guides for the M-6049-Y302/Y303/X302/X303/X304/X305/X306/X307 Heads
 - .557" outside diameter
 - Inside diameter designed for 11/32 valves, HONING REQUIRED



VALVE STEM SEALS POSITIVE-TYPE, GUIDE-MOUNTED SEAL

PART NUMBER	TYPE	APPLICATION NOTES	PACKAGING
M-6571-A50 	Rubber ①	GT-40 cylinder heads. No machining required.	Pkg. of 8 intake and 8 exhaust seals.

NOTES: ① Fits most production 0.550"-0.570" diameter guides.



VALVE ROCKER ARM PEDESTAL SHIM KIT



M-6529-A302*

Use with bolt-on Roller Rocker Arms M-6564-A50, M-6564-B351, -C351 and -E351 to obtain correct lifter pre-load. Shim kit includes 16 thin and 16 thick shims, which can be used to reduce lifter pre-load by 0.030" (thin shim), 0.060" (thick shim) or 0.090" (thin plus thick shim).



ROCKER CHANNEL KIT



M-6588-A50*

- Fits 5.0L/5.8L production heads and GT-40 heads
- For production stamped steel and Ford Racing bolt-on roller rockers
- Ties 2 rocker arms together for proper alignment



Stud-Mounted Type

ROLLER ROCKER ARM



PERFORMANCE FEATURES:

- Reduces friction and horsepower loss
- Increases high-rpm train stability

DESIGN FEATURES:

- High-strength trunnion supported by needle roller bearings
- Grade 8 adjusting nuts
- Precision machined from 2024 high-tensile strength aircraft alloy extrusions

PART NUMBER PACKAGE OF 16	APPLICATIONS	DESCRIPTION			NOTES
		RATIO	MOUNTING	VALVE TYPE	
M-6564-A351*	289/302/351W and Ford Racing aluminum Cylinder Heads M-6049-J302	1.60:1	Stud	Inline	Requires 3/8" stud, push rod guide plates and hardened push rods. Cast iron cylinder heads require pedestal machining.
M-6564-D351*		1.70:1	Stud	Inline	
M-6564-K351*	289/302/351 Ford Racing aluminum Cylinder Head M-6049-Z304 (does not fit M-6049-Z304D, M-6049-Z304DA)	1.60:1	Stud	Inline	Requires 7/16" stud, push rod guide plates and hardened push rods. Cast iron cylinder heads require pedestal machining.
M-6564-B351* ①②	302/351W – 1978 and later with production heads. Cast iron and aluminum GT-40 heads	1.60:1	Bolt On	Inline	For stock production cast iron cylinder heads with hydraulic non-adjustable valve train. Does not require guide plates, hardened push rods or pedestal machining. Includes pedestal inserts and bolts.
M-6564-A50* ①②	302/351W – 1978 and later with production heads. Cast iron and aluminum GT-40 heads	1.70:1	Bolt On	Inline	Same as "Cobra" 5.0L Mustang. These rocker arms have beefy trunnions for extra long life. Die-cast aluminum construction.
M-6564-F351*	M-6049-N351/N352 "Sportsman" Head, M-6049-Z304D, M-6049-Z304DA	1.65:1	Stud	Inline	7/16" stud mount intake rocker with .150" offset push rod cup (pkg. of 16).
M-6564-C351*	351C/351M/400 1973 and later 429/460 production Cylinder Heads	1.73:1	Bolt On	Canted	For stock production canted valve cylinder heads with hydraulic non-adjustable valve train. Does not require guide plates, hardened push rods or pedestal machining. Includes pedestal inserts and bolts.
M-6564-A460*	351C/351M/400 302 BOSS/429/460, 429 CJ/SCJ and Ford Racing high-port aluminum Cylinder Heads	1.73:1	Stud	Canted	For canted valve cylinder heads. Requires 7/16" stud, push rod guide plates and hardened push rods. Some cast iron cylinder heads require pedestal machining.

NOTES: ① Roller Rocker Arms may not clear standard rocker covers. "Taller" valve covers may be required.
② Rocker channels not included.

ENGINE COMPONENTS

ROLLER ROCKER ARM PERFORMANCE FEATURES:

- Reduces friction and horsepower loss
- Increases high-rpm train stability



PART NUMBER PACKAGE OF 16	APPLICATIONS	DESCRIPTION RATIO	MOUNTING	VALVE TYPE	NOTES
M-6564-A351C*	289/302/351W and Ford Racing aluminum cylinder heads	1.60:1	Stud	Inline	Requires 3/8" stud, push rod guide plates and hardened push rods. Cast iron cylinder heads require pedestal machining.
M-6564-D351C*		1.70:1	Stud	Inline	
M-6564-K351C*	289/302/351 Ford Racing Aluminum Cylinder Head M-6049-Z304	1.60:1	Stud	Inline	Requires 7/16" stud, push rod guide plates and hardened push rods. Cast iron cylinder heads require pedestal machining.
M-6564-B351C* ①②	302/351W – 1978 and later with production heads. Cast iron and aluminum GT-40 heads	1.60:1	Bolt-On	Inline	Adjustable bolt-on style rockers, uses adjustable push rod style cups to allow for solid lifters or anti-pump-up lifters. For stock production cast iron cylinder heads with hydraulic non-adjustable valve train. Does not require guide plates, hardened push rods or pedestal machining. Includes pedestal inserts and bolts.
M-6564-A50C* ①②	302/351W – 1978 and later with production heads. Cast iron and aluminum GT-40 heads	1.70:1	Bolt-On	Inline	Adjustable bolt-on style rockers, uses adjustable push rod style cups to allow for solid lifters or anti-pump-up lifters. These rocker arms have beefy trunnions for extra long life. Die cast aluminum construction.
M-6564-F351C*	M-6049-N351/N352 "Sportsman" Head M-6049-Z304D/DA	1.65:1	Stud	Inline	7/16" stud mount intake rocker with .150" offset push rod cup (pkg. of 16).
M-6564-C351C*	351C/351M/400 1973 and later 429/460 production cylinder heads	1.73:1	Bolt-On	Canted	Adjustable bolt-on style rockers, uses adjustable push rod style cups to allow for solid lifters or anti-pump-up lifters. For stock production canted valve cylinder heads with hydraulic non-adjustable valve train. Does not require guide plates, hardened push rods or pedestal machining. Includes pedestal inserts and bolts.
M-6564-G351C*	M-6049-N351/N352 "Sportsman" Head and M-6049-Z304D/DA	1.50:1	Stud		7/16" stud mount intake rocker with .150" offset push rod cup (pkg. of 16).

NOTES: ① Roller Rocker Arms may not clear standard rocker covers. "Taller" valve covers may be required.
② Rocker channels not included.

ROLLER CAM CONVERSION KIT

M-6253-A50*



- This kit is designed to help engine builders assemble our short blocks to complete engines
- Kit includes (8) hydraulic roller lifter powdered metal tie bars, (1) retainer plate and (2) bolts
- Fits 1985-2001 302, 1994-1997 351W Production Blocks. Also fits Ford Racing BOSS 302 and BOSS 351 blocks
- For production non-roller cam blocks, use M-6500-T58 Lifters



VALVE TAPPETS (SOLD IN ENGINE SETS OF 16)

PART NUMBER	APPLICATION	TYPE/DESCRIPTION
M-6500-B303*	289/302/351/429/460	Hydraulic Flat Tappet OEM replacement.
M-6500-R302*	302 (5.0L) EFI Small block	Hydraulic Roller Tappet OEM replacement.



Hydraulic Roller Tappet
M-6500-R302 shown



Flat Tappet

HIGH-PERFORMANCE HYDRAULIC ROLLER LIFTER

M-6500-R302H*

- Direct replacement for the OEM small block hydraulic roller lifter
- Features ceramic check ball and higher rate piddle valve spring
- Ford Racing dyno tests have shown 200 to 300 rpm increase over stock OEM type hydraulic roller lifter



- Required for performance and racing applications
- Sold in a set of 16 lifters

EARLY BLOCK HYDRAULIC ROLLER LIFTER

M-6500-T58*

Sold in engine sets. Use to install hydraulic roller camshaft in a "non-roller" block. Fits 289/302/351W/351C.

NOTE: May require custom push rods and minor clearancing.



FORD GT AND MUSTANG SVT 5.4L LASH ADJUSTERS

M-6500-GT*

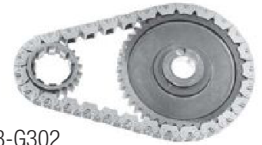
- Unique lash adjusters fit Ford GT and Mustang SVT 5.4L DOHC cylinder heads
- Includes 16 intake and 16 exhaust lash adjusters



HY-VO® TIMING CHAIN AND GEAR SET

M-6268-F302*

- Developed with combined efforts from Roush® Industries, Borg-Warner Automotive® and Morse TEC®
- This new generation timing chain set is twice as strong as a standard roller chain and three times as strong as a timing belt
- Improved tolerances for reduced backlash
- It gained 2 horsepower at 7000 rpm
- Multi-indexing crank sprocket
- Use with hardened Thrust Plate M-6269-A351
- Replacement Hy-Vo® Timing Chain M-6268-G302



REPLACEMENT HY-VO® TIMING CHAIN

M-6268-G302*



TIMING CHAIN AND SPROCKET SETS



PART NUMBER	APPLICATION	DESCRIPTION
M-6268-A302*	289/302/351W/351	Full roller chain with 9-position multi-index crank sprocket. Ford Racing includes thrust plate. Cam sprocket is made from cast iron.
M-6268-B302*	289/302/351W/ 351 Ford Racing	Same as M-6268-A302, except cam sprocket is made from steel for maximum competition engines. Use with hardened Thrust Plate M-6269-A351.
M-6268-A351*	351C/351M/400	Full roller chain with 9-position multi-index crank sprocket.
M-6268-A390*	390/427/428	Does not fit 1961-1963 camshafts. Full roller chain with 9-position multi-index crank sprocket.
M-6268-B429*	429/429 BOSS/460	Cast iron cam sprocket. Full roller chain with 9-position multi-index crank sprocket.
M-6268-A460*	429/429 BOSS/460	Steel cam sprocket for maximum competition engines. Full roller chain with 9-position multi-index crank sprocket.
M-6287-B302*	289/302/351W/ 351 Ford Racing	Eccentric for M-6268-B302 and -A302 Kits—mechanical fuel pump drive, with 3/8" bolt.
M-6287-C302*	289/302/351W/ 351 Ford Racing	Eccentric for M-6268-B302 and -A302 Kits—mechanical fuel pump drive, with 7/16" bolt.



Full Roller Timing Chain
and Sprocket Set

CAMSHAFT THRUST PLATE

PART NUMBER	APPLICATION	DESCRIPTION
M-6269-A302	302/351W Ford Racing	Production replacement for 302 and 351W engines. For use with flat tappet and hydraulic roller camshafts. Designed for timing chain sets requiring .250" thick retainer plate. Not for use with steel cam gears.
M-6269-A351	302/351 Ford Racing	Steel replacement for production cast iron thrust plate for severe service. Use with steel timing chain sprocket.
M-6269-A460	429/460	Low-friction roller bearing camshaft thrust plate. Requires machining of camshaft sprocket thrust surface.



M-6269-A460

M-6269-A351

289/302 DUAL-PLANE INTAKE MANIFOLD

M-9424-F302*

- For use with 8.206" deck height block and inline valve heads
- 4.375" at the front of the carburetor pad, 5.250" at the rear
- Dual-plane intake
- 1500-6000 rpm range
- For use with any mid-rpm small block application, great for street cars and mild race engines
- Excellent fuel distribution
- Does not fit "Z" or the GT-40 "X" heads



289/302 SINGLE-PLANE VICTOR JR.® INTAKE MANIFOLD

M-9424-D302*

- For use with 8.206" deck height block and inline valve heads
- 5.35" at the front of the carburetor pad, 5.42" at the rear
- Single-plane Victor Jr.-style intake 3500-8000 rpm range
- For use with any high-rpm small block application



COBRA EFI INTAKE MANIFOLD "REPLICA"

M-9424-Z51

M-9424-Z51P Polished

- Replica of the production 1993 Cobra intake manifold
- Airflow is good up to 350 horsepower
- Kit includes upper intake manifold and lower intake manifold
- Fits 1986-1993 5.0L Mustangs



M-9424-Z51P shown

351W SINGLE-PLANE VICTOR JR.® INTAKE MANIFOLD

M-9424-V351*

- For use with 9.500" deck height block and inline valve heads
- 5.75" carburetor pad
- Single-plane Victor Jr.-style intake 3500-7500 rpm range
- For use with any high-rpm small block application



460/460 FORD RACING SINGLE-PLANE INTAKE MANIFOLD

M-9424-C460*

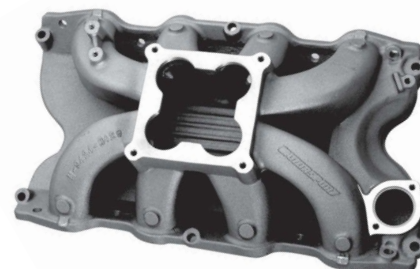
- For use with 10.322" deck height block and M-6049-C460 "Wedge" Race Heads
- 8.64" carburetor pad height
- High-rpm power
- For use on drag race engines



429/460 SINGLE-PLANE DOMINATOR® FLANGE INTAKE MANIFOLD

M-9424-H429*

- For use with 10.322" deck height block and production and Ford Racing CJ/SCJ heads
- 6.30" carburetor pad
- Single-plane Victor®-style intake 3500-8000 rpm range with Dominator® carburetor flange
- For use with any high-rpm big block application



4.6L 3-VALVE PERFORMANCE INTAKE MANIFOLD



M-9424-463V*

- Fits 2005-2010 4.6L 3-valve Mustang engines
- Works well with Ford Racing's M-6550-3V Hot Rod Camshafts, M-6049-N3VPA High-Performance CNC Ported 3-Valve Cylinder Heads and Ford Racing's M-9926-3V 62 mm Throttle Body
- Light-weight composite construction (same material as OE intake manifold)
- Less heat soak than aluminum intakes
- High-flow runners and open plenum design, fits under factory Mustang hood
- MAP sensor mounting boss for speed-density applications
- Includes intake manifold gaskets
- Calibration required! Calibration not included!
- Does not fit with Ford Racing strut tower braces

NOTE: Throttle body not included.

The M-9424-463V 4.6L 3-valve Performance Intake Manifold normally shows flexing of the manifold body during normal operation with some fuel rail movement. Our testing shows this flexing will not lead to premature failure of the manifold, injector or injector gasket. Ford Racing will replace any M-9424-463V 4.6L 3-Valve Performance Intake Manifold that fails due to defects in workmanship or materials within three (3) years of the date of purchase. Proof of purchase will be required for submission of warranty claim. To the extent allowed by law, this warranty does not cover towing, shipping, removal, installation, rental vehicles, storage, loss of time, commercial loss, loss of use of vehicle, inconvenience, incidental or consequential damages, or other economic loss. Contact the Ford Performance Call Center at (800) 367-3788 for details. Damage as a result of improper tuning is not covered.



EFI UPPER-TO-LOWER INTAKE MANIFOLD GASKET



M-9486-A50*

GT-40 upper-to-lower gasket. Fits M-9424-Z51 or M-9424-Z51P Intake Manifold.



4.6L PERFORMANCE IMPROVEMENT (PI) INTAKE MANIFOLD



M-9424-P46*

- Current production plastic intake manifold used on 2001-2004 4.6L SOHC 2V Mustang GT
- Less expensive alternative to aftermarket performance intake manifolds for PI head swaps
- Manifold fits 1999-2004 Power Improvement head ports
- Great for custom engine builds
- Can be used on 1996-1998 engines with PI heads
- Additional modifications and parts required

BOSS 302R INTAKE MANIFOLD

M-9424-M50BR*

- Original equipment on Mustang BOSS 302, 302S and 302R Race Cars
- Fits 2011-2012 Mustang GT 5.0L engine
- Made from light-weight composite material
- Short runners for optimum flow at high rpms
- Calibration required
- Includes unique Ford Racing intake badging
- Boss 302 Intake Manifold Install Kit M-9444-M50B available



Ford Service Parts required to install

BOSS 302 intake on base 5.0L

Mustang GT engine. (See your local Ford Dealer for parts)

CR3Z-9G297-A, Hose (1 pc.)

CR3Z-9G290-B, Bracket (1 pc.)

CR3Z-9J280-A, Fuel Lines (1 pc.)

W506974-S437, Screw M6x16mm (1 pc.)

CR3Z-9B659-B, Air Inlet Tube (1 pc.)

BOSS 302 INTAKE MANIFOLD INSTALL KIT

M-9444-M50B

- This kit includes the necessary production Mustang BOSS 302 hardware to complete the installation of M-9424-M50BR intake manifold on a Mustang GT 5.0L Ti-VCT engine
- Aftermarket calibration required to complete installation
- Kit Includes:
 - Fuel vapor hose
 - Fuel vapor fuse bracket and fasteners
 - Fuel line
 - Air inlet tube assembly – throttle body to airbox



EFI HEAT SPACER



M-9486-A51* Stock 5.0L manifold – .5"

M-9486-A52* Cobra intake manifold – .5"

M-9486-A53* Cobra intake manifold – 1" thick for clearance with M-6582-LE302C Valve Covers

New and improved quality, made in the USA. CNC machined from Westinghouse® Type C phenolic material. Fits between the upper and lower manifolds to help dissipate heat and significantly increase performance. Includes longer bolts.



ENGINE COMPONENTS

ENGINE SWAP OIL PAN KITS

PART NUMBER	SUMP	CAPACITY	FINISH	APPLICATION/DESCRIPTION
M-6675-A50	Rear	5-quart	Unplated	5.0L oil pan kit. Includes rear sump oil pan, dipstick, dipstick tube, pickup and main cap stud. Ideal for engine swaps. Fits 1979-1995 Mustangs and Fox chassis vehicles. Fits 1983-2001 production blocks and M-6010-A50/B50 Blocks. NOTE: Does not have provision for low oil sender. Fasteners not included.
M-6675-A58	Rear	5-quart	Unplated	351W/5.8L oil pan kit. Includes rear sump oil pan, dipstick, dipstick tube, pickup and main cap stud. Ideal for engine swaps. Fits 1979-1995 Mustangs and Fox chassis vehicles. Fits 1969-1997 production blocks and M-6010-A351/A58 Blocks. Same pan as used on 351 crate engines. Fasteners not included.
M-6675-A460	Rear	6-quart	Unplated	429/460/7.5L oil pan kit. Includes rear sump oil pan, dipstick, dipstick tube, pickup, and main cap stud. Ideal for engine swaps. Fits 1979-1995 Mustangs and Fox chassis vehicles. Fits 1969-1997 production blocks. Rear sump oil pump required, not included. Fasteners not included. NOTE: Some block/timing cover applications may require 5/16" to 1/4" conversion studs.



M-6675-A50



M-6675-A58



M-6675-A460

SERPENTINE 1979-1993 FOX CONVERSION KIT

M-6670-A50*

This kit is intended for customers that purchase one of our 5.0L long block crate engines and plan to install it in a 1979-1993 Mustang or other Fox chassis vehicle. This kit includes: dual sump oil pan, oil pump pickup tube, dipstick, dipstick tube, crankshaft damper, timing pointer, M-8501-C50 reverse rotation serpentine Water Pump and M-6059-D351 Timing Chain Cover.

NOTE: Does not have provision for low oil sender. Fasteners not included.



2012 5.0L BOSS 302R ROAD RACE OIL PAN

M-6675-M50BR*

- Fits Mustang BOSS 302R 5.0L engine
- Internal baffle system designed for road race applications
- 12-quart capacity
- Includes oil pick-up tube
- Includes oil pan reinforcing rails
- Black powdercoated
- Pipe plug fitting for oil temperature gauge



5.0L 4V BOSS 302 OIL PAN

M-6675-M50B*

- Oil pan used on production 2012 BOSS 302 Mustang
- Improved baffling for reduced oil slosh under hard braking and cornering
- Fits 2011-2012 Mustang GT Ti-VCT engine



OIL PANS

Designed by Ford Racing for use on its crate engines, these oil pans are constructed to deliver power and durability.

Features include:

- Full length scraper to direct oil away from the crankshaft
- Full length bolt in louvered windage tray to control oil
- Baffling and trap doors in the sump to keep the pickup submerged during performance driving
- 7-quart capacity

- Semi-gloss black powdercoat finish
- Laser cut and TIG welded in precision fixtures for consistent OEM level fit
- See fordracingparts.com for oil pan drawings



REAR SUMP

302 DEEP REAR SUMP OIL PAN

M-6675-DRS302*

- Rear sump depth is 9.1"; rear sump width is 8.7"; front sump depth is 6.7"
- Includes 3/8" NPT bung to mount an oil temperature sending unit
- Includes 3/8" NPT access hole to adjust oil pump spring pressure
- Fits standard 302 Windsor block oil pan bolt pattern
- Designed to clear 4-bolt main cap Ford Racing BOSS 302 blocks
- Used on FRPP M-6007-Z363RT and M-6007-Z331P Crate Engines
- Use Pickup M-6622-DRS302. See page 120

351 DEEP REAR SUMP OIL PAN

M-6675-DRS351*

- Rear sump depth is 9.1"; - Rear sump width is 8.7"; - Front sump depth is 6.7"
- Fits standard 351 Windsor block oil pan bolt pattern
- Includes 3/8" NPT bung to mount an oil temperature sending unit
- Includes 3/8" NPT access hole to adjust oil pump spring pressure
- Used on FRPP M-6007-Z427FRT and M-6007-Z427ART Crate Engines
- Use Pickup M-6622-DRS351. See page 120

460 DEEP REAR SUMP OIL PAN

M-6675-DRS460*

- Designed and built to deliver power and durability
- Used on FRPP M-6007-521FT and M-6007-521RT Crate Engines
- Use Pickup M-6622-DRS460. See page 120



(M-6675-DRS351 shown)

FRONT SUMP

302 FRONT T-SUMP RACING OIL PAN

M-6675-FT302

- Sump depth is 7.5"; T-sump width is 12.1"; T-sump length from the front of the pan is 10.6"
- Includes 3/8" NPT bung to mount an oil temperature sending unit
- Includes 3/8" NPT access hole to adjust oil pump spring pressure
- Fits standard 302 Windsor block oil pan bolt pattern
- Designed to clear 4-bolt main cap Ford Racing BOSS 302 blocks
- Used on FRPP M-6007-Z363FT Crate Engine
- Use Pickup M-6622-FT302. See page 120

351 FRONT T-SUMP RACING OIL PAN

M-6675-FT351*

- Sump depth is 8.1"; T-sump width is 12.15"; T-sump length from the front of the pan is 10.4"
- Includes 3/8" NPT bung to mount an oil temperature sending unit
- Includes 3/8" NPT access hole to adjust oil pump spring pressure
- Fits standard 351 Windsor block oil pan bolt pattern
- Designed to clear 4-bolt main cap Ford Racing BOSS 351 blocks
- Used on FRPP M-6007-Z427FFT Crate Engine
- Use Pickup M-6622-FT351. See page 120

460 FRONT SUMP OIL PAN

M-6675-FT460*

- For passenger cars equipped with front sump pans
- Used on FRPP M-6007-521FT Crate Engine



(M-6675-FT351 shown)

ENGINE COMPONENTS

HIGH-VOLUME OIL PUMP

M-6600-D46

- Original equipment on 4.6L 4V
- Increases flow on 4.6L 2V engines



OIL PUMPS

M-6600-M50 289/302

Standard volume

Requires bolt-on pickup (not included)

M-6600-D2 289/302

High volume

Requires bolt-on pickup (not included)

M-6600-B3 351W

High volume

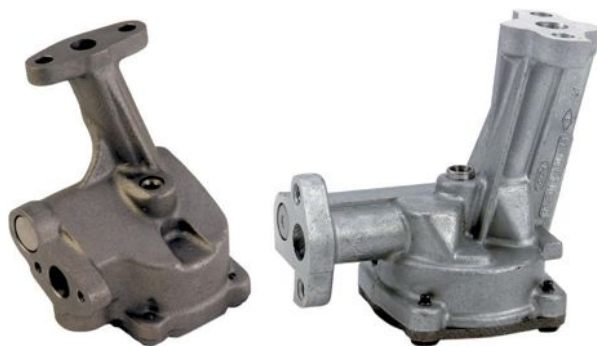
Requires bolt-on pickup (not included)

M-6600-A460 429/460

Wedge high volume

Fits rear sump Ford truck oil pan. Bolt-on style pickup (not included). Does not fit 429 Cobra Jet

NOTE: High-volume pumps may require minor modification of oil pan.



289/302 Oil Pump

OIL PUMP DRIVESHAFTS

M-6605-B302 289-302 EFI and non-EFI

M-6605-A351 351C

M-6605-A341 351W/All 351 Ford Racing ①

M-6605-A429 429/429 BOSS/460

Heavy duty. Chrome moly steel. Centerless ground.

NOTE: ① Will not fit EEC-IV-equipped engines.



4.6L HIGH-PRESSURE OIL PUMP AND PICKUP

M-6600-E46

- Fits 2005-2010 Mustang 4.6L and 2007-2012 Shelby GT500 5.4L
- Stock replacement for 2007-2012 Shelby GT500 5.4L
- Highest volume and pressure production pump available for modular engines
- Recommended for applications requiring higher volume and pressure
- Pump can be used with 3V and 4V pickup tubes



BOSS 302 OIL PICKUP TUBE

M-6622-BOSS302*

- For use with M-6010-BOSS302 Block
- Clears 4-bolt main caps
- Fits stock Fox body Mustang pans
- Fits F1SE pans used on 1991-1995 Mustangs



OIL PICKUP TUBES

- High flow funnel style pickup same as used on Mustang Cobra 4.6L 4V engines
- Thin wire screen delivers more than twice the flow area compared to many aftermarket pickup screens
- Thin wall 3/4" diameter tubing reduces vibration fatigue
- Quality built in precision fixtures for a consistent OEM level fit



Oil Pickup Part Number Oil Pan Part Number

M-6622-DRS302 fits pan M-6675-DRS302

M-6622-FT302 fits pan M-6675-FT302

M-6622-DRS351 fits pan M-6675-DRS351

M-6622-FT351 fits pan M-6675-FT351

M-6622-DRS351A fits pan M-6675-DRS351

M-6622-DRS460 fits pan M-6675-DRS460

M-6622-FT460 fits pan M-6675-FT460



M-6622-FT302 shown

FORD RACING HIGH-PERFORMANCE OIL FILTERS

SOLD AS CASE OF 12

- Synthetic-Polymer/Cellulose-Fiber blend media
- Heavy-gauge base and canister for higher burst strength and impulse fatigue resistance
- High-quality silicone anti-drain back valve
- Non-stick sealing gasket for ease of installation and removal

- Long life with standard and synthetic motor oils
- Up to 50% more filtering capacity than standard filters
- Improved filtering efficiency
- This technology is only available through Ford Racing Performance Parts

MOTORCRAFT PART NUMBER	PERFORMANCE FILTER	PART NUMBER
FL1A	CM-6731-FL1A (Each)	M-6731-FL1A (Case of 12)
FL820S	CM-6731-FL820 (Each)	M-6731-FL820 (Case of 12)



90 DEGREE OIL FILTER ADAPTOR

M-6880-A50

- Screws into block and rotates filter toward front of engine to provide clearance for engine swaps and chassis modifications
- Fits most Ford push rod engines that use CM-6731-FL1A or Motorcraft® FL1A oil filter (filter sold separately)



90 DEGREE OIL FILTER ADAPTOR KIT

M-6880-M22

- Adaptor kit screws on in place of oil filter to provide clearance for engine swaps and chassis modifications
- Fits most Ford Modular engines and V6 that use FL-820 or FL-500 oil filters
- Uses Ford Racing CM-6371-FL1A or Motorcraft FL1A oil filter (sold separately)



NEW

2005-2009 4.6L WATER INLET/OIL FILTER ADAPTOR

M-6881-A5

- Fits 2005-2009 4.6L aluminum block engines and Ford Racing Aluminator engines
- Requires 2" lower hose
- Significant improvement in engine cooling by reducing the pressure drop to the water pump
- 7/8"-14 AN Straight thread O-ring fittings for oil inlet/outlet
- 1/4"-18 NPFS fittings for oil temp./pressure
- Requires remote oil filter lines, fittings and filter adaptor for installation (not included)



1996-2004 4.6L/5.4L WATER INLET ADAPTOR REMOTE FILTER ADAPTOR

M-6881-C*

- Fits 1996-2004 4.6L/5.4L cast iron and aluminum block engines
- Requires 2" lower hose
- Significant improvement in engine cooling by reducing the pressure drop to the water pump
- 7/8"-14 AN straight thread O-ring fittings for oil inlet/outlet
- 1/4"-18 NPFS fittings for oil temp./pressure
- Requires remote oil filter lines, fittings and filter adaptor for installation (not included)



MUSTANG BOSS 302 ENGINE OIL COOLER

M-6642-MB

- Original equipment on 2012 Mustang BOSS 302
- Fits 2011-2012 Mustang GT with 5.0L 4V Ti-VCT engine
- Water-to-oil type cooler
- Kit includes 2012 BOSS 302 radiator hose with integral oil cooler fitting



NEW

2011 5.0L 4V REMOTE OIL FILTER ADAPTOR

M-6881-M50

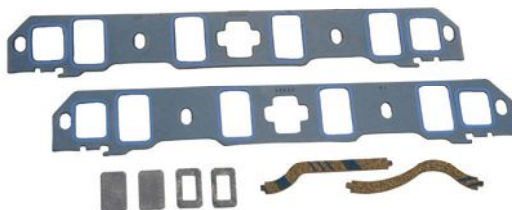
- Fits 5.0L 4V Ti-VCT aluminum block engines
- Made from billet aluminum
- Allows installation of remote mounted oil filter and oil cooler
- Designed for -10 AN with O-ring port fittings
- Includes adaptor to block O-rings and mounting bolts
- Can be used with M-6007-M50 Crate Engine when stock oil filter requires relocation



GASKET SETS

PART NUMBER	MANIFOLD APPLICATION	CYLINDER HEAD APPLICATION	PRINT-O-SEAL®	GASKET THICKNESS ± .004
M-9439-A50*	All	M-6049-L302/L303/X302/X303/X304/X305/Y302/Y303/X306/X307/Z304/Z304A/Z304D/Z304DA with or without EGR ①②③	Yes	0.070"
M-9439-G460*	M-9424-C460	M-6049-C460/D460	No	0.060"
M-9439-H460*	M-9424-C460	M-6049-C460/D460	No	0.125"

NOTES: ① Synthetic rubber Print-O-Seal® (Fel-Pro Inc.®) bead around ports provides improved sealing.
 ② Redesigned for improved port location and allows mild porting.
 ③ Non-stick coating, steel reinforced.



M-9439-A50 shown

EGR SPACER-TO-INTAKE MANIFOLD GASKET

M-9464-A50*

This gasket is manufactured with a larger 70 mm bore diameter to accommodate the Ford Racing 65 mm throttle body and EGR spacer. Fits between EGR spacer and intake manifold. If you have ever tried to modify the production gasket to fit a larger spacer, you will truly appreciate these pieces. Also use with M-9927-A50 Adapter.



GRAPHITE INTAKE GASKET FOR STD PORT 302/351W

M-9439-G50*

- Graphite intake gasket for standard 302 and 351W intake port openings
- Fits all production heads with rectangle water openings and GT40 cast iron heads



CRANKSHAFT REAR MAIN OIL SEALS

M-6701-A460* 429/460 two-piece, split design
 High-temperature-resistant Viton® material.
 Viton® is a registered trademark of DuPont®
 Performance Elastomers



302 CRANKSHAFT REAR MAIN OIL SEAL

M-6701-B302*

- 302
- Direct replacement one-piece crankshaft rear main seal for 1983-2001 5.0L/302 blocks
- Also fits Ford Racing Blocks M-6010-R302, M-6010-A50, M-6010-B50 and M-6010-BOSS302

M-6701-B351*

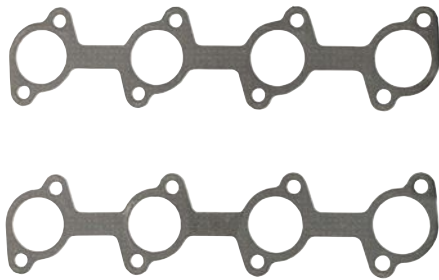
351W from 7/11/83, Ford Racing one-piece seal. Use on Ford Racing 351W blocks manufactured after 6/1/1993



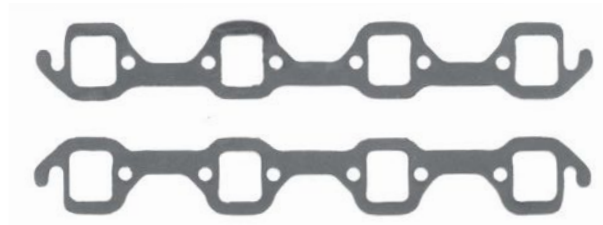
EXHAUST MANIFOLD GASKETS – RACE QUALITY (SOLD IN PAIRS)



PART NUMBER	CYLINDER HEAD APPLICATION
M-9448-A351*	"Sportsman" Head M-6049-N351/R351
M-9448-B302*	Production 289/302/351W
M-9448-A462*	4.6L SOHC
M-9448-A464*	4.6L DOHC
M-9448-A463V*	4.6L/5.4L 3V
M-9448-C54*	5.4L Cobra



M-9448-A462 shown



M-9448-B302 shown

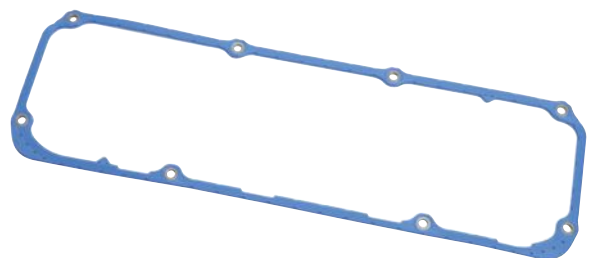
VALVE ROCKER ARM COVER GASKETS (SOLD IN PAIRS)



PART NUMBER	APPLICATION	DESCRIPTION/NOTES
M-6584-A50*	289/302/351W M-6049-X306/X307	Production-type design featuring metal gasket with bonded O-ring. Part of high-performance 5.0L Gasket Kit M-6051-A50. Designed for valve covers without a gasket lip (except M-6049-Z304DA).
M-6584-A460*	429/460 Wedge	Competition-quality gasket set. Cork-rubber material is laminated to a steel core to produce superior strength and resistance to distortion and creep. Recommended for use with die-cast Rocker Arm Cover M-6582-C460 or M-6582-R460.
M-6584-A452*	351C/351M/400 and M-6049-C3L/SCI/ C3H/D3 Heads	Precision edge-molded silicone rubber sealing beads on a rigid carrier to resist high heat and high vacuum. Built-in torque limiters prevent over-compression and gasket splitting. Great for on-again/off-again applications.



M-6584-A50 shown



M-6584-A452 shown

ENGINE COMPONENTS

CYLINDER HEAD GASKETS

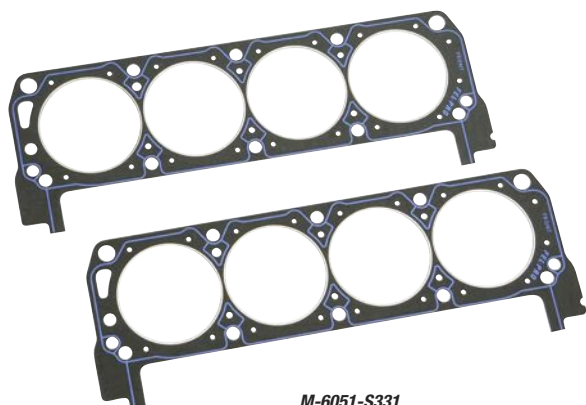
(SOLD IN PAIRS) ①



PART NUMBER	CYLINDER BORE APPLICATION	BORE DIAMETER	GASKET DIAMETER	COMPRESSED THICKNESS	COMPRESSED VOLUME	DESCRIPTION
M-6051-A302*	289/302/351W Production-Type Cast Iron and Aluminum Heads	4.00"	4.100"	0.042"	9.1cc	4.00" standard bore "competition" gasket for cast iron or aluminum cylinder heads on 302 and 351W production blocks. Features solid metallic core with wire-encased combustion chamber seal for applications.
M-6051-B51*	302 Production	4.00"	4.100"	0.040"	8.8cc	4.00" standard bore expanded graphite gasket for high-performance applications. Part of M-6051-A50 5.0L Gasket Kit described on page 125. Requires torque-to-yield cylinder head bolts (available from Ford and Lincoln dealers).
M-6051-S331*	302/351	4.00"	4.100"	0.040"	8.8cc	Pre-flattened steel wire combustion ring. Exhaust side is straight to accommodate Ford Racing block water passages.
M-6051-CP331*	302/351	4.00"	4.100"	0.040"	8.8cc	Pre-flattened copper wire combustion ring. Exhaust side is straight to accommodate Ford Racing block water passages.
M-6051-B341*	Big Bore 351 Ford Racing Blocks	4.125"	4.160"	0.040"	9.1cc	4.125" overbore "competition" gasket. Bore flange valve pockets have been added to unshroud intake and exhaust valves. Set includes unique right- and left-hand gaskets!
M-6051-R351*	302/351 Ford Racing	Up to 4.125"	4.160"	0.040"	9.0cc	For use on M-6010-R351/R352/R451/R452/BOSS302/B302BB/BOSS35195/BOSS35192/BOSS351BB.
M-6051-A427*	All "FE" V8	Up to 4.230"	4.400"	0.040"	9.7cc	Race-quality gasket with steel wire combustion ring and stainless steel armor.
M-6051-A441*	429/460 Wedge	4.360" Standard	4.500"	0.0425"	11.2cc	Race-quality "competition" gasket. Features solid metal core and wire-encased combustion chamber seal.
M-6051-B460*	429/460 Wedge	Up to 4.625"	4.670"	0.038"	10.7cc	"Competition" gasket with round water openings to match M-6010-A460 Engine Blocks.

NOTES:

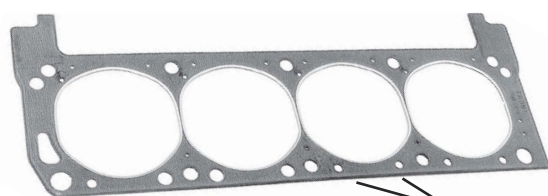
① Several different water hole patterns have been used on 302 and 351W Ford Racing cylinder blocks and heads since their introduction. Engine assemblers should lay the head gasket on the block and the cylinder head (with front of gasket toward the front of the engine) to make sure there is a path for coolant flow from the block into the head. In some cases, holes may have to be drilled in the block or head, or punched in the gasket.



M-6051-S331



M-6051-B460



M-6051-B341

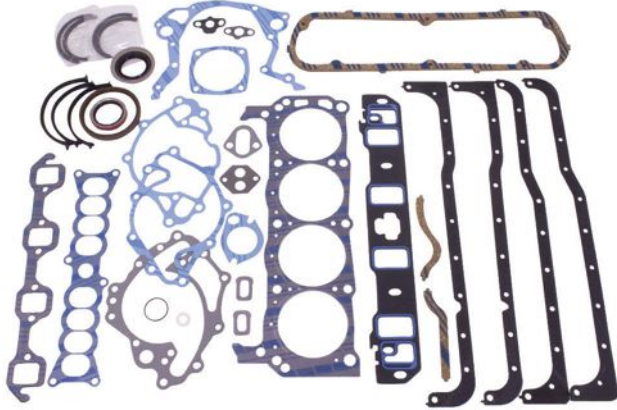
Coolant Water Holes

HIGH-PERFORMANCE ENGINE GASKET SETS

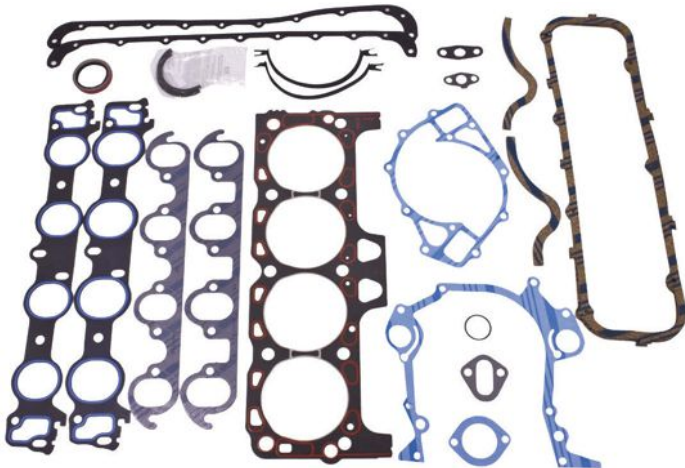
Ford Racing offers two complete overhaul gasket sets. Manufactured to Ford's specs by Fel-Pro®. The kits include race-quality head gaskets and Print-O-Seal® intakes, oil pan and valve cover gaskets. They also include front and rear oil seals plus most gaskets for a complete rebuild. These high-performance gasket sets are a must when rebuilding.

M-6003-A50* Fits 289/302/351W (1963-2001)

NOTE: Does not include one-piece rear main for 351W, use M-6701-B351.



M-6003-A429* Fits 429/460 (1968-1987)



HIGH-PERFORMANCE GASKET KIT FOR 5.0L ENGINE

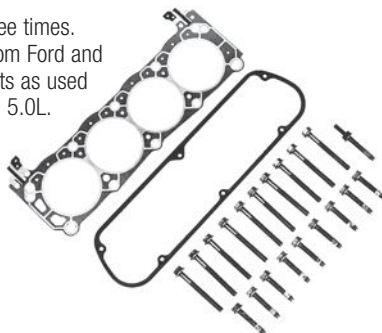


M-6051-A50* ①②

Recommended for high-performance applications and with Ford Racing supercharger kits. This gasket kit really works and will eliminate sealing issues associated with 5.0L engines for most applications. The kit includes: 2 expanded graphite Head Gaskets (M-6051-B51), 2 high-tech metal with bonded O-ring Rocker Cover Gaskets (M-6584-A50) and 1 engine set of torque-to-yield cylinder head bolts.

NOTES:

- ① The bolts can be used three times. New bolts are available from Ford and Lincoln dealers. Same parts as used on production 1993-2001 5.0L.
- ② Do not use kit with "lipped" valve covers.



ONE-PIECE RUBBER OIL PAN GASKETS



M-6710-A50* 5.0L

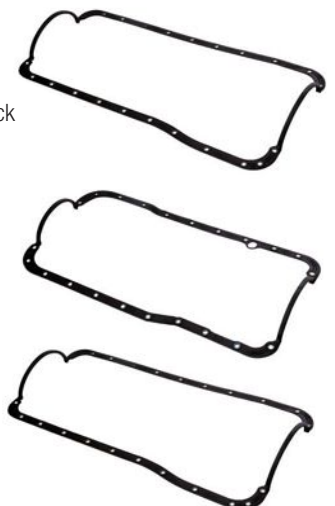
Designed for use with smooth-rail oil pans. One-piece design, rubber bonded on steel reinforcement. Fits 1983-2001 block/oil pans with dipstick in the block.

M-6710-A351* 351/5.8L

Designed for use with smooth-rail oil pans. One-piece design, rubber bonded on steel reinforcement.

M-6710-A460* 429/460

Designed for use with smooth-rail oil pans. One-piece design, rubber bonded on steel reinforcement.



ENGINE COMPONENTS

MAXIMUM-FLOW 429/460 ALUMINUM WATER PUMP

M-8501-C460*

- Standard rotation water pump, fits most 1970 and newer V-belt engines and accepts stock brackets and pulleys
- Features premium-quality aluminum casting, HD 3/4" ball/roller bearing, CNC-machined curved vane impeller and billet steel hub
- Driver-side water inlet
- Provides maximum flow, maximum pressure and equal distribution to both sides of the block



MAXIMUM-FLOW 302/351W ALUMINUM WATER PUMP

M-8501-F351*

- Standard rotation water pump for 1970-1978 5.0L and 1970-1987 351W engines
- Features premium-quality aluminum casting, HD 3/4" ball/roller bearing, CNC-machined curved vane impeller and billet steel hub
- Driver-side water inlet
- Provides maximum flow, maximum pressure and equal distribution to both sides of the block



STOCK FLOW REPLACEMENT WATER PUMPS

M-8501-C50*

- Reverse rotation serpentine belt aluminum water pump for 1986-1993 5.0L/5.8L engines
- Standard shaft and bearing with stamped impeller
- Provides good flow and pressure for engines that operate below 6000 rpm
- Can be used on 1979-1985 with minor modifications



SHORT SERPENTINE BELT WATER PUMP KIT

M-8501-A50*

- Engine overall length from front of water pump to back of block is 27"
- Serpentine belt, reverse rotation, approx. 1.75" shorter than old style pumps
- Kit includes special timing chain cover with short water pump and gaskets. Driver-side radiator hose inlet
- Meets OEM specifications for water flow
- A V8 water pump for a V8 engine. Must use electric fuel pump



STOCK FLOW REPLACEMENT WATER PUMPS

M-8501-G351*

- Standard rotation V-belt aluminum water pump for 5.0L/5.8L engines
- Standard shaft and bearing with stamped impeller
- Provides good flow and pressure for engines that operate below 6000 rpm
- Can be used with M-6059-D351 Timing Chain Cover or stock V-belt timing cover



SHORT SERPENTINE BELT WATER PUMP

M-8501-D50*

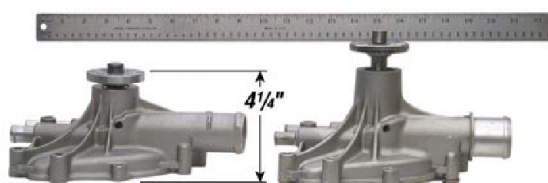
- Same water pump used in short serpentine Water Pump Kit M-8501-A50
- Direct replacement for 1994-1995 Mustang 5.0L/302
- Can be used with the Explorer timing chain cover
- A new water pump for the price of a remanufactured pump



STREET ROD SHORT V-BELT WATER PUMP

M-8501-E351S*

- Driver's-side radiator hose inlet
- Provides approx. 1.5" of space at the front of the engine allowing for more radiator to fan clearance without a recessed fire wall
- Must use with long style (3.950") 4-bolt damper. Can also use M-6316-A50 or M-6316-C351 with appropriate spacer. See pages 130-132
- .750" pulley pilot shaft
- Fits M-6059-D351 Timing Chain Cover



REPLACEMENT FRONT TIMING CHAIN COVER

M-6059-D351*

- High-quality diecast aluminum replacement with fuel pump boss
- Fits 289/302/351W
- For standard rotation pump or M-8501-C50 Reverse Rotation Pump
- Has dipstick tube hole
- Production replacement cover E7PZ-6019-A



LIGHTNING ELECTRIC INTERCOOLER PUMP

M-8501-L54*

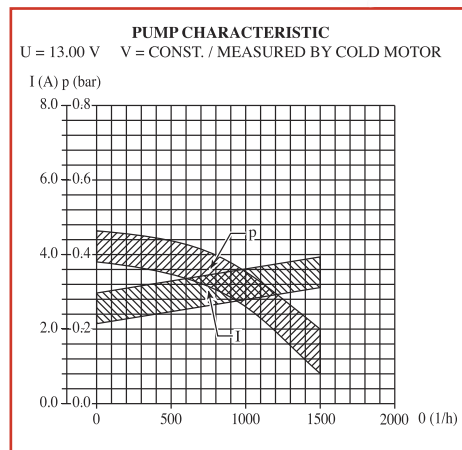
- Production 2003 F-150 Lightning intercooler coolant circulation pump
- Inlet and outlet hose connection diameter is 19 mm/3/4"
- Can be used in many coolant pumping applications



MUSTANG SVT ELECTRIC INTERCOOLER PUMP

M-8501-MSVT*

- Production Shelby GT500 intercooler coolant circulation pump
- Used to circulate water through supercharger intercooler and heat exchanger
- Can be used in many coolant pumping applications
- Includes rubber isolated mounting bracket



2005-2010 MUSTANG GT DE-GAS BOTTLE

M-8080-A*

- Fits 2005-2010 Mustang GT
- Coolant expansion/fill tank features a billet radiator-style neck
- Comes with the Ford Racing 16-lb Pressure Cap M-8100-A
- Same part as used on the Mustang FR500S race car



2005-2012 MUSTANG GT ALUMINUM RADIATOR

M-8005-MGT*

- Service replacement part for the FR500S and BOSS 302S race car
- Fits 2005-2012 Mustang GT
- Uses OEM fan and mounting points for bolt-in installation
- All-aluminum construction
- Increased cooling over production radiator
- Excellent upgrade for open track or road race S197 Mustang



2012 MUSTANG BOSS 302 RADIATOR

M-8005-MBR*

- Original equipment on 2012 Mustang BOSS 302
- Improved cooling over stock Mustang GT 5.0L 4V Ti-VCT radiator
- Fits 2011-2012 Mustang GT with manual transmission



FORD GT COOLANT OVERFLOW CAP

M-8006-GT*

- Ford GT coolant overflow cap with billet cover
- "GT" logo machined in cap surface
- Fits both coolant overflow and intercooler reservoir



1986-1993 MUSTANG HIGH-TEMPERATURE BLUE SILICONE RADIATOR HOSE KIT

M-6052-B* Fits 1986-1993 5.0L Mustang

- Six high-quality molded hoses for upper and lower radiator
- Thermostat bypass, three heater core hoses for A/C-equipped Mustangs
- Original equipment on police package Mustangs
- Fits better than the other kits with unmolded hoses
- Includes 12 special hose clamps with inner band for silicone hoses



ENGINE COMPONENTS

1985-1993 MUSTANG A/C ELIMINATOR KIT



M-8511-A50*

- Fits 1985-1993 Mustang
- Bracket conversion kit to remove air conditioning compressor for racing applications
- Two-piece bracket kit moves the power steering pump up to where the A/C compressor was
- Hardware included
- Requires new belt (not included)



OFF-ROAD IDLER BRACKET (1979-1993 MUSTANG)



M-8604-A50*

Competition air pump idler bracket for off-road use only, where air pump is not necessary. This idler is a direct bolt-on replacement for stock air pumps and uses a standard serpentine belt. Fits 302/351 Mustang applications when catalytic converters are not used. Uses stock belt.



1991-2010 A/C ELIMINATOR KITS



M-19216-A50*

Fits 1994-1995 Mustang and 1991-1993 Thunderbird with 5.0L engine

M-19216-D46*

Fits 1996-2010 Mustang with 4.6L engine SOHC/DOHC and 3V

- Cast aluminum idler pulley bracket replaces the air conditioning compressor
- Removes weight from the front of car for better weight transfer when racing
- Bolts included
- Uses stock belt



2007-2012 MUSTANG SVT AND COBRA JET A/C DELETE KIT



M-19216-CJ*

- Service replacement for the Mustang FR500CJ race car
- Can also be used to delete the A/C compressor on 2007-2012 5.4L Shelby GT500, shorter than stock belt required
- Designed to work with Crankshaft Damper M-6316-CJ and 10-rib factory drive belt
- Includes fasteners



1985-1993 MUSTANG 351W ENGINE SWAP ACCESSORY DRIVE KITS

M-8511-A351* Power steering only

M-8511-B351* Power steering and A/C

- Fits 1985-1993 Mustang 351W
- These brackets allow use of your 5.0L front-end accessory drive components when swapping to a 351W (5.8L) engine. Simply replace production bracket with the new bracket using all existing bolts and hardware. Serpentine belt selection will vary, depending on whether or not you choose to use optional underdrive pulleys.



M-8511-B351



M-8511-A351

COBRA JET SOLID MOTOR MOUNT KIT



M-6038-A*

- Service replacement for the Mustang FR500CJ race car
- Modified Shelby GT500 engine support brackets
- Engine support brackets fit 2007-2010 5.4L Shelby GT500 block only
- Steel, chassis-side non-isolated mounts
- For drag racing applications only



1979-1995 460 FOX ENGINE SWAP MOUNTS



M-6038-A460*

- Use in 1979-1995 Mustang and other Fox-chassis cars to mount 429/460 engines
- Rubber-insulated mount kit is designed to work with M-6675-A460 Rear Sump Oil Pan Kit and custom headers
- Does not fit I-6 cylinder front crossmember



ALUMINATOR ACCESSORY DRIVE KITS

M-8600-A46SC*

- The easy way to dress our Aluminator short blocks or long blocks! Take the cost and guess work out of finding the correct accessories!
- Complete front end accessory drive to dress the supercharged Aluminator Long Block M-6007-A46SC
- Designed for use on M-6007-A46SC
- Includes alternator, power steering pump, A/C eliminator, all pulleys and fasteners and belts
- Crankshaft damper included on long block, NOT included in kit
- Derived from 2003-2004 Mustang Cobra



M-8600-A46NA*

- The easy way to dress our Aluminator short blocks or long blocks! Take the cost and guess work out of finding the correct accessories!
- Complete front end accessory drive to dress the naturally aspirated Aluminator Long Block M-6007-A46NA
- Designed for use on M-6007-A46NA, parts and routing derived from 2004 Mustang Mach 1
- Includes alternator, power steering pump, A/C eliminator, all pulleys and fasteners and belt
- Crankshaft damper included on long block, NOT included in kit
- Will work on some 1999-present 2-valve 4.6L applications if FEAD routing is same as 2004 Mustang Mach 1



MUSTANG GT 5.0L 4V ALTERNATOR KIT

M-8600-M50ALT*

- Fits M-6007-M50 5.0L 4V Ti-VCT Crate Engine
- Kit includes OEM Mustang GT alternator, tensioner, FEAD belt and mounting hardware



MUSTANG BOSS 302 ALTERNATOR KIT

M-8600-M50BALT*

This kit includes special high-performance components as used on the production 2012 Mustang BOSS 302 and is designed to operate at higher rpms.

This kit fits Mustang GT 5.0L Ti-VCT engine and features:

- High-performance BOSS Alternator with 1-way clutch to prevent belt hop-off during upshifts
- Higher tension belt tensioner
- Larger pulley to slow the armature speed, reduce drag and reduce parasitic hp loss
- Also fits M-6007-M50 5.0L 4V Ti-VCT, M-6007-A50NA/A50SC/M50B/M50BR Crate Engines
- Kit includes OEM Mustang BOSS 302 alternator, tensioner, idler pulley, belt and mounting hardware



BOSS 302R 5.0L POWER STEERING PUMP BRACKET

M-8511-M50BR*

- Bracket allows power steering pump to be mounted to 2011 5.0L Mustang engine
- Allows power steering pump from 2005-2010 Mustang GT to be used
- Power steering pump mounts in position of factory AC compressor



ENGINE COMPONENTS

SERPENTINE BELT HORSEPOWER PULLEY KIT – MUSTANG 5.0L M-8509-A50

Fits 1987-1993 Mustang 5.0L. Contains steel crankshaft, water pump and alternator pulleys, plus bolts and installation instructions. Reduces accessory drive rpm by water pump – 14% and alternator – 22%...and significantly improves performance! Pulleys are manufactured on state-of-the-art CNC machines and have an awesome blue finish over zinc plating. Pulleys use production serpentine belt.

WARNING: Engine cooling will be reduced.



1965-1969 MUSTANG BILLET SINGLE-GROOVE PULLEY SET

M-8509-CM*



- Fits 1965-1969 Mustang with 289/302/351W
- 3-bolt crank pulley
- Single-groove crank pulley
- Single-groove water pump pulley

1970-1978 MUSTANG BILLET SINGLE-GROOVE PULLEY SET

M-8509-DM*



- Fits 1970-1978 Mustang with 302/351W/351C
- 4-bolt crank pulley
- Single-groove crank pulley
- Single-groove water pump pulley

1970-1978 MUSTANG BILLET DUAL-GROOVE PULLEY SET

M-8509-EM*



- Fits 1970-1978 Mustang with 289/302/351W/351C
- 4-bolt crank pulley
- Dual-groove crank pulley
- Single-groove water pump pulley



CRANKSHAFT PULLEY SPACERS

Use these crank pulley spacers with Ford Racing M-6316-C351/A50/D302 Crank Dampers to achieve proper belt alignment on past model 5.0L and 5.8L Windsor engines.



PART NUMBER	ENGINE	YEAR	CRANK PULLEY BOLT PATTERN	SPACER THICKNESS
M-8510-A351*	351W	1979 and earlier	4	0.350"
M-8510-B351*	302 351W	1980 and later	4	0.950" 0.950"
M-8510-C351*	302 ① 351W ①	1980 and later All	4	0.875" 0.875"
M-8510-D351*		All	4	0.909"

NOTE: ① With 0.917" Ford Racing crank sprocket.

INSTALLATION NOTES

1979 and earlier 351W with 0.917" Ford Racing crank sprocket can use Spacer M-8510-A351 if 0.070" is machined from the rear of the damper hub. Early 3-bolt crank pulleys generally bolt directly to the damper (damper is drilled for 3- and 4-bolt patterns). However, sheave alignment should be checked and the pulley shimmed as necessary to correct any misalignment.



Crankshaft Pulley Spacer
M-8510-A351 shown

MUSTANG BOSS 302 FORGED CRANKSHAFT

M-6303-M50B*

- Finish-machined forged steel crankshaft as used in the production 2012 Mustang BOSS 302 engine
- 92.7 mm stroke
- Balance is compatible with the M-6100-M50BR BOSS 302 Connecting Rod and Piston Assembly
- Requires balancing if used with another rod and piston assembly



NEW

5.4L COBRA JET CRANKSHAFT

M-6303-C54SC4*

- Service replacement part for the 2008 and 2010 Mustang Cobra Jet race car
- Original equipment for 2007-2011 Shelby GT500
- Fits most 5.4L blocks
- Forged steel
- 106 mm stroke
- Standard journal diameters
- 8-bolt flywheel
- Damper bolt hole counter bored to strengthen crank snout for supercharged applications



NEW

STEEL 5.4L LIGHTNING CRANKSHAFT

M-6303-M54*

- Original equipment for the 1999-2004 Lightning SVT 5.4L
- Forged steel
- 106 mm stroke
- Standard journal diameters
- 8-bolt flywheel



MUSTANG SVT CRANKSHAFT DAMPER

M-6312-SVT*

- New factory replacement damper from the 2008-2012 Shelby GT500 5.4L 4V engine
- 10 lbs lighter than the 2007 factory Shelby GT500 crankshaft damper
- Must be installed on the 2007 Shelby GT500 when using Ford Racing Supercharger M-6066-SGT to qualify for warranty



BOSS 302R PISTON AND ROD SET

M-6100-M50BR*

- Piston and rod assembly used in Mustang BOSS 302R race car
- Forged aluminum pistons
- Includes 1 mm, 1 mm, 2.5 mm ring pack
- Sinter-forged connecting rods w/bushed fully floating pin for improved strength vs. production Mustang GT connecting rod
- Set of eight pistons and rods
- Balance is compatible with the M-6303-M50B BOSS 302 Forged Crankshaft
- Rebalance required when used with Mustang GT crankshaft



NEW

302 CRANK RODS AND PISTONS KIT

M-9000-302RAKIT*

- High-performance rotating assembly kit to build a 302 engine
- Designed to be used with the Ford Racing M-6010-BOSS302 Block Kit includes the following:
 - Eagle® forged steel crankshaft stock 3.00" stroke for internal balancing
 - Eagle® forged connecting rods, stock length I-beam w/pressed pin
 - Mahle® forged pistons and ring set
 - 4.00" bore Flat top w/1.60" compression height. Yields a 9.0:1 (nominal) compression ratio w/64cc combustion chamber
 - Pistons have generous valve reliefs that work with most inline valve heads
 - Ring set is 1.5 mm compression, 1.5 mm second, 3 mm oil ring

NEW

COBRA JET SFI CRANKSHAFT DAMPER

M-6316-CJ*

- SFI-certified crankshaft damper used on Mustang FR500CJ race car
- Increases supercharger rpm by 10% (calibration recommended)
- Production-length belt required when used with A/C Eliminator M-19216-CJ
- Requires a longer-than-production belt when used with A/C
- Billet aluminum construction for reduced weight
- Requires minor clearancing of timing chain cover for installation



5.0L CRANKSHAFT DAMPER KIT

M-6316-M50*

- New stock replacement damper for most 1981-1995 5.0L/302 engines
- 50 oz.-in. balance factor
- Kit includes E4TZ-A Damper and FITZ-A Timing Pointer
- 3.950" overall length



460/514 CRANKSHAFT DAMPER SPACER

M-6359-D460*

- Spacer with counterweight for 1979-1997 externally balanced 460 engines
- Used on Ford Racing crate engines
- Same as discontinued production service part D9TZ-6359-A



ENGINE COMPONENTS

CRANKSHAFT DAMPERS



M-6316-A460



M-6316-A50/M-6316-C351



M-6316-A50

PART NUMBER	ENGINE	BALANCE	NOTES	MASS (LBS)
M-6316-A50*	302 (1981-1993)	50 oz.-in. ①	Meets SFI 18-1 ②	12.1 ③
M-6316-C351*	302/351 HO	28.2 oz.-in. ①	Meets SFI 18-1 ②	11.5 ③
M-6316-D302*	302/351	Neutral	Meets SFI 18-1	10.6 ③
M-6316-A460*	429/460	Neutral	Meets SFI 18-1	10.1
M-6316-A521*	514/521 ④	Neutral	Meets SFI 18-1	10.1

NOTES: ① Damper has removable weight that allows use as a neutral balance unit for internally balanced crankshafts. 1994-2001 Mustang and Explorer require modification.

② Does not clear early timing chain cover with rear installed seal.

③ 3.000" overall length.

④ Tuned for use on 521 crate engine.

302/351 BILLET TIMING POINTERS

M-6023-B351*



- Billet aluminum, adjustable timing pointer for 302/351W engines
- It is designed for an 11 o'clock TDC location with considerable adjustment range for accurate positioning
- The pointer is contoured to fit with minimum clearance to the damper for reduced parallax effect when checking timing
- Ball milled "Ford Racing" logo
- Machined finish, clear anodized
- Includes fasteners
- Perfect for street rods



M-6023-C351*

- Billet aluminum, adjustable timing pointer for 302/351W engines
- It is designed for a 10 o'clock TDC location with considerable adjustment range for accurate positioning
- The pointer is contoured to fit with minimum clearance to the damper for reduced parallax effect when checking timing
- Ball milled "Ford Racing" logo
- Machine finished, clear anodized
- Includes fasteners
- Perfect for street rods



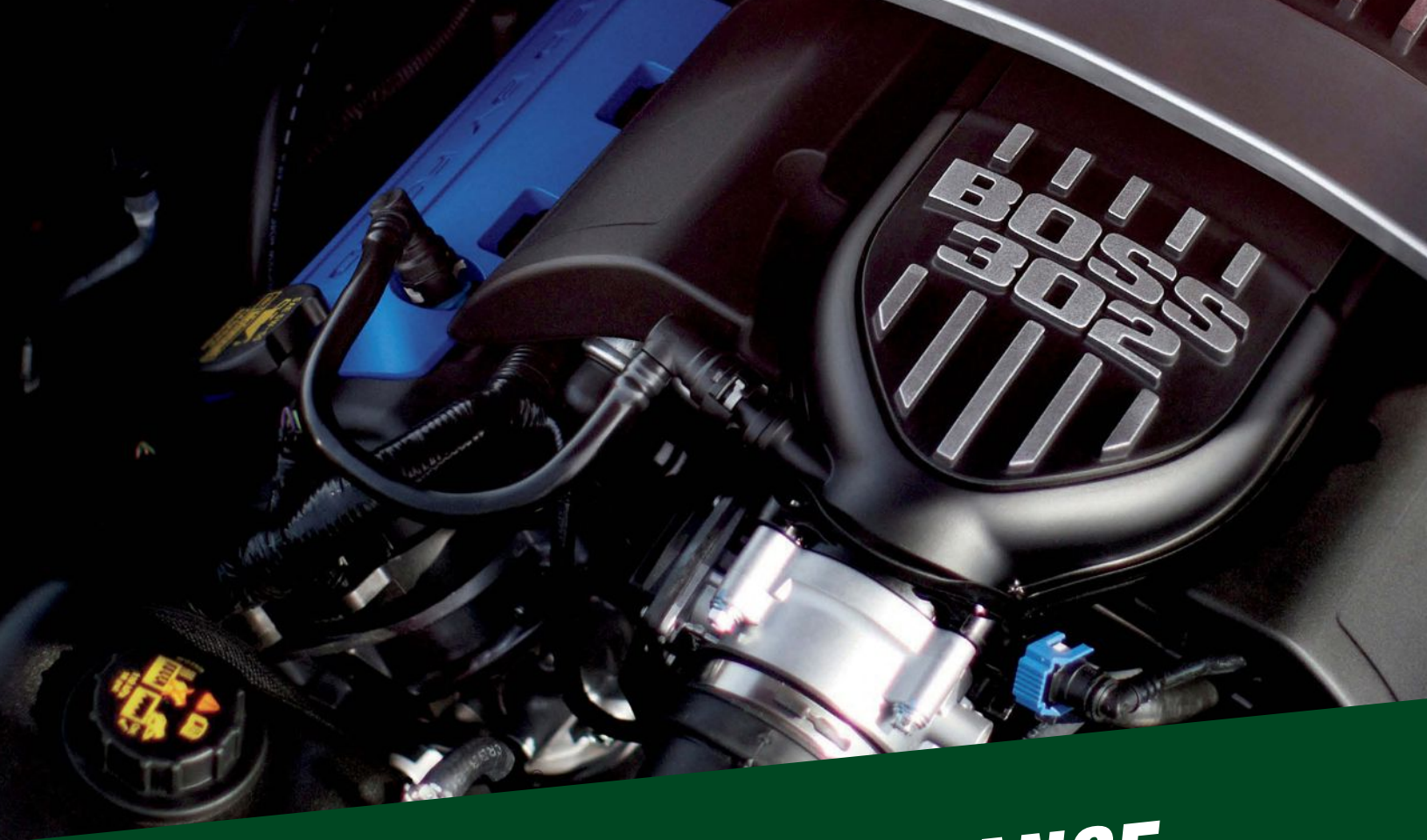
429/460 BILLET TIMING POINTER

M-6023-A460*



- Billet aluminum adjustable timing pointer for 429/460/514 engines
- The pointer is contoured to fit with minimum clearance to the damper for reduced parallax effect when checking timing
- Fits 5"-7" diameter crank dampers
- Offers up to 30 degrees of pointer adjustments
- Ball milled "Ford Racing" logo
- Machine finished, clear anodized
- Includes fasteners
- Perfect for street rods





ENGINE PERFORMANCE



ENGINE PERFORMANCE

2007-2009 MUSTANG SVT POWER UPGRADE PACKAGE



M-2007-FR1SVT

- Fits 2007-2009 Shelby GT500. **Will NOT fit 2010**
- Approximate increase of 40 peak hp over stock (540 hp @ 6250 rpm, 510 lb-ft @ 4500 rpm)
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2007-2009 Shelby GT500 Cold Air Kit with Performance Calibration M-9603-SVT07
 - 2007-2009 Shelby GT500 Muffler Set M-5230-SVT1
 - Performance Oil Filter CM-6731-FL820
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln Dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



2011-2012 MUSTANG GT POWER UPGRADE PACKAGE

M-FR1-MGTB

- Fits 2011-2012 Mustang GT
- For 2005-2009 Mustang GT, see M-FR1-MGT. For 2010 Mustang GT, see M-FR1-MGTA
- Approximate peak increase of 16 hp/7 lb-ft on 93 octane fuel
- Up to 60 lb-ft increase at 1500 rpm!
- Eliminates skip-shift on manual transmission applications
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2011-2012 Mustang GT High-flow K&N/Ford Racing Air Filter with Performance Calibration M-9603-MGTB
 - 2011-2012 Mustang GT/SVT Muffler Kit (50 State) M-5230-MGTCA1
 - Performance Oil Filter CM-6731-FL820
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
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2010 MUSTANG GT POWER UPGRADE PACKAGE

M-FR1-MGTA

- Fits 2010 Mustang GT with automatic or manual transmission. For 2005-2009 Mustang GT, see M-FR1-MGT. For 2011 Mustang GT, see M-FR1-MGTB
- Approximate increase of 10 peak hp/up to 8 lb-ft over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2010 Mustang GT High-flow K&N/Ford Racing Air Filter with Performance Calibration M-9603-MGT
 - 2010 Mustang GT/SVT FR500S Muffler Kit (50 State) M-5230-SA
 - Performance Oil Filter CM-6731-FL820
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
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2005-2009 MUSTANG GT POWER UPGRADE PACKAGE

M-FR1-MGT1

- Fits 2005-2009 Mustang GT with manual or automatic transmission. For 2010 Mustang GT, see M-FR1-MGTA. For 2011 Mustang GT, see M-FR1-MGTB
- Approximate increase of 20 peak hp over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2005-2009 Mustang GT Cold Air Kit with Performance Calibration M-9603-GTB
 - 2005-2009 Mustang GT Muffler Set M-5230-S
 - Performance Oil Filter CM-6731-FL820
- Utilizes production-quality components which mount in the stock location. The high-flow molded plastic bucket features a painted "Ford Racing" logo with unique clean-air tube which provides an enhanced intake sound
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
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ENGINE PERFORMANCE

2010 MUSTANG V6 POWER UPGRADE PACKAGE

M-FR1-MV6

- Fits 2010 Mustang V6 with automatic or manual transmission. For 2005-2009 Mustang V6, see M-2007-FR1V6
- Approximate increase of 15 peak hp/up to 17 lb-ft over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2010 Mustang V6 High-flow K&N Filter with Performance Calibration M-9603-MV6
 - True Dual Exhaust with X-pipe and FR500S Performance Mufflers M-5230-MV62
 - Performance Oil Filter CM-6731-FL820
 - Premium (91 octane or higher) fuel only
- Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after "purchase"
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- **Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only**
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



2005-2009 MUSTANG V6 POWER UPGRADE PACKAGE

M-2007-FR1V6

- Fits 2005-2009 V6 Mustang with manual or automatic transmission. For 2010 Mustang V6, see M-FR1-MV6
- Approximate increase of 15 peak hp/up to 17 lb-ft over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2005-2009 Mustang V6 Cold Air Kit with Performance Calibration M-9603-V605
 - 2005-2009 Mustang V6 Dual Exhaust Kit (50 State) M-5230-V6
 - Performance Oil Filter CM-6731-FL820
- Utilizes production-quality components which mount in the stock location. The high-flow molded plastic bucket features a painted "Ford Racing" logo with unique clean-air tube which provides an enhanced intake sound
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



FORD GT POWER UPGRADE PACKAGE

M-2005-GT

- Fits 2005-2006 Ford GT
- Approximately 100 hp increase
- Kit includes supercharger pulley and ProCal tool with official Ford Racing calibration
- Detailed instructions included



2010 MUSTANG GT FORD RACING PERFORMANCE CALIBRATION WITH HIGH-FLOW K&N AIR FILTER

M-9603-MGT

- Fits 2010 Mustang GT with automatic or manual transmission. For 2005-2009 Mustang GT, see M-9603-GTB. For 2011 Mustang GT, see M-9603-MGTB
- Approximate increase of 9 hp/up to 4 lb-ft over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2010 Mustang GT High-flow K&N/Ford Racing Air Filter M-9601-MGT
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



2011-2012 MUSTANG GT FORD RACING PERFORMANCE CALIBRATION WITH HIGH-FLOW K&N AIR FILTER

M-9603-MGTB

- Fits 2011-2012 Mustang GT
- For 2005-2009 Mustang GT, see M-9603-GTB. For 2010 Mustang GT, see M-9603-MGT
- Approximate peak increase of 16 hp/7 lb-ft on 93 octane fuel
- Up to 60 lb-ft increase at 1500 rpm!
- Eliminates skip-shift on manual transmission applications
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2010-2012 Mustang GT High-flow K&N/Ford Racing Air Filter M-9601-MGT
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



2007-2009 MUSTANG SVT 5.4L 4V COLD AIR TUNER KIT (CALIBRATION REQUIRED)

M-9603-M54SC*

- Fits 2007-2009 Shelby GT500
- Designed for those that want the Ford Racing intake for aftermarket performance tuning/calibration
- Kit comes with hardware only! Calibration not included! Kit intended for aftermarket calibrators
- Ford Racing cold air kits utilize production-quality components which mount in the stock location (reuse of mass air meter sensor required)
- Kit includes 113 mm mass air meter and **no** calibration
- For replacement air filter element, see M-9601-D
- **A performance calibration is necessary to prevent engine damage. Calibration not included!**



2007-2009 MUSTANG SVT 113 MM COLD AIR KIT

M-9603-SVT07

- Fits 2007-2009 Shelby GT500
- Approximate increase of 40 hp/30 lb-ft over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 113 mm mass air sensor housing
 - Disposable Air Filter Element M-9601-D
- Premium (91 octane or higher) fuel only
- **Due to multiple calibrations, online registration is required to receive ProCal tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Engine calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



ENGINE PERFORMANCE

2005-2009 MUSTANG GT COLD AIR KIT WITH PERFORMANCE CALIBRATION

M-9603-GTB

- Fits 2005-2009 Mustang GT with manual or automatic transmission. For 2010 Mustang GT, see M-9603-MGT
- Approximate increase of 20 hp over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - Disposable Air Filter Element M-9601-B
- Utilizes production-quality components which mount in the stock location. The high-flow molded plastic bucket features a painted "Ford Racing" logo with unique clean-air tube which provides an enhanced intake sound
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



MUSTANG COLD AIR TUNER KITS (CALIBRATION REQUIRED)

M-9603-M463*

Fits 2005-2009 Mustang GT 4.6L 3V with manual or automatic transmission

M-9603-M40*

Fits 2005-2009 Mustang V6 4.0L with manual or automatic transmission

- Designed for those that want the Ford Racing cold air intake for aftermarket performance tuning/calibration
- Kit comes with hardware only! Calibration not included! Kit intended for aftermarket calibrators
- Ford Racing cold air kit utilizes production-quality components which mount in the stock location. The higher flowing molded plastic bucket features a painted "Ford Racing" logo with unique air tube providing an enhanced intake sound and 85 mm mass air meter housing (reuse of mass air meter sensor required)
- For replacement air filter element, see M-9601-B
- **Calibration is necessary to prevent engine damage! Calibration not included!**



2005-2009 MUSTANG V6 COLD AIR KIT WITH PERFORMANCE CALIBRATION

M-9603-V605

- Fits 2005-2009 Mustang V6 with manual or automatic transmission. For 2010 Mustang V6, see M-9603-MV6
- Approximate increase of 12 peak hp/up to 13 lb-ft over stock
- Kit includes:



- Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
- Disposable Air Filter Element M-9601-B
- Utilizes production-quality components which mount in the stock location. The high-flow molded plastic bucket features a painted "Ford Racing" logo with unique clean-air tube which provides an enhanced intake sound
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



2010 MUSTANG V6 FORD RACING PERFORMANCE CALIBRATION WITH HIGH-FLOW K&N AIR FILTER

M-9603-MV6

- Fits 2010 Mustang V6 with automatic or manual transmission. For 2005-2009 Mustang V6, see M-9603-V605
- Approximate increase of 12 peak hp/up to 13 lb-ft over stock
- Kit includes:
 - Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
 - 2005-2010 Mustang V6 High-flow K&N Air Filter M-9601-MV6
- Premium (91 octane or higher) fuel only
- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal and eligible for limited warranty when installed by a Ford or Lincoln dealer
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle



REPLACEMENT FILTERS

2007-2009 MUSTANG SVT COLD AIR AND SUPERCHARGER UPGRADE KIT REPLACEMENT AIR FILTER

M-9601-D

- Replacement air filter for the 2007-2009 Shelby GT500 113 mm Cold Air Kit M-9603-SVT07 and M-6066-SGT Supercharger Upgrade Kit



2005-2009 MUSTANG GT/V6 COLD AIR KIT DISPOSABLE HIGH-FLOW AIR FILTER REPLACEMENT

M-9601-B

- Replacement disposable air filter for Ford Racing 2005-2009 Mustang GT M-9603-GTB Cold Air Kit and 2005-2009 Mustang V6 M-9603-V605 Cold Air Kit
- Original equipment replacement air filter for 2008-2009 Mustang Bullitt. Not for use with stock 2005-2010 Mustang GT or V6 airbox



AIR FILTER ELEMENT

M-9601-C

- Service replacement air filter for M-9603-GT06 Cold Air Kit



2010-2012 MUSTANG GT AND 2011-2012 V6 HIGH-FLOW K&N/FORD RACING AIR FILTER

M-9601-MGT

- K&N 4-ply panel washable air filter
- Fits stock 2010-2012 Mustang GT airbox. **Will NOT fit 2005-2009**
- Fits stock 2012 Mustang V6 airbox. **Will NOT fit 2005-2010**
- Flows approximately 22% more than stock filter at 1.5" H₂O delta pressure
- Co-engineered by K&N and Ford Racing
- Does not require PCM recalibration



2005-2010 MUSTANG V6 HIGH-FLOW K&N AIR FILTER

M-9601-MV6

- K&N 4-ply panel washable air filter
- Fits stock 2005-2010 Mustang V6 airbox
- Flows approximately 22% more than stock filter at 1.5" H₂O delta pressure
- Does not require PCM recalibration





REAL POWER. REAL PERFORMANCE. REAL SUBSTANCE.



REAL VALUE. True BLUE.

Ford Racing offers race-proven performance upgrades for V6 and V8 Mustangs.

These power-enhancement and handling packages are track-tested and engineered to Ford's exacting specifications for quality and durability.

They're the only Mustang engine and suspension upgrades tested to original equipment safety and reliability standards.

Whether it's corner-carving performance or straight-line acceleration, you'll find a package that's exactly right for your Mustang.

Get yours today.

**Get True Blue Ford Racing Performance Parts.
The only performance parts good enough
to wear the Ford Oval!**



www.fordracing.com



ProCal

PERFORMANCE CALIBRATIONS

ProCal is included in select Ford Racing Cold Air Kits, Power Upgrade Packages, and Supercharger Kits.

Ford Racing Performance Calibrations are engineered to generate optimal horsepower and torque, while delivering:

- Engine Durability***
- Exceptional Drivability***
- 50-State Emissions Compliance***

ProCal Tool - New and Improved!

- Enhanced features: now accepts input for axle ratio and tire size
- Easy-to-read display
- Step-by-step calibration loading instructions
- OBD II diagnostic code display capability

Trust Ford Racing's ProCal to unlock your vehicle's potential without putting your powertrain at risk.



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ENGINE PERFORMANCE – TECH TIPS

DYNAMOMETER TESTING AND FORD RACING CALIBRATIONS

A question we at Ford Racing Performance Parts are often asked is “Why do certain companies claim to make more power with their power upgrade kits than you do with your kits?” To address that question properly, it is necessary to understand some of the intricacies of chassis dynamometer testing as well as some of the compromises that must be made in order to simultaneously meet our standards for performance, emissions, durability and safety.

CHASSIS DYNAMOMETER TESTING

There are two main types of chassis dynamometers (dynos) in widespread use today.

- An inertia dyno uses a large spinning drum that is accelerated by the drive wheels of the test vehicle. Power is then computed by knowing the inertia of the drum and how quickly it was accelerated. Torque can then be calculated by knowing the speed of the drum.
- An eddy-current dyno absorbs and measures power by rotating a metallic disc through a magnetic field.



Without getting into which dyno is more “correct” under what conditions, and why, we will simply say that these two types of dynos typically do not always give the same result even with all else being equal. It is generally not possible to accurately compare numbers from one type of dyno with those from the other type of dyno. Each type of dyno has its own advantages and disadvantages, but as long as all the tuning work is done on the same type of dyno, it doesn't really matter which one is used.

With any dyno testing there is a need for correction factors that are applied to the raw numbers the dyno actually measures. These correction factors are an attempt to correct for varying atmospheric conditions such as humidity, barometric pressure and air temperature. The two most common standards are SAE J1349 and SAE J607 (sometimes known as “STD” on some dynos). How correction factors are calculated is given in the “Crate Engine” section of this catalog. For this article understand that these correction factors will give results that are different from each other, with SAE J1349 typically about 4% lower than SAE J607. OEMs will almost always quote J1349 corrected numbers when advertising horsepower and torque. Some “tuning” shops will report STD numbers because they are always higher than SAE. Be sure to ask which correction factor is being used when comparing dyno numbers!

Whenever comparing dyno results, always be sure that the numbers are corrected to the same standard. Despite these correction factors, atmospheric conditions can play an additional role in terms of ignition timing. The correction factors account only for the change in the density of the air due to atmospheric conditions and cannot account for things like engine borderline spark sensitivity. As inlet air temperature increases, the PCM will generally retard spark to prevent detonation using the particular octane of fuel for which it was calibrated. Correction factors cannot account for this because different engine designs can have different spark sensitivity and different

ENGINE PERFORMANCE – TECH TIPS

sensitivity of torque relative to ignition timing. Basically this means that the closer the actual conditions are to the SAE J1349 standard (77 deg F inlet air, 29.31 inHg barometric pressure), the more comparable the results are to those quoted by the manufacturer. Unless otherwise explicitly stated, **all horsepower numbers in the Ford Racing catalog have been determined by using the SAE J1349 standard.**

When testing a particular calibration or performance-enhancing part by performing back-to-back dyno runs, it is critical to keep test conditions as similar as possible between the runs. This sounds obvious, but is very commonly overlooked by many aftermarket companies who frequently publish dyno charts depicting large gains, but fail to give all the necessary data to show the tests were run under similar conditions. In order to be certain that the test conditions are as similar as possible, the following data is mandatory and needs to be collected for each run:

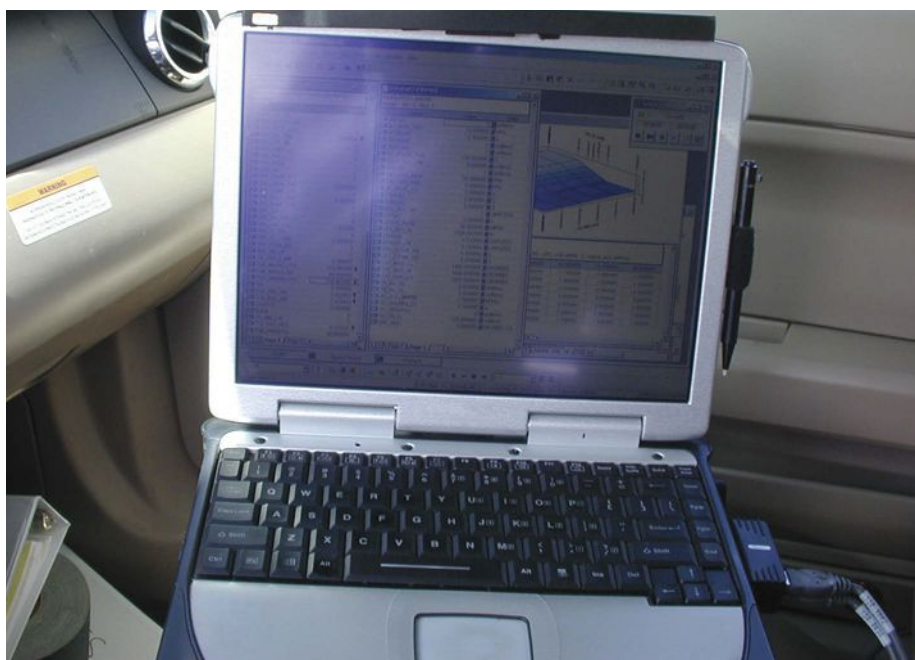
- Ambient air temperature
- Barometric pressure
- Inlet air temperature (on a forced-induction car, this is usually downstream of the power adder)
- Air/fuel (A/F) ratio (preferably upstream of any catalyst)

Truly meaningful power numbers cannot be collected without this data!

It is also a good idea to make sure the A/F ratio sensor (often called a “wideband” sensor) in use on the dyno has not been exposed to leaded fuel and has not been in service for an excessive period of time (greater than six months, depending on frequency of use). A/F ratio is the single most important parameter to measure accurately when doing any sort of dyno tuning, so it is critical the sensor is providing accurate information. When doing any PCM calibration on a dyno, **the resulting calibration will only be as good as the A/F sensor.**

These additional inputs should be used for ideal dyno testing and calibration:

- Air/fuel ratio and spark advance commanded by the PCM
- Fuel injector pulsewidth
- Fuel pump duty cycle (in the case of ERFS)
- MAF sensor voltage
- Fuel pressure
- Engine oil temperature
- Differential oil temperature



DYNAMOMETER TESTING AND FORD RACING CALIBRATIONS (continued...)

How drivetrain affects wheel horsepower:

Most chassis dyno tests are performed using the “roll-on” method, where the vehicle’s drive wheels are accelerated in a particular gear from a low speed to a high speed (generally to the rev limit of the engine) in one continuous sweep. Because of this constant acceleration, engine and transmission inertia, drive wheel inertia, tire characteristics, gear ratio and axle ratio can all affect the final measured horsepower. Generally a heavier wheel will take more torque to accelerate at the same rate as a lighter wheel, so heavier wheels will tend to reduce the measured wheel horsepower. Gear ratio comes into play because as the gear ratio strays from a 1:1, the efficiency drops and therefore the measured horsepower at the wheels also drops. This is why most dyno runs are run in the 1:1 gear (i.e., 4th gear in a 5-speed overdrive transmission) whenever possible. The same logic applies to axle ratio as well, which means that **changing nothing but axle ratio can have an effect on measured wheel horsepower**. Remember, this does NOT change brake (flywheel) horsepower, only the delivered wheel horsepower due to the change in drivetrain efficiency. When comparing dyno numbers, be sure the wheels, tires, gear ratio and gear, as well as all the other parameters previously mentioned, are the same from run to run!

How calibration can cause misleading dyno results:

Production calibrations have an inferred catalyst temperature protection model which constantly calculates the temperature in the hottest part of the hottest catalyst. This calculated temperature is based on many PCM parameters, such as engine speed, load, ingested air mass, time, inlet air temperature, EGR flow rate and many others.

When the catalyst model calculates that the catalyst temperature is about to exceed a level that is safe for the catalyst (generally around 1650 deg F), the PCM will richen the A/F mixture as necessary to lower the exhaust gas temperature and cool the catalyst. This richened A/F ratio will decrease power output, but is absolutely necessary to keep the catalyst from being permanently damaged. Unless A/F ratio is monitored during a dyno pull, the dyno operator will have no idea when catalyst temperature protection has been invoked and can make erroneous conclusions with regard to power output.

As a trivial example of how this can affect dyno testing, consider a supercharged production vehicle with production calibration performing back-to-back runs under identical conditions except as noted. The car is driven to a dyno facility and immediately put on the dyno and a run is performed, yielding a result of 420 hp. In this example, A/F ratio is not monitored. A part is swapped for another “high-performance” part and another dyno run is performed, resulting in 430 hp. The dyno operator concludes the “high-performance” part is worth 10 hp. This is not accurate because when the car was first dyno tested, its catalysts were sufficiently hot that catalyst temperature protection was invoked during the dyno pull which reduced power output by richening the A/F ratio. While the car was having the parts swapped, the catalysts cooled down enough that during the next dyno pull catalyst temperature protection was not invoked. The engine made more power on the second pull because it was running a leaner A/F ratio closer to optimal and not necessarily because of the “high-performance” part. If the dyno operator was monitoring A/F ratio, this would have been readily apparent.

If the operator was monitoring the A/F ratio *commanded by the PCM*, the activation of catalyst temperature protection would become self-evident. In this example, the erroneous conclusion that was reached suggested the “high-performance” part was worth 10 hp when it really wasn’t, but the opposite can also occur quite easily. Without covering every possible scenario, it will suffice to say that dyno numbers are ONLY meaningful when supporting data such as A/F ratio, inlet air temperature and the others listed above are also provided.

There is also a model for oxygen sensor protection and exhaust valve protection that when not taken into account can cause misleading dyno data. In general, exhaust temperatures greater than about 1650 deg F can damage exhaust valves, and extreme care is taken in production calibrations to ensure that sustained engine operation beyond that temperature does not occur. This is rarely an instantaneous failure but rather one that over time “tulips” the exhaust valves and ultimately will fail the engine.

Aftermarket cold air kit manufacturers that claim to work without the need of a PCM recalibration are a common source of misleading dyno power claims. Some of the manufacturers of these kits claim enormous power gains using nothing but their kit and a production calibration. Most of these claims are not supported with A/F, inlet temperature or spark advance traces during the dyno pulls that are shown in their advertising. In some cases, the apparent increase in power is due to differing dyno test conditions as mentioned previously, while in other cases they can be due to the fact that the MAF sensor transfer function in the PCM is left stock. If the cold air kit flows more air and the MAF transfer function in the PCM is stock, it will not “know” about the extra air that’s entering the engine. This will result in the engine running an A/F ratio that is leaner than it should be for engine durability. While this has the potential to produce more power, it can also be potentially damaging to catalysts, exhaust valves, piston rings and other engine components. The commanded spark advance can also be incorrect and result in detonation or pre-ignition with potentially catastrophic results. One should be very suspect if a particular cold air kit claims a huge power increase over stock at low engine rpm and without a calibration. Air inlet restrictions generally only become significant at higher

ENGINE PERFORMANCE – TECH TIPS

airflows, so if a claim is made that a cold air kit increases torque at 2000 rpm without the aid of a calibration, you can be sure that varying dyno test conditions or a significant change in A/F ratio are the cause. **Ask for more supporting data!**

Similar misleading results can be caused by a failure to keep inlet air temperature constant between runs. The PCM will retard spark timing to prevent detonation as inlet air temperature increases, lowering power output. On a forced-induction car, the inlet air temperature is generally measured after the power adder (and after the intercooler, if applicable) and can be MUCH greater than ambient temperature. Careful monitoring of A/F ratio and inlet air temperature are critical to making accurate conclusions regarding the effectiveness of various high-performance parts.

Secondary factors that also affect measured wheel horsepower are engine oil temperature, differential oil temperature, humidity, etc. **It simply cannot be overstated that all conditions need to be as similar as possible between dyno runs in order to have a meaningful scientific conclusion, which requires the supporting data previously discussed.**

FORD RACING CALIBRATIONS

The calibrations that Ford Racing provides for our cold air and supercharger kits are done by Ford engineers who, in many cases, worked on the actual production vehicles. No one is more familiar with Ford engines and Ford control systems than Ford engineers. Extreme care is taken to provide as much power and torque as can be safely delivered, but also to deliver extremely high durability and exceptional drivability. Most of our kits are also 50-state emissions legal and many are now even offered with a warranty when dealer installed.



Most aftermarket tuners other than Ford Racing do a few “tricks” that we do NOT recommend such as:

- **Turning off the inferred catalyst, oxygen sensor and exhaust valve temperature protection logic** discussed in the previous section. This prevents the PCM from richening the A/F ratio to protect these components which can result in more power under certain conditions. The downside is **drastically** decreased durability of these expensive components, which can result in the check engine light coming on as well as increased exhaust emissions due to failed catalytic converters. Ford Racing does not compromise durability or emissions by turning off this calibration logic.
- They often advance spark timing to potentially unsafe levels. We test our calibrations in a wind tunnel and in hot dry weather to verify that

DYNAMOMETER TESTING AND FORD RACING CALIBRATIONS (continued...)

potentially damaging spark knock or catastrophic pre-ignition does not occur. We also do cold weather and altitude testing as well as extensive emissions and durability testing on several vehicles before we release a calibration to the customer. Most other companies do not have the time or the resources to do the same type of testing that we do. Some companies do not realize that they need to perform this type of testing in the first place!

Automatic transmission calibration is an area where Ford Racing sets itself apart from other “tuners.” We generally make extensive calibration changes to not only improve shift quality and give the transmission a more performance-oriented feel, but take great care to ensure that durability is not compromised to levels we feel would be unacceptable to a customer. In development we monitor things like clutch slip times, slip energies, band temperatures and other variables to make calibration changes as appropriate so that the customer can be sure of a quality product that will continue to deliver improved performance in the long-term. As mentioned before, these changes are performed by the same engineers who designed and developed the vehicles in the first place, and who are more familiar than anyone with their performance and durability envelopes.

Many of our competitors develop their calibrations exclusively on a chassis dyno and go straight from there to the end customer. While dyno work is a critical part of the development process, it is only one piece of a very complex puzzle. Calibrating for wide open throttle (WOT) is generally simple, but the bulk of the calibration effort is getting the part (and closed) throttle drivability correct. Our calibrations are developed not only on the dyno, but also on the street for production (or better) quality drivability, and across many vehicles to allow for manufacturing tolerances. Varied driving conditions, constant data monitoring and long-term testing ensure consistent drivability and exceptional durability.

In recent years, cars and trucks have shifted toward electronic throttle control (ETC) or “drive-by-wire” systems for packaging, cost and enhanced calibration functions. Ford Racing calibrations for ETC vehicles take advantage of some of the increased functionality offered by these systems by changing the relationship between the pedal and the throttle for improved “performance feel.” This allows us to provide substantial improvements in “performance feel” even on the kits where the peak horsepower increase might be considered modest by some. The peak power numbers do not always tell the whole story.

Why some companies claim to make more power:

Some claims are due to poor and misleading dynamometer test practices as well as a fundamental lack of understanding of the way Ford PCMs work. Others are genuine but at the expense of engine, catalyst or drivetrain durability and emissions.

Hopefully this article gives you the tools necessary to determine what is real dyno horsepower, manipulated false horsepower and temporary horsepower waiting to cause a failure. We are confident that as a potential customer you will agree that no one knows your car or truck better than the Ford engineers who designed it in the first place. Our kits offer the best blend of performance, durability and drivability that exist on the market today.



REAL POWER. REAL PERFORMANCE. REAL SUBSTANCE.

TRACKKEY

INDUSTRY-FIRST TECHNOLOGY

BOSS 302 TRACKKEY M-14204-MBTKA

TrackKey is an industry-first technology that helps unleash the track potential of the BOSS 302 and BOSS 302 Laguna Seca. With TrackKey, Ford Racing is able to offer the customer both the production engine calibration for normal driving as well as an uncompromising track-oriented calibration for track use. Switching between the two is as simple as switching between two different ignition keys.

- TrackKey changes over 600 of the roughly 6500 parameters in the Powertrain Control Module (PCM).
- TrackKey captures elements of BOSS 302R Grand-Am race car calibration and Ford Racing Mustang GT performance pack calibration.
- Once a customer purchases the aftermarket TrackKey flash from Ford Racing Performance Parts, a Ford dealer will reflash the PCM with the TrackKey software and calibration, and program the red key to make it into a TrackKey.

TrackKey includes:

- “2-step launch control” straight from the 2010 Cobra Jet
- Pit Lane Speed Control from the BOSS 302R, to help drivers obey track speed limits in the pit area
- “Lopey Idle”. It uses the twin-independent variable cam timing system to make the idle sound and feel like a race-prepped engine.
- All of these features are an industry first and only available with TrackKey.



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ENGINE PERFORMANCE

2007-2011 MUSTANG SVT SUPERCHARGER UPGRADE KITS

Ford Racing Mustang SVT supercharger kits are designed to replace the factory supercharger and offer increased power while maintaining factory driving characteristics. Ford Racing kits are thoroughly engineered and tested to give unparalleled power while being durable and safe enough to ensure your collector car keeps its original engine intact.

Mustang SVT supercharger kits are available turn-key with everything needed for installation including the exclusive Ford Racing calibration, or as a supercharger only tuner kit for custom installations.

There are two types of kits available, one using the 2.3L Twin Vortices Series (TVS) supercharger and another using a 2.9L twin screw supercharger.

TECHNICAL SPECIFICATION AND NOTES:

- Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase
- Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, all Ford Racing calibrations are 50-state emissions legal
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle
- 2.9L kits may require biasing the K-member (#2 crossmember) forward to achieve supercharger to bulkhead clearance. If K-member is moved, front end alignment is necessary

MUSTANG SVT 660 HP/605 HP 2.3L SUPERCHARGER KITS

On 2010 Shelby GT500, this kit uses a 72 mm pulley and produces 660 hp @ 6100 rpm and 619 lb-ft at 4700 rpm @ 15psi boost.

On 2007-2009 Shelby GT500, this kit uses a 76 mm pulley and produces 605 hp @ 6250 rpm and 554 lb-ft @ 4500 rpm with 93 octane at approximately 13psi of boost.

Kit includes:

- 2.3L Twin Vortices Series (TVS) supercharger features 4-lobe 160-degree twist rotors and 72 mm pulley
- Air Inlet Resonator Eliminator M-9B659-MSVT for improved air flow and strut tower clearance
- Ford Racing ProCal tool with performance calibration for significantly improved throttle response and performance feel
- Tuner kits: ProCal tool and calibration not included



PART NUMBER	MODEL YEARS	FINISH
M-6066-SGT	2007-2009	Black Wrinkle
M-6066-MSVTA	2010	Black Wrinkle
M-6066-TVS*	2007-2010 TUNER KIT 76 MM	Black Wrinkle
M-6066-MSVT72*	2007-2010 TUNER KIT 72 MM	Black Wrinkle

MUSTANG SVT 750 HP/725 HP 2.9L SUPERCHARGER KITS

On 2010-2012 Shelby GT500, produces 750 hp @ 6100 rpm and 719 lb-ft @ 4200 rpm @ 17psi boost on 93 octane fuel.

On 2007-2009 Shelby GT500, produces 725 hp @ 6100 rpm and 670 lb-ft @ 4700 rpm @ 17psi boost on 93 octane fuel.

Kits include:

- Ford Racing 2.9L twin screw Whipple® supercharger assembly with "Crusher" inlet
- Whipple® 123 mm MAF housing and zip tube
- FRPP 2010 CJ 65 mm Dual Bore Throttle Body M-9926-CJ65
- FRPP upgraded dual fuel pump assembly
- Ford Racing ProCal tool with performance calibration
- Tuner kits: ProCal tool and calibration not included

PART NUMBER	MODEL YEARS	FINISH
M-6066-MSVT29C	2007-2010	Black Wrinkle
M-6066-MSVT29PC	2007-2010	Polished
M-6066-MSVT29D	2011-2012	Black Wrinkle
M-6066-MSVT29PD	2011-2012	Polished
M-6066-MSVT29T*	2007-2010 TUNER KIT	Black Wrinkle
M-6066-MSVT29PT*	2007-2010 TUNER KIT	Polished
M-6066-MSVT29TD*	2011-2012 TUNER KIT	Black Wrinkle
M-6066-MSVT29PTD*	2011-2012 TUNER KIT	Polished



2011 MUSTANG SVT HEAT EXCHANGER

M-8229-MSVT*

- Fits 2007-2011 Shelby GT500
- High-efficiency production unit from 2011 Shelby GT500
- Increased cooling over production 2007-2010 Shelby GT500
- Reduced air-charge temperatures
- Requires no modifications to install
- Includes brackets and mounts



2005-2010 MUSTANG GT SUPERCHARGER KITS

Nothing increases power on your street Mustang like a supercharger! Ford Racing kits have thousands of hours on the engine dyno, in climate controlled temperature and altitude testing, and finally on-road validation and durability. And Ford Racing superchargers kits are street-legal and emissions certified!

The result is the most reliable horsepower and torque under the curve and factory-like drivability! They are the most proven, engineered and reliable kits available, period!

The 2005-2010 Ford Racing supercharger kits are the choice for industry leaders like Evan Smith, editor of *Muscle Mustangs & Fast Fords*, and Doug Glad, Editor of *Car Craft*, both of whom have our 550 hp supercharger kits on their daily drivers!

All 2005-2010 supercharger kits include the following:

- 2.3L twin screw Whipple® supercharger assembly (black wrinkle or polished finish)
- Open air high-flow intake
- Intake manifold
- Drive belt
- 32 lb/hr, 4-hole, high-impedance Fuel Injectors M-9593-MU32
- FRPP 3V Cold Spark Plugs (M-12405-3V0 16 mm in 2005-2009 kits, M-12405-3V12MM 12 mm in 2010 kits), some 2008-2009 kits may require M-12405-3V12MM plugs, sold separately
- Ford Racing ProCal tool with exclusive Ford Racing performance calibration for improved throttle response and performance feel

2005-2010 MUSTANG GT 400 HP SUPERCHARGER KITS

- Fits Mustang GT with manual or automatic transmission
- Produces 400 hp/400 lb-ft with 93 octane at approximately 5psi of boost
- Warranty eligible when installed by a Ford dealer – see warranty disclosure on page 283 for details

PART NUMBER	MODEL YEARS	FINISH
M-6066-MGT400C	2010	Black Wrinkle
M-6066-MGT400PC	2010	Polished
M-6066-M463V8	2008-2009	Black Wrinkle
M-6066-M463P8	2008-2009	Polished
M-6066-M463V7	2007	Black Wrinkle
M-6066-M463P7	2007	Polished
M-6066-M463V	2005-2006	Black Wrinkle
M-6066-M463P	2005-2006	Polished

2005-2010 MUSTANG GT 475 HP SUPERCHARGER KITS

- Designed specifically for automatic transmission equipped Mustang
- Includes complete air-to-liquid intercooler system
- Includes Dual Fuel Pump, Fuel Pump Driver and Harness M-9407-GT05

PART NUMBER	MODEL YEARS	FINISH
M-6066-MGT475C	2010	Black Wrinkle
M-6066-MGT475PC	2010	Polished
M-6066-MGT475B	2008-2009	Black Wrinkle
M-6066-MGT475PB	2008-2009	Polished
M-6066-MGT475A	2007	Black Wrinkle
M-6066-MGT475PA	2007	Polished
M-6066-MGT475	2005-2006	Black Wrinkle
M-6066-MGT475P	2005-2006	Polished

- All necessary hardware to install on specific model years including cooling system modifications where applicable
- 475 hp and 550 hp kits include additional hardware for fuel system and intercooler

TECHNICAL SPECIFICATION AND NOTES:

- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike many of our competitors, Ford Racing calibrations are 50-state emissions legal
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle
- 2008 engines with late style 12 mm spark plugs can be identified by coil engineering number 8L3E
- 2005-2008 engines with early style 16 mm "High Thread" design spark plugs can be identified by coil engineering number 3L3E part number
- All 2009 engines use 12 mm spark plugs
- All spark plugs must be gapped from .032" to .035"
- Superchargers are built to order. Please allow 7 days for assembly

2005-2010 MUSTANG GT 550 HP SUPERCHARGER KIT

- Our most popular kit! Maximizes the potential of the stock 3-valve 4.6L engine
- Produces 550 hp @ 6000 rpm/542 lb-ft @ 4400 rpm with 93 octane at approximately 11psi of boost
- Includes complete air-to-liquid intercooler system
- Includes Dual Fuel Pump, Fuel Pump Driver and Harness M-9407-GT05

PART NUMBER	MODEL YEARS	FINISH
M-6066-MGT550C	2010	Black Wrinkle
M-6066-MGT550PC	2010	Polished
M-6066-M118	2008-2009	Black Wrinkle
M-6066-M11P8	2008-2009	Polished
M-6066-M117	2007	Black Wrinkle
M-6066-M11P7	2007	Polished
M-6066-M11	2005-2006	Black Wrinkle
M-6066-M11P	2005-2006	Polished

2005-2010 MUSTANG GT 550 HP BIG BOOST KIT

M-9066-M11 (2005-2006 model years)

M-9066-M117 (2007-2009 model years)

Upfit your 400 hp supercharger kit to 550 hp with big boost!

- Fits Mustang GT with **MANUAL transmission ONLY**
- Big boost kit 400 hp includes all hardware and Ford Racing calibration to upfit a 400 hp to 550 hp

ENGINE PERFORMANCE

2011-2012 MUSTANG GT SUPERCHARGER KITS

The new 5.0L engine in the 2011-2012 Mustang has set a new standard for Mustang performance!

With free-breathing heads and stout engine architecture, the new 5.0L greatly benefits from the addition of a supercharger. However, with an 11:1 compression ratio and twin independent variable valve timing, the calibration is more critical than ever, which is why Ford Racing puts more time and engineering into our supercharger calibration than any other manufacturer! That's why Shelby Automobiles chose the Ford Racing 5.0L supercharger kit as the flagship offering for their new GT350 Mustangs!

All 2011-2012 supercharger kits include the following:

- Ford Racing 2.3L twin screw Whipple® supercharger
- Intake manifold and air inlet system
- Complete air-to-liquid intercooler system
- Drive belt: FEAD 6-rib system
- 47 lb/hr, 6-hole, high-impedance Fuel Injectors M-9593-LU47
- Ford Racing ProCal tool with MANUAL transmission performance calibration which eliminates skip-shift feature and offers improved throttle response and performance feel
- Ford Racing recommends M-12405-M50 Ford Racing Spark Plugs with 5.0L kits

TECHNICAL SPECIFICATION AND NOTES:

- **Due to multiple powertrain calibrations, online registration is required to receive ProCal calibration delivery tool after purchase**
- **Ford Racing does not ship ProCal tools directly overseas. Customers must make special arrangements with their Ford Racing Distributor**
- Powertrain calibrations are developed and supported for U.S. and Canadian vehicles only
- Unlike our competitors, all Ford Racing Power Upgrade Packages are 50-state emissions legal
- Federal and state laws prohibit any person from installing aftermarket add-on or modified parts prior to the sale of a new motor vehicle
- Superchargers are built to order. Please allow 7 days for assembly



2011-2012 MUSTANG GT 525 HP SUPERCHARGER KITS

- Produces 525 hp at 6400 rpm/470 lb-ft @ 4200 rpm at approximately 7psi with 91 octane fuel
- 12 month/12,000 mile warranty (when installed by a Ford or Lincoln dealer)

PART NUMBER	MODEL YEARS	FINISH
M-6066-MGT525D	2011-2012 MANUAL TRANS ONLY	Black Wrinkle
M-6066-MGT525PD	2011-2012 MANUAL TRANS ONLY	Polished

2011-2012 MUSTANG GT 624 HP SUPERCHARGER KITS

- Produces 624 SAE hp @ 6900 rpm and 536 SAE lb-ft @ 4700 rpm at approximately 9psi of boost with 93 octane fuel
- Tuner kits do not include supercharger pulley, ProCal tool or calibration

PART NUMBER	MODEL YEARS	FINISH
M-6066-MGT624D	2011-2012 MANUAL TRANS ONLY	Black Wrinkle
M-6066-MGT624PD	2011-2012 MANUAL TRANS ONLY	Polished
M-6066-MGT23TD*	2011-2012 TUNER KIT	Black Wrinkle
M-6066-MGT23PTD*	2011-2012 TUNER KIT	Polished

2011 MUSTANG GT SUPERCHARGER UPGRADE KIT

M-9066-MGT624D

- Upgrade for 525 hp Ford Racing supercharger for 2011 Mustang GT
- Approximately 99 hp increase to base supercharger kit
- Kit includes supercharger pulley and ProCal tool with official Ford Racing calibration



2003-2004 MUSTANG COBRA SUPERCHARGER UPGRADE KITS FOR AFTERMARKET THROTTLE BODY



M-6066-CT46HP* Black wrinkle

M-6066-CT46PHP* Polished

- Fits 2003-2004 Mustang Cobra
- Simple bolt-on produces additional 85 hp and 50 lb-ft of torque at the rear wheels with 93 octane
- Designed for use with most **aftermarket single-blade oval-bore throttle bodies**. For stock throttle body, use M-6066-CT46P
- Kit includes:
 - Ford Racing 2.3L twin screw supercharger by Whipple®
 - Supercharger inlet
 - Manifold adapter plate
 - Hardware kit
- Requires PCM, fuel pump and MAF meter upgrades
- Installation of this kit will void your new vehicle engine warranty

NOTE: Superchargers are built to order. Please allow 7 days for assembly.



M-6066-CT46 shown

2003-2004 MUSTANG COBRA SUPERCHARGER UPGRADE KITS



M-6066-CT46 Black wrinkle

M-6066-CT46P Polished

- Fits 2003-2004 Mustang Cobra
 - Simple bolt-on produces additional 85 hp and 50 lb-ft of torque at the rear wheel with 93 octane
 - Designed for use with **factory twin-bore throttle body**. For most aftermarket single-blade oval-bore throttle bodies, use M-6066-CT46HP
 - Kit includes:
 - Ford Racing 2.3L twin screw supercharger by Whipple®
 - Supercharger inlet
 - Manifold adapter plate
 - Hardware kit
 - Does not require PCM, fuel pump or MAF meter upgrades
- NOTE:** Superchargers are built to order. Please allow 7 days for assembly.



M-6066-CT46P shown



"SHORTY" HEADERS

AVAILABLE IN STAINLESS STEEL OR CERAMIC-COATED STAINLESS STEEL



PART NUMBER	TYPE	APPLICATION	TUBE DIAMETER
M-9430-P50*	Stainless Steel	1986-1993 Mustang 5.0L ①③⑤⑥	1.625"
M-9430-P51*	Ceramic Coated	1986-1993 Mustang 5.0L ①②③⑤⑦	1.625"
M-9430-T50*	Stainless Steel	1990-1995 F-Series Truck and E-Series Van with 5.0L engine ③	1.625"
M-9430-C54C*	Ceramic Coated	2007-2009 Shelby GT500 5.4L DOHC ②	1.875"
M-9430-S197*	Stainless Steel	2005-2010 Mustang GT 4.6L 3V	1.625"
M-9430-S197C*	Ceramic Coated	2005-2010 Mustang GT 4.6L 3V ②	1.625"
M-9430-ZM7993*	Stainless Steel	1986-1993 Mustang with 302 and "Z" heads	1.750"
M-9430-ZM7993C*	Ceramic Coated	1986-1993 Mustang with 302 and "Z" heads ②	1.750"



M-9430-P50 shown



M-9430-C54C shown

NOTES: ① Also fits early Fox vehicles with modifications.

② Jet-Hot® Limited Warranty. See fordracingparts.com for details.

③ Production and all GT-40 heads.

⑤ Finally, a header that fits the new angled spark plug 5.0L GT-40 "P" cylinder head. Fits 1986-1993 Mustangs with stock or aftermarket H-pipe. Also fits 1979-1985 Mustangs and other Fox chassis with minor modification.

⑥ M-9430-P50 replaces M-9430-SSC.

⑦ M-9430-P51 replaces M-9430-C50.

FEATURES:

STAINLESS STEEL

409 stainless exhaust material is titanium-stabilized ferritic stainless steel. 409 stainless is used in applications where appearance is a secondary consideration to properties and corrosion resistance and where some weldability is required. An example of stainless usage is catalytic converter assemblies. 409 stainless has excellent forming characteristics and is rust-

through resistant. A surface rust will form in most instances. This rust retards further corrosion.

- 409 stainless steel tubes
- Machined flange
- Bolts to stock exhaust pipes
- Includes gaskets, bolts and studs
- Designed by Ford Racing engineers

CERAMIC-COATED STAINLESS STEEL

- Identical to stainless steel header, but with Jet-Hot® ceramic finish
- Stain and rust resistant
- Super-premium quality
- Lifetime Warranty
- Finest short-tube headers you can buy

STREET ROD HEADER

M-9430-SR302*



- Put a Ford in your Ford with this compact 4 into 1 clamshell design street rod header
- Fits most 289/302/351W applications
- Jet-Hot® ceramic-coated 409 stainless steel. Stain and rust resistant. Limited Warranty. See fordracingparts.com for details
- 1-5/8" primary tubes with 2-1/4" ball style collector for easy exhaust pipe connection
- Includes short outlet pipes with O₂ sensor fittings
- Will also fit GT-40P heads
- Designed for maximum clearance in the narrow frames of early Fords
- Machined flange
- Bolts to stock exhaust pipes
- Includes gaskets, bolts and studs
- Designed by Ford Racing engineers
- Finest short-tube headers you can buy
- 164-tooth flywheel applications may require aftermarket starter



"STAGE 8" LOCKING HEADER BOLT SYSTEMS



These kits fit most V8 and many other engines. Includes 16 bolts and locking hardware.

PART NUMBER	SIZE	FITS
M-9432-A50	3/8"-16 x .75" ①	Most headers on push rod engines
M-9432-A51	3/8"-16 x 1" ①	Ford Racing "Shorty" headers
M-9432-A54	8 mm-1.25 x 22 mm	4.6L/5.4L 2V and 4V Modular V8 engines (will not fit a 3V engine)

- Header fasteners positively will not back out. Eliminates need to monitor and tighten bolts regularly
- Grade 8 aircraft-quality bolts made in U.S.A. Duplex nickel-plated
- Manufacturer's Lifetime Warranty

NOTE: ① Will not fit 4.6L/5.4L Modular V8.



MUSTANG GT MUFFLER KITS (49 STATE)

M-5230-MGTLA 2011-2012

M-5230-MGTL 2010

M-5230-5GT 2005-2009

- T-304 stainless construction
- Louder, throatier exhaust note
- M-5230-MGTLA designed to eliminate exhaust drone at sustained rpms
- Mufflers include embossed "Ford Racing" logo
- 49-state drive-by noise legal (not legal in CA)



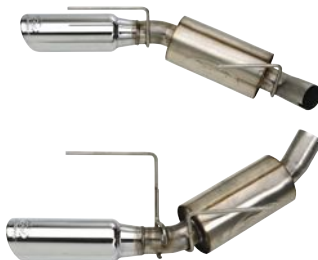
MUSTANG SVT TOURING MUFFLER KITS (50 STATE)

M-5230-MSVTCA 2011-2012

M-5230-MSVTC 2010

M-5230-SVT1 2007-2009

- T-304 stainless construction
- Louder, throatier exhaust note
- Mufflers include embossed "Ford Racing" logo
- 50-state drive-by noise legal



MUSTANG SVT SPORT MUFFLER KITS (49 STATE)

M-5230-MSVTLA 2011-2012

M-5230-MSVTL 2010

M-5230-SGT 2007-2009

- T-304 stainless construction
- Louder, throatier exhaust note
- Mufflers include embossed "Ford Racing" logo
- 49-state drive-by noise legal (not legal in CA)



2011-2012 MUSTANG GT/SVT MUFFLER KIT (50 STATE)

M-5230-MGTCA1

- Fits 2011-2012 Mustang GT
- Aluminized 409 stainless steel corrosion-resistant body with polished 304 stainless 4" diameter tips
- Standard on 2011 Shelby GT500
- Throatier exhaust note
- 50-state drive-by noise legal



MUSTANG GT TOURING MUFFLER KITS (50 STATE)

M-5230-MGTCA 2011-2012

M-5230-MGTC 2010

- For 2005-2009 Mustang GT, see M-5230-GTB
- T-304 stainless construction
- Louder, throatier exhaust note
- Includes chrome exhaust tips
- 50-state drive-by noise legal



2010 MUSTANG GT/SVT FR500S MUFFLER KIT (50 STATE)

M-5230-SA

- Fits 2010 Mustang GT and 2010 Shelby GT500. For 2005-2009 Mustang GT or 2007-2009 Shelby GT500, see M-5230-S
- Same as M-5230-S except with black powdercoated body and extended tips to fit 2010 Mustang
- Aluminized 409 stainless steel corrosion-resistant body with polished 304 stainless 3.5" diameter tips
- Body of mufflers embossed with "Ford Racing" logo
- Throatier exhaust note
- 50-state drive-by noise legal



2005-2009 MUSTANG GT/2007-2009 MUSTANG SVT FR500S MUFFLER KIT (50 STATE)

M-5230-S

- Fits 2005-2009 Mustang GT and 2007-2009 Shelby GT500. For 2010 Mustang GT/GT500, see M-5230-SA
- Homologated for use on the Mustang FR500S
- Body of mufflers embossed with "Ford Racing" logo
- Aluminized 409 stainless steel corrosion-resistant body with polished 304 stainless 3.5" diameter tips
- Throatier exhaust note
- 50-state drive-by noise legal



NOTE: 409 stainless exhaust material is titanium-stabilized ferritic stainless steel. 409 stainless is used in applications where appearance is a secondary consideration to mechanical properties and corrosion resistance and where some weldability is required. An example of 409 stainless usage is catalytic converter assemblies. 409 stainless has excellent forming characteristics and is rust-through resistant. A surface rust will form in most instances. This rust retards further corrosion.

2005-2009 MUSTANG GT SPECIAL EDITION MUFFLER KIT (50 STATE)



M-5230-GTB

- Fits 2005-2009 Mustang GT. For 2010 Mustang GT, see M-5230-MGTC
- Muffler used as standard equipment on the 2008 Mustang Bullitt
- Throatier exhaust note
- Aluminized 409 stainless steel corrosion-resistant body with a polished 304 stainless 3.5" diameter tips
- 50-state drive-by noise legal



MUSTANG X-PIPES

- M-5251-MGTA** 2011-2012 Mustang GT
- M-5251-R** 2005-2010 Mustang GT
- M-5251-MV6A** 2011 Mustang V6



- T-409 stainless steel X-pipe
- M-5251-R and M-5251-MV6A require cutting of factory exhaust for installation. No cutting required for M-5251-MGTA
- Converts your factory H-pipe to a more efficient X-pipe
- Clamp on installation—does not require welding!



MUSTANG V6 TOURING MUFFLERS (50 STATE)



- M-5230-MV6CA** 2011-2012 Dual exhaust
- M-5230-MV61** 2010 Single exhaust
- M-5230-5V6** 2005-2009 Single exhaust

- T-304 stainless construction
- Louder, throatier exhaust note
- Includes mufflers with "Ford Racing" embossed 3.5" exhaust tip
- 50-state drive-by noise legal



2011-2012 MUSTANG V6 SPORT MUFFLERS (49 STATE)



M-5230-MV6LA

- Fits 2011 Mustang V6
- T-304 stainless construction
- Louder, throatier exhaust note
- Includes mufflers with "Ford Racing" embossed 3.5" exhaust tip
- 49-state drive-by noise legal (not legal in CA)



2011-2012 MUSTANG SIDE EXHAUST

M-5220-MB

- Fits 2011-2012 Mustang GT Coupe
- Side exhaust system from 2012 BOSS 302 Mustang
- Includes removable restrictor plates in side exit pipes
- Replaces factory H-pipe
- No cutting or welding required for install



2010 MUSTANG V6 TOURING DUAL EXHAUST KIT (50 STATE)



M-5230-MV62

- Fits 2010 Mustang V6. For 2005-2009 Mustang V6, see M-5230-V6
- Includes Mustang FR500S Performance Mufflers embossed with "Ford Racing" logo
- Black powdercoated Aluminized 409 stainless steel corrosion-resistant body with polished 304 stainless 3.5" diameter tips
- Includes X-pipe
- Louder, throatier exhaust note
- Includes 2010 Mustang GT rear lower valance, black, for dual exhaust
- 50-state drive-by noise legal

NOTE: 409 stainless exhaust material is titanium-stabilized ferritic stainless steel. 409 stainless is used in applications where appearance is a secondary consideration to mechanical properties and corrosion resistance and where some weldability is required. An example of 409 stainless usage is catalytic converter assemblies. 409 stainless has excellent forming characteristics and is rust-through resistant. A surface rust will form in most instances. This rust retards further corrosion.



2005-2009 MUSTANG V6 TOURING DUAL EXHAUST KIT (50 STATE)



M-5230-V6

- Fits 2005-2009 Mustang V6. For 2010 Mustang V6, see M-5230-MV62
- Includes mufflers used as standard equipment on the 2008 Mustang Bullitt
- Aluminized 409 stainless body mufflers with polished 304 stainless 3.5" diameter tips
- Louder, throatier exhaust note
- Includes X-pipe
- Requires minor modification of rear bumper cover (template included in kit)
- 50-state drive-by street legal

NOTE: 409 stainless exhaust material is titanium-stabilized ferritic stainless steel. 409 stainless is used in applications where appearance is a secondary consideration to mechanical properties and corrosion resistance and where some weldability is required. An example of 409 stainless usage is catalytic converter assemblies. 409 stainless has excellent forming characteristics and is rust-through resistant. A surface rust will form in most instances. This rust retards further corrosion.



2004-2008 F-150 2WD LIGHTNING STYLE EXHAUST SYSTEM

M-5230-L

- Fits 2004-2008 F-150 2WD V8 Supercab and Supercrew (will not fit 2004 Heritage or Lightning models)
- Lightning SVT-inspired styling
- Unique tips
- Made of high-quality T-304 stainless steel



2006-2008 F-150 LIGHTNING STYLE EXHAUST SYSTEM

M-5230-L06EC

- Fits 2006-2008 F-150 2WD V8 Supercab and Supercrew
- Lightning SVT-inspired styling
- Unique tips
- Made of high-quality T-304 stainless steel



FORD RACING F-150 CHROME EXHAUST TIPS

M-5255-F15R

- Fits 2010-2012 F-150 Raptor and 2009-2010 F-150 Harley-Davidson® truck with twin-pipe exhaust
- Chromed stainless steel tips etched with "Ford Racing" logo
- 3.5" outside diameter
- Angle cut design
- Easy-to-install clamp on design
- Includes clamps



2011-2012 FIESTA EXHAUST SYSTEM

M-5230-FAC

- Fits 2011-2012 Fiesta hatchback
- T-304 stainless steel construction
- Deeper, throatier exhaust note
- 50-state drive-by noise legal



FORD GT PERFORMANCE MUFFLER KIT

M-5230-GT

- Substantially louder than stock muffler
- Exits in stock location
- Mounts at all stock points
- Includes installation hardware
- OFF-ROAD ONLY! NOT STREET LEGAL!



2012 FOCUS HATCHBACK MUFFLER

M-5230-F0H

- Fits 2012 Focus hatchback manual and automatic transmission with PZEV evaporative emission
- T-304 stainless steel construction with polished tips
- Performance-tuned cat-back exhaust system
- 50-state drive-by noise legal



EXTERIOR CHROME CLEANING PROCEDURES

- Wash the vehicle first, using cool or lukewarm water and a neutral pH shampoo, such as Motorcraft Detail Wash (ZC-3-A).
- Use Custom Brite Metal Cleaner (ZC-15), available from your authorized dealer. Apply the product as you would a wax to clean bumpers and other chrome parts; allow the cleaner to dry for a few minutes and then wipe off the haze with a clean, dry rag.
- **Never use abrasive materials such as steel wool or plastic pads as they can scratch the chrome surface.**



DRIVELINE



TECH TIPS

CLUTCH/TRANSMISSION INSTALLATION TIPS 1986 and newer V8 Mustangs

The flywheel-to-crankshaft bolts must be hand-torqued to 75-85 lb-ft (302/351W) and 54-64 lb-ft (4.6L).

The 10.5" pressure plate bolts must be torqued to 12-24 lb-ft and 11" pressure plate bolts to 33 lb-ft + 1/4 turn.

Be sure to use the alignment dowels in the flywheels.

Pressure plate bolts and alignment dowels for the 10.5" clutch can be purchased using PN M-6397-A302. Pressure Plate Bolts N808969-S100 and Alignment Dowels PN D1FZ-6397-B are for the 11" pressure plate.

Evenly tighten bolts in a circular direction one turn at a time.

Bellhousing alignment is crucial for proper clutch and transmission function.

Due to production tolerances of engine blocks and bell housings, it is possible for the transmission centerline and crankshaft centerline to be misaligned. Misalignment can cause transmission gear wear, transmission jumping out of gear, driveline vibration, clutch pedal vibration, pilot bearing noise, release bearing noise or excessive clutch spin time. It may also damage the pilot bearing, transmission mainshaft bearing and clutch hub. It will also cause harsh shifting.

Before installing the bellhousing, check the block mounting surface and bellhousing surfaces for nicks, dents, paint debris, etc. These are some things that could affect the accuracy of your measurements.

HOW TO CHECK BELLHOUSING ALIGNMENT

The first step is to check bellhousing face runout. You are checking for parallelism of the back of the bellhousing to the back of the block. Install the dial indicator (as shown in Fig. 1). Rotate the crankshaft and mark down the reading. Be sure to push the crankshaft against the thrust bearing for an accurate reading. Maximum runout is .010. The next step is checking bellhousing bore runout. You are checking to see if the bellhousing bore centerline is aligned with crankshaft centerline. Reposition the dial indicator in the bellhousing bore (as shown in Fig. 2). Rotate the crankshaft and mark down the readings. Maximum out of concentricity is .015. If the bore runout is out of spec, install appropriate offset dowels.

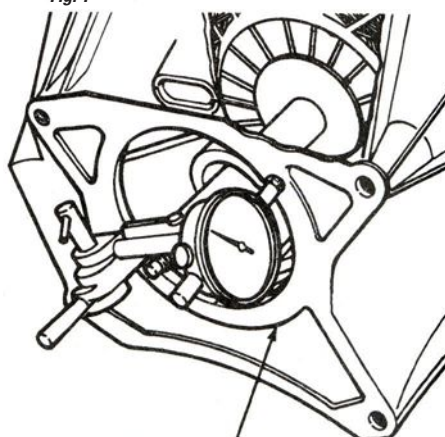
Offset alignment dowels can be purchased from Lakewood®.

.007 PN 15950

.014 PN 15960

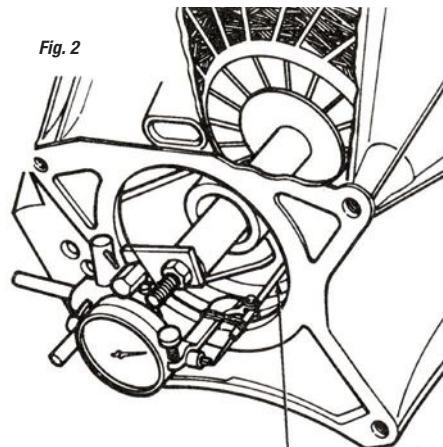
.021 PN 15970

Fig. 1



Face of housing
(must be clean and free of nicks,
burrs or foreign material).

Fig. 2



Level tip rides on bore surface.
This surface must be clean
and free of nicks, burrs
or foreign material.

UPGRADED SUPER-DUTY T-5 TRANSMISSION

M-7003-Z*

- 1979-1993 V8 only
- Heavy-duty world class T-5 5-speed manual transmission with short throw shifter
- 300 lb-ft torque capacity
- Gear ratios: 1st 2.95; 2nd 1.94; 3rd 1.34; 4th 1.00; 5th 0.63
- Double moly 2nd speed, 3rd speed and countershaft cluster gears
- Carbon fiber 3-4 blocker rings
- Improved synchronizers and bearings
- 1.0625" diameter 10-spline input shaft
- 28-spline output shaft
- 7-tooth speedometer drive gear
- Cobra style pocket bearing
- Steel input bearing retainer
- Transmission uses Mercon® fluid or Dexron 3



DRIVELINE – TRANSMISSIONS

TREMEC® 5-SPEED EXTRA HD TRANSMISSION (CLOSE RATIO)

M-7003-R58C*

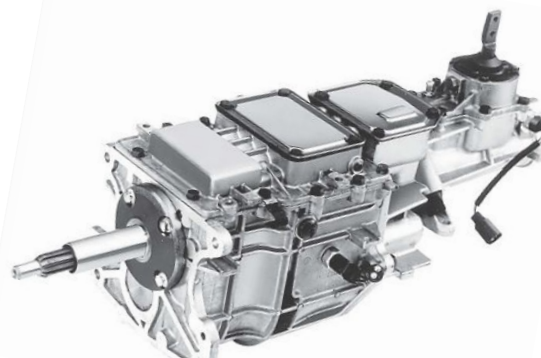
- 600 lb-ft torque capacity
- Gear ratios: 1st 2.87; 2nd 1.90; 3rd 1.34; 4th 1.00; 5th 0.82
- Features improved shift forks, one-piece counter-shaft, gears made of 4615 steel which increases the torque capacity over that of the M-7003-R58 model
- Input shaft is 26 spline and output shaft is 31 spline
- Requires a unique Bellhousing M-6392-R58 to install in a 1979-1995 Mustang
- To fit in a 1979-1993 Mustang, use M-5059-A Crossmember
- To fit in a 1994-1995 Mustang, modify vehicle crossmember, lengthen driveshaft .625" and use Clutch Fork E6ZZ-7515-A
- 31-spline driveshaft yoke required
- Unique clutch disc designed for 26-spline input must be used
- Can be used in 4.6L applications with Bellhousing M-6392-M46
- Transmission uses Synchronesh® fluid



TREMEC® 5-SPEED EXTRA HD TRANSMISSION (CLOSE RATIO, 26 SPLINE)

M-7003-R58H*

- Close ratio 1st through 4th
- 600 lb-ft torque capacity
- Gear ratios: 1st 2.87; 2nd 1.90; 3rd 1.34; 4th 1.00; 5th 0.68
- Features improved shift forks, one-piece counter-shaft, gears made of 4615 steel which increases the torque capacity over that of the M-7003-R58 model
- Input shaft is 26 spline and output shaft is 31 spline
- Requires Bellhousing M-6392-R58 to install in a 1979-1995 Mustang
- For 1979-1993 Mustang applications, use M-5059-A Crossmember (1979-1981 will require modification)
- For 1994-1995 Mustang applications, modify vehicle crossmember, lengthen driveshaft .625" and use Clutch Fork E6ZZ-7515-A
- 31-spline driveshaft yoke required, M-4841-A recommended
- Requires unique Clutch Disc M-7550-T302 (10.5") designed for use with 26-spline input
- Can be used in 4.6L applications with Bellhousing M-6392-M46 and Clutch Kit M-7560-T46 (11")
- Transmission uses Synchronesh® fluid



TREMEC® 5-SPEED HD TRANSMISSION (WIDE RATIO)

M-7003-R58W*

- Replaces M-7003-R58
- Gear ratios: 1st 3.27; 2nd 1.98; 3rd 1.34; 4th 1.00; 5th 0.68 (wide ratio)
- Features improved shift forks, one-piece counter-shaft, gears made of 4615 steel which increases the torque capacity over that of the M-7003-R58 model
- Input shaft is 10 spline 1.0625 and the output shaft is 31 spline
- Requires a unique Bellhousing M-6392-R58 to install in a 1979-1995 Mustang
- To fit in a 1979-1993 Mustang, use M-5059-A Crossmember
- To fit in 1994-1995 Mustang, modify vehicle crossmember, lengthen driveshaft .625" and use Clutch Fork E6ZZ-7515-A
- 31-spline driveshaft yoke required
- Can be used in 4.6L applications with Bellhousing M-6392-M46
- Transmission uses Synchronesh® fluid



ADJUSTABLE #3 CROSSMEMBER (TRANSMISSION MOUNT)

M-5059-A*

This crossmember is a "double hump" design that simplifies installation of dual exhaust systems on Fox vehicles. The outer tubes are not welded to the center support, and thus can be adjusted to fit most engine/transmission combinations. It directly fits all Fox vehicles with a 4.5" dimension between the crossmember mounting brackets. It can be used on Fox vehicles with a 2.75" mounting dimension by relocating the brackets. It does not fit 1982 and later Continental or 1984 and later Mark VII, because they have a unique crossmember.

4.5" MOUNTING DIMENSION		2.75" MOUNTING DIMENSION	
YEAR	FOX VEHICLE	YEAR	FOX VEHICLE
1980-1988	T-Bird/Cougar	1978-1981	Fairmont/Zephyr
1982-1993	Mustang/Capri	1979-1981	Mustang/Capri
1982	Fairmont/Zephyr	1981-1982	Granada/Monarch
1983 and later	LTD/Marquis		



T-56 CROSSMEMBER

M-5059-B*



- Production crossmember from the 2003-2004 Mustang Cobra
- Fits 1999-2004 Mustang
- Fits T-56 transmission with 26.673" face of bell to centerline of mount dimension
- Includes transmission mount



T-5 BEARING RETAINERS



M-7050-A* Fits 1983-1993 V8 applications

M-7050-B* Fits 1994-1995 V8 applications

- Replacement T-5 bearing retainer with steel throwout bearing sleeve
- Fits production and Ford Racing T-5 transmissions

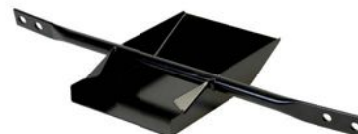


MUSTANG BOSS 302 MANUAL TRANS COOLER AIR SCOOP

M-5025-MBR*

NEW

- Transmission cooler scoop original equipment on 2012 Mustang BOSS 302
- Fits 2011-2012 Mustang GT with manual transmission
- Replaces OEM pencil brace



T-5 REBUILD KIT

M-7000-A*

This 94-piece world class T-5 transmission rebuild kit can be used on all of the following T-5 applications:

- M-7003-A/X/Z
- 1985-1995 5.0L Mustang
- 1985-1993(1) 2.3L Mustang
- 1985-1986 2.3L Mustang SVO
- 1985-1988(1) 2.3L Thunderbird Turbo Coupe
- 1994-2000 3.8L Mustang

NOTE: (1) 1987-1993 models will require additional input bearing and race. See your Ford or Lincoln dealer.



2007-2009 MUSTANG SVT BLACK SHIFT KNOB AND STICK



M-7213-J*

- A Ford Racing exclusive
- Fits the stock 2007-2009 Shelby GT500 shifter and the Ford Racing M-7210-B Short Throw Shifter
- 6-speed black shift knob with "Ford Racing" logo and black powdercoated steel stick
- **Standard equipment on the Ford Racing Mustang FR500S race car**
- Shifter knob thread size 3/8"-16, will not fit stock shifter stick



2007-2009 MUSTANG SVT WHITE SHIFT KNOB AND STICK



M-7213-K*

- A Ford Racing exclusive
- Fits the stock 2007-2009 Shelby GT500 shifter and the Ford Racing M-7210-B Short Throw Shifter
- 6-speed white shift knob with "Ford Racing" logo and stainless steel handle
- Shifter knob thread size 3/8"-16, will not fit stock shifter stick



2005-2010 MUSTANG V6/GT SHORT THROW "FORD RACING" SHIFT KNOBS (5-SPEED)



M-7213-N* White shift knob

M-7213-P* Black shift knob

- Inscribed with 5-speed pattern
- Fits 2010 Mustang GT Short Throw Shifter M-7210-MGTA
- Fits 2005-2009 Mustang GT Short Throw Shifter M-7210-MGT
- Fits 2005-2009 Mustang GT Short Throw Shifter M-7210-T1
- Fits 2005-2009 Mustang V6 Short Throw Shifter M-7210-MV6
- Fits 2005-2009 Mustang V6 Short Throw Shifter M-7210-V



M-7213-N



M-7213-P

T-56 BLACK LEATHER SHIFT KNOB

M-7213-B*

- Fits 2003-2004 Mustang Cobra and most Ford Racing T-56 transmissions
- Black leather shift knob with brushed aluminum insert on top, inscribed with 6-speed pattern
- Does not fit 2005 and newer Mustang



1983-2004 MUSTANG EMBOSSED LEATHER SHIFT KNOB 5-SPEED

M-7213-D*

- Fits 1983-2004 Mustang with 5-speed transmissions
- Embossed leather, simulated carbon fiber with brushed aluminum insert on the top, inscribed with 5-speed pattern



1983-2004 MUSTANG BLACK LEATHER SHIFT KNOB 5-SPEED

M-7213-G*

- Fits 1983-2004 Mustang with 5-speed transmission
- Black leather shift knob with brushed aluminum insert on the top, inscribed with 5-speed pattern



1983-2004 MUSTANG (MACH 1) SHIFT KNOB 5-SPEED

M-7213-H*

- Fits 1983-2004 Mustang with 5-speed transmission
- 2003 Mustang Mach 1 production manual transmission shift knob
- Aluminum finish inscribed with 5-speed pattern



MUSTANG SVT SHIFTER HANDLE KIT

M-7213-L*

- Fits 2007-2011 Shelby GT500
- Shifter handle from 2008 Mustang Shelby GT500 KR



2007-2009 MUSTANG SVT SHORT THROW SHIFTER



M-7210-B*

- Fits 2007-2009 Shelby GT500
- Urethane body vibration isolators
- 25% reduction in throw
- Bolts in stock location
- Requires reuse of production stick and knob or the Ford Racing exclusive M-7213-J Black Knob and Stick or M-7213-K White Knob and Stainless Steel Stick
- See www.fordracingparts.com for the most up-to-date warranty information



2010 MUSTANG GT SHORT THROW SHIFTER



M-7210-MGTA*

- Designed by Ford Racing and Hurst®
- Fits 2010 Mustang GT. For 2005-2009 Mustang GT, see M-7210-MGT
- High-lubricity polymer bearing with unique shifter rod and OE main stamping
- Chrome stick with "Ford Racing" white shift knob
- Includes jam nut and shifter boot
- Urethane body vibration isolators
- Reduced throw
- For replacement "Ford Racing" black shift knob, see M-7213-P
- Shifter rebuild kit, see M-7211-A



2005-2009 MUSTANG GT SHORT THROW SHIFTER



M-7210-MGT*

- Designed by Ford Racing and Hurst®
- Fits 2005-2009 Mustang GT. For 2010 Mustang GT, see M-7210-MGTA
- Chrome stick with "Ford Racing" white shift knob
- High-lubricity polymer bearing with unique shifter rod and OE main stamping
- Includes jam nut
- Urethane body vibration isolators
- Reduced throw
- For replacement "Ford Racing" black shift knob, see M-7213-P
- Shifter rebuild kit, see M-7211-A



2005-2009 MUSTANG V6 SHORT THROW SHIFTER



M-7210-MV6*

- Designed by Ford Racing and Hurst®
- Fits 2005-2009 Mustang V6. For 2010 Mustang V6, see M-7210-MV6A
- Chrome stick with "Ford Racing" white shift knob
- High-lubricity polymer bearing with unique shifter rod and OE main stamping
- Includes jam nut
- Urethane body vibration isolators
- Reduced throw
- For replacement "Ford Racing" black shift knob, see M-7213-P
- Shifter rebuild kit, see M-7211-A



1979-2004 MUSTANG HURST® T-5/T-45 SHIFTER



M-7210-M*

- Fits T-5 and T-45 transmission. Does not fit Tremec® 3650 transmission, 2001 and newer Mustang Cobra, Mustang Bullitt and Mustang GT (3650 transmission has the drain plug in the bottom of the case)
- One-piece 6061-T6 aluminum CNC-machined base
- Positive stops to prevent over-travel
- Super short throw
- Chrome stick and white knob
- Fits 1979-1995 Mustang V8 with T-5 transmission
- Fits 1994-2004 Mustang V6 with T-5 transmission
- Fits 1996-2001 Mustang V8 with T-45 transmission



T-56 CHROME SHIFTER



M-7210-T56*

- Shifter fits most Ford T-56 variants
- Features a chrome stick and white knob
- Does not fit 2005 and newer Mustang



2011-2012 FORD FIESTA SHORT THROW SHIFTER

M-7210-FA*

- Fits 2011-2012 Ford Fiesta with 5-speed manual transmission
- 30% shorter shift throws than OEM unit
- Nickel-plated shift handle prevents corrosion



2005-2010 MUSTANG FORD RACING SHIFTER SERVICE KIT

M-7211-A*

- Service kit for Ford Racing 2005-2010 Mustang GT and V6 5-speed short throw shifters:
 - 2005-2009 Mustang GT M-7210-T1 and M-7210-MGT
 - 2010 Mustang GT M-7210-MGTA
 - 2005-2009 Mustang V6 M-7210-V and M-7210-MV6
 - 2010 Mustang V6 M-7210-MV6A
- Kit includes stalk with high-lubricity polymer bearing and parts to reassemble
- Does not fit production shifter or M-7210-U



MODULAR BELLHOUSING INSTALLATION KIT

M-7771-A*



- Kit includes:
 - 1 clutch ball stud
 - 7 bellhousing-to-block bolts
 - 2 starter-index-plate-to-bellhousing bolts
 - Fits M-6392-M46 Bellhousing. See M-7007-A for starter index plate



BELLHOUSINGS

M-6392-E*



- 1979-1993 5.0L T-5 bellhousing
- Can be used as a replacement part or for building a kit car or street rod
- Cast aluminum, produced from the original production tooling

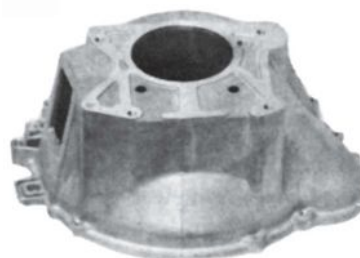


CLUTCH HOUSING

M-6392-R58*



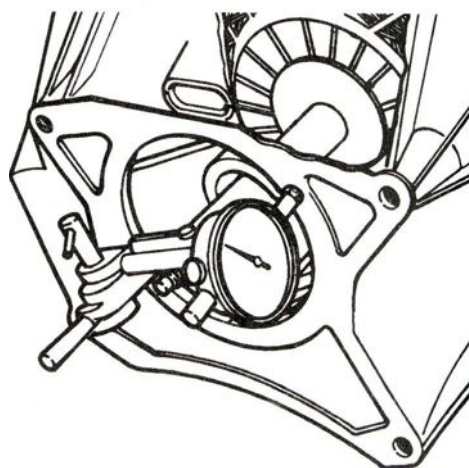
- Unique clutch housing required for Tremec® 5-speed transmission used in the 1995 Mustang Cobra "R" models with 351W
- Will also fit 289/302/351C engines
- Requires diaphragm-type clutch



M-6392-M46*



- 4.6L/5.4L Tremec® 3550 Cobra "R" bellhousing
- Use to mate the Tremec® 3550 transmission to the 4.6L/5.4L Modular engines
- Minor modification is required for transmission clearance and mounting in some applications
- Cast aluminum production style bellhousing
- Also works with 5.0L Ti-VCT engine



See Bellhousing Alignment Tech Tip on page 157.

MANUAL TRANSMISSION FLYWHEEL-TO- CRANKSHAFT BOLTS



- M-4216-A200*** Package of 100
M-4216-A210* Package of 10
- 7/16"-20 x .9375" bolt
 - Fits 289/302/357/400/360/390/427/428/429/460



AUTO TRANSMISSION FLYWHEEL-TO- CRANKSHAFT BOLTS



- M-4216-A300*** Package of 10
- 7/16"-20 x .875" bolts
 - Set of 10 bolts
 - Fits 289/302/357/400/360/390/427/428/429/460



11" PRESSURE PLATE BOLT AND DOWEL KIT



- M-6397-A46***
- Use with Ford Racing flywheels to align and attach the 11" diaphragm-style clutch and pressure plate to the flywheel
 - This kit includes three dowel pins that are necessary to align and stiffen the pressure plate shell. **NOTE:** If the dowels are not used, the clutch may chatter and the engine vibrate
 - Includes six 10 mm X 1.5 pressure plate bolts and dowel pins for use with 11" modular flywheel



10.5" PRESSURE PLATE BOLT AND DOWEL KIT



- M-6397-A302***
- Use with Ford Racing flywheels to align and attach the 10.5" diaphragm-style clutch pressure plate to the flywheel
 - This kit includes three dowel pins that are necessary to align and stiffen the pressure plate shell. **NOTE:** If these dowels are not used, the clutch may chatter
 - This kit includes six 8 mm bolts with integral lock washers. **NOTE:** Ford Racing and production flywheels have metric bolt holes for diaphragm-style clutches. Ford Racing billet steel flywheels also have 5/16"-18 SAE bolt holes for "long" style clutches



STARTER INDEX PLATE SMALL BLOCK M-7007-B*

- Metal plate that goes between the block and the transmission bellhousing
- Fits 1979-1995 Mustang V8 with manual transmission and production bellhousing
- Fits bellhousing M-6392-E and M-6392-R58
- The starter index plate positions the starter to ensure proper starter drive to flywheel ring gear alignment



STARTER INDEX PLATE MODULAR BLOCK

- M-7007-A***
- Metal plate that goes between the block and the transmission bellhousing
 - Fits 4.6/5.4L modular engine with manual transmission except Ford GT
 - Fits Bellhousing M-6392-M46
 - The starter index plate positions the starter to ensure proper starter drive to flywheel ring gear alignment



STARTER INDEX PLATE AUTO TRANS M-6373-A*

- Metal plate that goes between the block and the transmission bellhousing
- Fits 4.6/5.4L Modular engine with production automatic transmissions 4R70, 4R75, 4R100
- The starter index plate positions the starter to ensure proper starter drive to flywheel ring gear alignment

MANUAL TRANSMISSION FLYWHEELS FOR PUSH ROD ENGINES

PART NUMBER		MATERIAL/ WEIGHT	CLUTCH DAMPER ASSEMBLY COUNTER BORE	RING GEAR	CRANK BOLTS	UNBALANCED	APPLICATION
M-6375-A302B* ①		Billet Steel 23 lbs	6.00"	157-Tooth	6-bolts	28.2 oz.-in.	Pre-1981 302 engines and 351 engines using 157T flywheels with 10.5" diaphragm clutch. Meets SFI 1.1.
M-6375-A302AB* ①		Aluminum 12 lbs	6.00"	157-Tooth	6-bolts	28.2 oz.-in.	Pre-1981 302 engines and 351 engines using 157T flywheels with 10.5" diaphragm clutch. Reduced rotating mass. Meets SFI 1.1.
M-6375-B302* ①		Cast Iron		157-Tooth	6-bolts	50.0 oz.-in.	1981 and later 302 engines. Direct replacement for 1986-1995 5.0 Mustang
M-6375-C302B* ①		Billet Steel 23 lbs	6.00"	157-Tooth	6-bolts	50.0 oz.-in.	1981 and later 302 engines using 157T flywheels with 10.5" clutch. Meets SFI 1.1.
M-6375-C302AB* ①		Aluminum 12 lbs	6.00"	157-Tooth	6-bolts	50.0 oz.-in.	1981 and later 302 engines using 157T flywheels with 10.5" clutch. Reduced rotating mass. Meets SFI 1.1.
M-6375-D302B* ①		Billet Steel 23 lbs	6.00"	157-Tooth	6-bolts	0 oz.-in.	All small blocks using 157T flywheel, 10.5" diaphragm clutch with 0-unbalance rotating assemblies. Meets SFI 1.1.
M-6375-D302AB* ①		Aluminum 12 lbs	6.00"	157-Tooth	6-bolts	0 oz.-in.	All small blocks using 157T flywheel, 10.5" diaphragm clutch with 0-unbalance rotating assemblies. Reduced rotating mass. Meets SFI 1.1.
M-6375-K302*		Billet Steel 30 lbs	6.00"	164-Tooth	6-bolts	28.2 oz.-in.	Pre-1981 302 engines and 351 engines using 164T flywheels. 10.5" long, 11" long and diaphragm clutches. Meets SFI 1.1.
M-6375-M302*		Billet Steel 30 lbs	6.00"	164-Tooth	6-bolts	0 oz.-in.	All small blocks using 164-tooth flywheels with 0-unbalance rotating assemblies. 10.5" long, 11" long and diaphragm. Meets SFI 1.1.
M-6375-N427*		Billet Steel 29 lbs	6.00"	184-Tooth	6-bolts	0 oz.-in.	Fits 1965 and newer 360, 390, 427 FE engines. 11" long and diaphragm, 11.5" and 12" long clutches. Meets SFI 1.1.
M-6375-P428*		Billet Steel 29 lbs	6.00"	184-Tooth	6-bolts	28.2 oz.-in.	Fits 1966 and newer 428 FE engines. 11" long and diaphragm, 11.5" and 12" long clutches. Balancing may be required. Meets SFI 1.1.
M-6375-Z460A*		Billet Steel 40 lbs	6.00"	176-Tooth	6-bolts	24.2 oz.-in.	Fits 1979-1997 460 including M-6007-521FT/RT for external balance only. 11" long or diaphragm-style clutch with 5/16" holes. 11.5" and 12" long or diaphragm-style clutch. 11" diaphragm Ford trucks even pattern. Meets SFI 1.1.
M-6375-Z460B*		Billet Steel 40 lbs	6.00"	176-Tooth	6-bolts	0 oz.-in.	Fits 1968-1978 429/460 for 0-balance only. 11" long or diaphragm-style clutch with 5/16" holes. 11.5" and 12" long or diaphragm-style clutch. 11" diaphragm Ford trucks even pattern. Meets SFI 1.1.

NOTES:

- ① Diaphragm clutch uses metric bolts and dowel pins. Requires metric Pressure Plate Bolts N602549-S51M and alignment Dowel Pins D1FZ-6397-B or Ford Racing Kit M-6397-A302.
- ② 4.6L engines may have 6 or 8 bolts to attach to the crankshaft. Check the engine code before ordering. Romeo-built engines have 6 bolts and Windsor-built engines have 8 bolts. All Cobra engines have 8 bolts. The 8th character in the VIN is (X) for Windsor engine plant or (W) for Romeo engine plant.
- ③ Requires Bolt and Dowel Kit M-6397-A46 for 11" clutch applications.



M-6375-D302B shown



M-6375-A302B shown

MANUAL TRANSMISSION FLYWHEELS FOR MODULAR ENGINES

PART NUMBER		MATERIAL/ WEIGHT	CLUTCH DAMPER ASSEMBLY COUNTER BORE	RING GEAR	CRANK BOLTS	UNBALANCED	APPLICATION
M-6375-D46* ①②		Nodular Iron 21 lbs	6.320"	164-Tooth	6-bolts	0 oz.-in.	4.6L SOHC Mustang. Has increased rpm capability over stock cast iron flywheel.
M-6375-F46A* ①②③		Billet Steel 29 lbs	6.25"	164-Tooth	6-bolts	0 oz.-in.	Fits 6-bolt 4.6L Mustang with 10.5" clutch and some 11" clutch applications. Does not fit 2005-2010 Mustang production clutch disc. Meets SFI 1.1.
M-6375-G46A* ①②③		Billet Steel 29 lbs	6.25"	164-Tooth	8-bolts	0 oz.-in.	Fits 8-bolt 4.6L Mustang with 10.5" clutch and some 11" clutch applications. Does not fit 2005-2010 Mustang production clutch disc. Meets SFI 1.1.
M-6375-R00A* ①②③		Aluminum 12 lbs	6.200"	164-Tooth	8-bolts	0 oz.-in.	Fits 8-bolt 4.6L Mustang with 10.5" clutch and some 11" clutch applications. Does not fit 2005-2010 Mustang production clutch disc. Reduced rotating mass. Meets SFI 1.1.
M-6375-R00B* ①②③		Aluminum 12 lbs	6.200"	164-Tooth	6-bolts	0 oz.-in.	Fits 6-bolt 4.6L Mustang with 10.5" clutch and some 11" clutch applications. Does not fit 2005-2010 Mustang production clutch disc. Reduced rotating mass. Meets SFI 1.1.

NOTES:

- ① Diaphragm clutch uses metric bolts and dowel pins. Requires metric Pressure Plate Bolts N602549-S51M and alignment Dowel Pins D1FZ-6397-B or Ford Racing Kit M-6397-A302.
- ② 4.6L engines may have 6 or 8 bolts to attach to the crankshaft. Check the engine code before ordering. Romeo-built engines have 6 bolts and Windsor-built engines have 8 bolts. All Cobra engines have 8 bolts. The 8th character in the VIN is (X) for Windsor engine plant or (W) for Romeo engine plant.
- ③ Requires Bolt and Dowel Kit M-6397-A46 for 11" clutch applications.



M-6375-R00B shown



M-6375-R00A shown

Did you know...

1968-1980 302 engines were built with a 28-ounce imbalance factor.

1981-2001 302 engines were built with a 50-ounce imbalance factor.

1969-1997 351W engines were built with a 28-ounce imbalance factor.

1970-1974 351C engines were built with a 28-ounce imbalance factor.

NOTE: Severe engine damage will result if you use the wrong flywheel or damper on your engine.

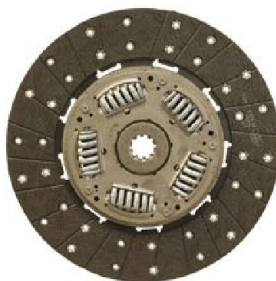
CLUTCHES

PART NUMBER	DESCRIPTION	VEHICLE	APPLICATION	ENGINE	DIAMETER	SPLINE	TECHNICAL INFORMATION
M-7560-A302N*	HD Clutch Kit	①	Performance Street	SBF V8	10.4"	1-1/16" x 10 spline	Consists of M-7550-A302N Disc, M-7563-A302N Pressure Plate and D9ZZ-7548-A Throwout Bearing.
M-7560-T46* 	11" Clutch Kit	See Technical Information	Performance Street	4.6L DOHC	11"	1-1/8" x 26 spline	Kit contains 11" clutch disc with 26-spline hub and pressure plate. Clutch disc with carbon/copper lining on pressure plate side. Centrifugal assist design pressure plate with 25% more torque capacity than production Cobra. Used when installing M-7003-R58C and M-7003-R58H Transmission into 1996-2004 4.6L Mustang with production 11" flywheel or Ford Racing Flywheels M-6375-F46A, M-6375-G46A, M-6375-R00A or M-6375-R00B.
M-7550-B* 	Disc	FR500S Mustang	Road Race	4.6L 3-Valve	11"	1-1/8" x 26 spline	Replacement for FR500S race car with TR 6060 transmission. Puck-style, ceri-metallic lining. Designed to be used with production pressure plate.
M-7550-C*	Disc	FR500S Mustang	Road Race	4.6L 3-Valve	11"	1-1/8" x 26 spline	Optional replacement for FR500S race car with TR6060 transmission. Puck-style, ceri-metallic lining. Designed to be used with production pressure plate.
M-7550-X302* 	Disc	①	Performance Street	SBF V8	10.4"	1-1/16" x 10 spline	HD disc with carbon/copper lining on flywheel side and carbon lining on pressure plate side.
M-7550-T302* 	Disc	①	Performance Street	SBF V8	10.4"	1-1/8" x 26 spline	HD disc with carbon/copper lining on flywheel side and carbon lining on pressure plate side. Designed for 26-spline shaft on M-7003-R58C and M-7003-R58H Transmissions. Will work with M-7563-A302N/B302 Pressure Plates.
M-7563-A302N*	Pressure Plate	①	Performance Street	SBF V8	10.5"	1-1/16" x 10 spline	HD diaphragm-type with approx. 40% more capacity than stock Mustang unit. Nodular iron plate.
M-7563-B302* ② ③ 	Pressure Plate	①	Street	SBF V8	10.4"	1-1/16" x 10 spline	HD diaphragm-type with centrifugal assist. Has approx. 25% more capacity than stock Mustang unit. Cast iron plate.

NOTES: ① 1996-2001 Mustang GT, 1993-1998 Mustang SVT Cobra, 2001-2004 Mustang GT, 1999-2003 Mustang SVT Cobra

② **Clutches have NO warranty!**

③ All clutch discs have 1.0625" 10-spline hub.



1979-2004 MUSTANG V8 HD THROWOUT BEARING

M-7548-A*

- Fits 1979-2004 Mustang with manual transmission and V8 engine
- Self-centering bearing design
- Heavy-duty design lasts longer than most aftermarket bearings



ROLLER PILOT BEARING FOR 289/302/351C AND 351W

M-7600-A*

- Production roller pilot bearing fits 289, 302, 351C and 351W crankshafts
- Designed for .669 diameter input shaft

NOTE: Pre-greased—do not add extra grease. Clutch and bearing damage may occur.



ROLLER PILOT BEARING 4.6L/5.4L MODULAR ENGINES

M-7600-B*

- Production roller pilot bearing fits 4.6L/5.4L Modular engines

NOTE: Pre-greased—do not add extra grease. Clutch and bearing damage may occur.



1979-1993 MUSTANG V8 CLUTCH LINKAGE UPGRADE KIT

M-7553-A302*

This kit consists of a beefed-up clutch release fork and heavy-duty, self-adjusting Teflon®-lined clutch cable. Fits 1979-1993 Mustang.

NOTES:

- ① 1984 and later cars have heavy-duty cable as original equipment.
- ② 1986 and later cars have beefed-up clutch release fork as original equipment.
- ③ To install this kit in 1979-1981 vehicles with manual adjustment clutch mechanisms, the 1982 and later self-adjusting quadrant mechanism must be purchased from Ford and Lincoln dealers.



1982-2004 MUSTANG V8 ADJUSTABLE CLUTCH LINKAGE KITS

M-7553-B302* Cable and quadrant 1982-1995

M-7553-C302* Service cable 1982-1995

M-7553-D302* Cable and quadrant 1996-2004

M-7553-E302* Service cable 1996-2004

- Includes all parts required to convert stock non-adjustable clutch cable to fully adjustable type
- Now you can adjust clutch pedal travel to your driving habits



2005-2010 MUSTANG HIGH-PERFORMANCE CLUTCH FLUID LINE UPGRADE

M-7512-A*

- Service replacement for the Mustang FR500CJ and FR500S race car
- Fits 2005-2010 Mustang V6, GT and Shelby GT500 with manual transmission
- Upgraded clutch fluid line for high-temperature, high-performance applications
- Replaces factory plastic line
- Stainless steel hard line with braided stainless steel flex hose reduces line expansion



1979-2004 MUSTANG V6 AND V8 TOPSIDE CLUTCH ADJUSTER

M-7554-A*

- Fits 1979-2004 Mustang V6 and V8
- Allows you to adjust clutch engagement without going under the car
- Eliminates the rubber bushing at the engine compartment bulkhead for more precise clutch action



1982-2004 MUSTANG V8 DOUBLE-HOOK CLUTCH QUADRANT

M-7583-A*

- Fits 1982-2004 Mustang V8
- Double-hook design lets you use an adjustable clutch cable or topside clutch adjuster and stock cable
- CNC machined from billet aluminum



1996-2004 MUSTANG CLUTCH LEVER

M-7515-A*

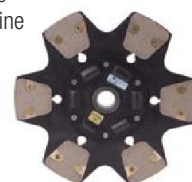
- Fits 1996-2004 Mustang V8
- Stock replacement clutch lever



MUSTANG FR500S CERI-METALLIC CLUTCH DISC

M-7550-C*

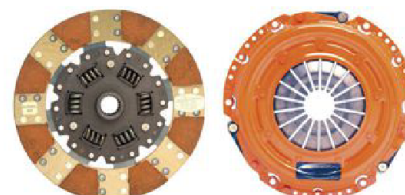
- Optional replacement for the Mustang FR500S race car
- Direct replacement for M-7550-B Clutch Disc
- 11" clutch disc designed for 1-1/8" x 26-spline input shaft
- Puck-style, ceri-metallic lining
- Designed to be used with production pressure plate



2000-2004 FOCUS ZX3/ZX5 CENTERFORCE CLUTCH KIT

M-7563-Z3*

- Fits 2000-2004 2.0L Zetec® Focus ZX3/4/5, not applicable to Focus SVT
- Centerforce "Dual Friction" clutch system improves clamping force by more than 90%
- Improves clutch feel while maintaining easy pedal effort
- Includes clutch disc and pressure plate



2005-2012 8.8" MUSTANG AXLE KIT



M-4006-S197*

- Factory 8.8" axle housing kit for 2005-2012 Mustang
- Perfect for building a custom axle!
- Allows you to customize your gearset and differential
- Includes:
 - Axle housing
 - Housing vent
 - Left and right 31-spline production axle shafts
 - 2005-2009 Mustang pinion flange
 - 2003-2004 Cobra 1350 pinion flange
 - Cover bolts
 - Pinion washer
 - C-locks
 - M-4210-B Ring and Pinion Installation Kit
 - M-1126-C Shim Kit



2005-2012 8.8" MUSTANG AXLE ASSEMBLIES



- 31-spline axles and Traction-Lok differential
- Includes axle shafts
- M-4001-A355*** 3.55:1 gear ratio
- Fits 2005-2012 Mustang GT
- M-4001-SVT373*** 3.73:1 gear ratio **NEW**
- Fits 2005-2012 Mustang GT and 2007-2012 Shelby GT500
- Standard equipment on base 2012 BOSS 302 and 2011-2012 Shelby GT500 Performance Package
- High-strength carrier
- Includes Finned Aluminum Axle Cover M-4033-K



8.8" AXLE GIRDLE COVER KIT



M-4033-G2*

- Fits 8.8" axle
- Fits 1986-2004 Mustang GT
- Low-profile design also fits 2005-2012 Mustang GT and 2007-2012 Shelby GT500
- 356-T6 aluminum casting replaces rear cover on 8.8"
- Load bolts provide additional support for differential bearing caps
- Increase ring and pinion gear life
- Will not fit IRS

NOTE: Check exterior clearance to chassis/suspension.



1999-2004 COBRA AXLE GIRDLE COVER KIT



M-4033-G3*

- Fits 1999-2004 Mustang Cobra
- 356-T6 aluminum casting replaces rear cover on 8.8"
- Load bolts provide additional support for differential bearing caps
- Increased ring and pinion gear life
- Fits 8.8" IRS axle only



1979-1993 MUSTANG/CAPRI 5-LUG REAR BRAKE DRUM/AXLE SHAFT KIT



M-1126-A*

- Fits 1979-1993 Mustang with 8.8" rear axle
- Converts 4-lug, 28-spline with 9" drum brakes to 5-lug, 4.5" bolt circle
- Includes 1 pair 9" x 1-3/4" brake drums and 1 pair of 28-spline 5-lug axle shafts



8.8" ALUMINUM AXLE COVER KIT



M-4033-K*

- Original equipment on 2011 Shelby GT500
- Fits 8.8" Ford rear end
- Cooling ribs reduce gear oil temperature
- Increases rear end rigidity
- Includes 10 special hex-head bolts
- Will not fit IRS



8.8" IRS HOUSING KIT W/GIRDLE COVER

M-4010-G3*

- Includes aluminum IRS differential housing with side seals and outer side bearings installed, Rear Cover M-4033-G3, rear cover bolts, pinion flange, oil slinger and vent tube
- Original equipment housing from 1999-2004 Mustang Cobra with 8.8" rear
- Does not include gear set, gear installation kit or IRS compatible differential



2003-2004 COBRA PINION FLANGE

M-4851-B*

- Original equipment on 2003-2004 Mustang Cobra
- Designed for use with 1350 U-joint flange
- 4.25" bolt circle
- Fits all 8.8" rear drive pinions



1979-2004 MUSTANG 8.8" AXLE INSTALLATION KIT

M-4050-B*

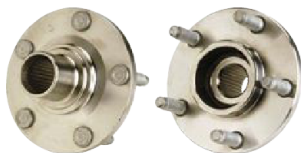
- 1979-2004 non-IRS Mustang
- Contains (2) bushings, (2) C-locks and (1) 4-ounce bottle of friction modifier
- Included with every Ford Racing 8.8" axle assembly, now available separately in this kit in response to requests from racers and fabricators



KIT CAR IRS HUB

M-1109-A*

- 5 x 4.5" bolt circle, 2.775" wheel pilot hub for popular Mustang-size wheels
- Should be used with IRS Knuckle M-5970-A
- Original equipment on 1999-2004 Mustang Cobra



UNIVERSAL PINION NUT

M-4213-A*

- Universal-design 3/4"-20 hex flange pinion lock nut
- Fits 6.75", 7.5", 8.8" and 9" axle assemblies
- Flange diameter 1.610"



KIT CAR IRS BEARING

M-1215-A*

- For use with kit car IRS Hub M-1109-A
- Original equipment on 1993-1998 Mark VIII, 1989-1997 Thunderbird and 1999-2004 Cobra



KIT CAR IRS KNUCKLE SET

M-5970-A*

- Knuckles for use in kit car IRS systems
- Original equipment on 1989-1997 Thunderbird and 1993-1998 Mark VIII
- Includes M-1215-A
- Use with M-1109-A, sold separately
- Hub not included



8.8" RING GEAR AND PINION SETS



PART NUMBER	AXLE	RING & PINION
MUSTANG/RANGER/F-150		
M-4209-88308*	8.8"	3.08
M-4209-88315*	8.8"	3.15
M-4209-88327*	8.8"	3.27
M-4209-88331*	8.8"	3.31
M-4209-88355*	8.8"	3.55
M-4209-88373*	8.8"	3.73
M-4209-88410*	8.8"	4.10
M-4209-88456*	8.8"	4.56



M-4209-88308 shown



No one does 8.8" gears better than Ford Racing...more volume, stronger and quieter.

The 8.8" rear end has been the standard in performance since its introduction in the Mustang in 1986. With millions in operation from 7-second drag cars to F-Series work trucks, the source for your 8.8" gear sets is easy, Ford Racing.

Ford Racing gears are made in the United States alongside the gears that go in Ford production vehicles. This insures the highest quality gear sets available. Quiet enough for a Lincoln, strong enough to be Built Ford Tough in F-Series.

And, in addition to unparalleled quality, Ford Racing passes the volume savings on to the customer, delivering an excellent value.

When your plans call for an 8.8" gear, look for the only brand good enough to wear the Ford Oval.

IRS 8.8" RING AND PINION INSTALLATION KIT



M-4210-A*

- Fits all 8.8" axles 1986-present including IRS
- Perfect for gear installation in new vehicles with new bearings
- Kit includes: pinion and carrier shims, crush sleeve, pinion seal, pinion nut, ring gear bolts and cover gasket



NON-IRS 8.8" RING AND PINION INSTALLATION KIT

M-4210-C2*

- Fits all 8.8" axles 1986-2004 except IRS
- Contains all components from M-4210-B2 plus 8.8" Axle Bearing and Seal Kit M-1225-B
- Kit includes:
 - 2012 Shelby GT500 high-torque pinion bearing
 - Pinion and carrier shims
 - Crush sleeve
 - Pinion nut
 - Pinion seal
 - Ring gear bolts
 - Mustang GT carrier bearings
 - Gear-marking compound
 - Cover gasket

IRS 8.8" RING AND PINION INSTALLATION KIT

M-4210-B2

- Fits all 8.8" axles 1986-present including IRS
- Excellent upgrade for all 8.8" rear ends. High-torque bearing gives added durability for modified vehicles
- Contains all components from M-4210-A plus all differential bearings
- Kit includes:
 - 2012 Shelby GT500 high-torque pinion bearing
 - Pinion and carrier shims
 - Crush sleeve
 - Pinion nut
 - Pinion seal
 - Ring gear bolts
 - Mustang GT carrier bearings
 - Gear-marking compound
 - Cover gasket



NON-IRS 8.8" RING AND PINION INSTALLATION KIT

M-4210-C*

- Fits 1986-2004 Mustang for non-IRS axles
- Includes everything that M-4210-B has and axle shaft bearings and axle shaft seals
- Use for changing ring and pinion gear or differential



8.8" AXLE BEARING AND SEAL KITS



M-1225-B*

- Fits 1986-2004 Mustang
- 8.8" axle shaft bearing and seal kit for non-IRS axles
- Kit contains (2) outer axle shaft bearings and seals
- 2.256" OD bearing

M-1225-B1*

- Fits the 2005-2012 Mustang GT and 2007-2012 Shelby GT500
- 8.8" axle shaft bearing and seal kit
- Kit contains (2) outer axle shaft bearings and seals
- 2.5308/2.5315 bearing OD
- 1.6189/1.6194 bearing ID



8.8" IRS BEARING AND SEAL KIT



M-4413-A*

- For use in rebuild 8.8" IRS differentials
- Kit includes (2) stub shaft pilot bearings and (2) stub shaft pilot bearing housing seals



8.8" TRACTION-LOK REBUILD KIT



M-4700-B*

- Fits all 8.8" Traction-Lok differentials
- Kit includes clutch pack, shims and friction modifier



8.8" TRACTION-LOK REBUILD KIT WITH CARBON DISCS



M-4700-C*

- Fits all 8.8" Traction-Lok differentials
- Kit includes carbon fiber clutch pack, shims, S-spring (31 spline) and instruction sheet
- Carbon fiber discs designed for higher torque usage
- Used in 2003-2012 Mustang SVT



FRICITION MODIFIER FOR CLUTCH-TYPE LIMITED-SLIP DIFFERENTIALS

M-19546-A12* Case of 12
(Single Bottles CM-19546-A1
sold in cases of 12 only)

Specially formulated additive to provide smooth operation of clutch-type limited-slip differentials.



8.8" TRACTION-LOK LIMITED SLIP DIFFERENTIALS

M-4204-F288* 28 spline

M-4204-F318* 31 spline

- 8.8" differential
- Features plate-type clutches
- Will accept anti-lock exciter ring
- Requires 4 ounces of CM-19546-A1 Friction Modifier with initial fill



7.5" TRACTION-LOK LIMITED SLIP DIFFERENTIAL

M-4204-C75*

- 7.5" differential
- Fits 28-spline axles
- Features plate-type clutches
- Will accept anti-lock exciter ring
- Requires 4 ounces of CM-19546-A1 Friction Modifier with initial fill



8.8" AUBURN™ HD LIMITED SLIP DIFFERENTIAL

M-4204-A28* 28 spline

- 8.8" differential
- Features cone-type clutches
- Will accept anti-lock exciter ring
- Requires 4 ounces of CM-19546-A1 Friction Modifier with initial fill
- Recommended for street use only



WHILE
SUPPLIES LAST
Limited Quantity!

2012 MUSTANG BOSS 302 TORSEN® DIFFERENTIAL

M-4204-MB*

- Fits 2005-2012 Mustang GT and 2007-2012 Shelby GT500 with 8.8" axle and 31 spline
- Fits 8.8" axle with 31 spline
- 8.8" Torsen® differential
- 2.7 bias ratio
- 31 spline
- Features full-time torque-sensing, torque-biasing differential
- Standard on 2012 BOSS 302 Mustang Laguna Seca package
- Will accept anti-lock exciter ring

NEW



8.8" TRACTION-LOK LIMITED SLIP DIFFERENTIAL

M-4204-F318C*

- 8.8" differential
- Fits 31-spline axles
- Fits solid or independent rear suspension
- Carbon fiber clutch plates for increased durability
- Will accept anti-lock exciter ring
- Requires 4 ounces of CM-19546-A1 Friction Modifier with initial fill
- Original equipment in 2003-2004 Mustang Cobra



8.8" DIFFERENTIAL

M-4204-F3180*

- 8.8" differential
- Fits 31-spline axles
- Open-type differential
- Will accept anti-lock exciter ring



8.8" T-2 TORSEN® DIFFERENTIALS

M-4204-T28* 28 spline

M-4204-T31* 31 spline

- 8.8" differential
- Torsen® T-2 type differential
- Features full-time torque-sensing, torque-biasing
- M-4204-T28 fits solid axle and 1999 Cobra/Thunderbird/Mark VII with IRS (2000-2004 Cobra has 31 spline)



FOCUS TORSEN® DIFFERENTIALS

M-4204-F20* MTX-75 transaxle

M-4204-SVTF* 2002-2004 Focus SVT

- Torsen® T-2 type differential
- Features full-time torque-sensing, torque-biasing
- Responds immediately to variable driving conditions
- Provides better traction, acceleration and handling than the factory open differential



SPEED-DIAL SPEEDOMETER ADJUSTER

M-4209ADPT-A*



- Used to correct speedometer because of tire size or gear ratio changes
- Fits 1994-2004 Mustang manual and automatic transmission
- Fits 2005-2010 Mustang with manual transmission. Will correct speedometer. It has no limit on magnitude of gear ratio change for manual transmission vehicles
- Fits 2005-2010 Mustang automatic transmission. Will correct speedometer to equivalent of 10% gear ratio change, higher or lower

NOTE: To maintain cruise control function on 2005-2010 Mustang automatic and manual transmissions, gear change is limited to equivalent of 5% higher or lower ratio (<+/-5% change). For example, a gear change from 3.55 to 3.73 results in a gear ratio reduction of 4.8% so cruise control will continue to operate normally. A gear ratio change from 3.55 to 4.11 results in a gear ratio reduction of 13.6% so cruise control operation is lost.

- The speed-dial scales a frequency-based vehicle speed signal up/down to maintain accurate vehicle speed indication to the instrument cluster and PCM
- Easy 4-wire installation
- No reprogramming of PCM necessary



SPEEDOMETER GEAR USAGE CHART — 7.5" AND 8.8" AXLE

The chart specifies the driven gear recommended to obtain approximately correct mph readings when the listed Ford Racing ring and pinion gear sets are used in conjunction with the indicated speedometer drive gear and Mustang original equipment. 15"/16"/17" tires (800-815 revolutions/mile). A dash in the chart indicates that particular combination cannot be obtained. If you are using oversize/undersize tires, obtain the revolutions/mile information from the tire manufacturer and plug it into the formula below. The part numbers of the various speedometer drive and driven gears are shown in the charts. The gears can be obtained from any Ford and Lincoln dealer. They are not available from Ford Racing. The drive gears on T-5/T-45/SROD/Tremec® manual transmissions can be changed. The drive gear on Ford rear-wheel automatic transmissions is machined into the output shaft. Changing the drive gear is impractical since it requires a new output shaft and transmission teardown. Most have 7 or 8 teeth.

AXLE RATIO	SPEEDOMETER DRIVEN GEAR TEETH		
	DRIVE GEAR TEETH		
	6T	7T ①	8T ②
3.08	—	18	20
3.27	16	19	21
3.45/3.55	17	20	—
3.73	18	21	—
4.10	20	—	—
4.30	21	—	—

- NOTES:** ① Used in most vehicles with V8 and T-5 transmissions from 1983-1989 and 1996-1998 Cobra with T-45 transmissions.
 ② Used on 1990-1995 Mustang V8 with T-5 transmissions and 1996-1998 Mustang GT with T-45 transmissions.
 ③ Discontinued.

T-5 MANUAL TRANS. DRIVE GEARS (17285)			MANUAL TRANS. DRIVEN GEARS (17271)			AUTO TRANS. DRIVEN GEARS (17271)		
NUMBER OF TEETH	COLOR	SERVICE PART NUMBER	NUMBER OF TEETH	COLOR	SERVICE PART NUMBER	NUMBER OF TEETH	COLOR	SERVICE PART NUMBER
6	Black	E3ZZ-B	16	Wine	C0DZ-A	16	Blue	D0AZ-A ③
7	Yellow	E3ZZ-A	17	White	C3DZ-C	17	Green	C7SZ-A
8	Green	F0ZZ-A	18	Yellow	C0DD-B	18	Gray	C7SZ-B ③
T-45 MANUAL TRANS. DRIVE GEARS (17285)			19	Pink	C0DZ-B	19	Tan	C7VY-A
			20	Black	C1DZ-A	20	Orange	C8SZ-B
7		F6ZZ-AA	21	Red	C40Z-A	21	Purple	D00Z-B
8		F6ZZ-BA						

SPECIAL APPLICATIONS DRIVEN GEAR CALCULATION EXAMPLE

STEP 1

If your axle/tire combination is not in the above charts, you can calculate the number of teeth required on the driven gear by using this formula:

STEP 2

- T-5 Trans.
- Drive Gear Teeth = 7
- Axle Ratio = 3.73
- Tire Rev. Per Mile = 815 (225/60 VR15)

STEP 3

You would select driven gear with closest whole number of teeth, which would be the 21-tooth C40Z-17271-A part.

$$\text{Driven Gear Teeth} = \frac{\text{Drive Gear Teeth} \times \text{Axle Ratio} \times \text{Tire Rev. Per Mile}}{1000} = \frac{7 \times 3.73 \times 815}{1000} = 21.3 \text{ (driven gear teeth)}$$

"DAYTONA" PINION BEARING RETAINERS

M-4614-A* High-strength aluminum (206T6)

M-4614-B* Nodular iron

- Pinion bearing retainer is a direct fit and functional replacement for the C3AZ-4614-B unit, which is no longer serviced by Ford Customer Service Division
- Each comes complete with large rear cup (TBAA-4616-A) or (HM89410) and small front cup (B7A-4614-A) or (M88010)

NOTE: Use large rear bearing TBAA-4621-A (HM-89443) and small front bearing B7A-4621-A (M-88048) with these retainers.



9" TRAC-LOK LIMITED SLIP DIFFERENTIALS



M-4204-F28A* 28 spline

M-4204-F31A* 31 spline

- 9" differential
- 4-spring aggressive torque bias
- Street/strip application
- 1536 steel billet case caps
- Cast high-strength nodular iron case
- OEM profile gears made of high-manganese, high-chromium alloy steel
- Rebuildable



"BENDA" PINION SEAL 9" AXLE

M-4676-A111*

This premium Viton® oil seal was developed for high-speed, high-temperature applications by Dave Benda, Materials Control Supervisor, Ford Sterling Plant. Viton® is a registered trademark of Dupont® Performance Elastomers.



9" STEEL DIFFERENTIAL CARRIER

M-4141-HS*



- Developed using Finite Element Analysis (FEA) to withstand the demands of NASCAR® racing. Finite Element Analysis is a method for predicting the response of a geometric structure due to the environment it is being designed to function in. The process starts by creating a geometric model. The model is then subdivided, or meshed, into many small geometric pieces, or elements of basic geometric shape. These basic shapes can easily give results for stress and strain where the larger geometric structure cannot
- Steel casting has nearly double the tensile and yield strength and elongation vs. cast iron
- Case investment cast from 8620 steel
- Bearing caps machined from 4130 steel
- ARP® bolts
- 3.250" differential bearing diameter
- Approximate weight: 21 lbs



FRICTION MODIFIER FOR CLUTCH-TYPE LIMITED-SLIP DIFFERENTIALS



M-19546-A12 Case of 12

(single bottles CM-19546-A1)

Specially formulated additive to provide smooth operation of clutch-type limited-slip differentials.



DIFFERENTIAL BEARING ADJUSTER LOCK AND BOLT KIT

M-4144-B*



- Includes 2 locks and 2 bolts to secure differential bearing adjusting nuts on 9" nodular carriers produced after November 1989



BOLT - RING GEAR TO DIFFERENTIAL CASE



M-4216-A200* Sold in pkg. of 100

7/16"-20 x .9375" bolt

M-4216-A210* Sold in pkg. of 10

7/16"-20 x .9375" bolt

The most popular 9" ring gear bolt, for use on open differentials, Detroit Lockers and spools.

NOTE: Will NOT fit Traction-Lok differentials.



HD ALUMINUM DRIVESHAFT ASSEMBLIES

M-4602-G* Fits 1979-1995 Mustang/Capri 5.0L vehicles with T-5/SROD/C-4/AOD, 1979-1993 with Tremec® transmissions and 7.5" or 8.8" axles. 28-spline yoke



M-4602-J* Fits 1996-2004 Mustang and 1996-1998 Cobra 4.6L with manual transmission. 31-spline yoke

- High-strength, 3.5" diameter 0.114" wall thickness 6061-RT62 aluminum seamless drawn tube
- 1330 U-joints 45.5" long (CL to CL of U-joints)
- Will not fit 1999-2004 Cobra



BOSS 302R DRIVESHAFT



M-4602-S*

- Service replacement part for Mustang BOSS 302R race car
- 31-spline yoke
- 1330 U-joints with 4-bolt SN95 flange
- Made from 6061-T6 aluminum, 3.5" diameter x .125" wall thickness
- Does not fit production Mustangs



DRIVESHAFT YOKE 31 SPLINE

M-4841-A*



- Fits 31-spline output shafts
- Uses 1330 U-joints
- Use with M-7003-R58C, M-7003-R58W, M-7003-R58H, M-7003-F, M-7003-G, M-7003-H and production T-45, C-6 and 3650 transmissions



28-SPLINE DRIVESHAFT SLIP YOKE

M-4841-B*



- For replacement use or custom driveshaft construction
- Fits C-4, AOD and T-5 transmissions
- Designed for 1330 U-joint



COBRA JET DRIVESHAFT LOOP

M-5478-CJ*



- Service replacement for the Mustang FR500CJ race car
- Meets most drag racing sanctioning body requirements
- Contains driveshaft in the event of front U-joint breakage
- Fits 2005-2009 Mustang with TR6060 transmission and M-7210-B Shifter
- For use with one-piece driveshafts only



SPECIAL U-JOINT KIT

M-4635-A*



- Kit consists of a hybrid 1310/1330 series cross, plus (4) 1.0625" OD and (2) 1.125" OD caps and locking clips
- Allows small and large Ford drivetrain components to be interchanged



2005-2012 MUSTANG GT AND 2007-2012 MUSTANG SVT DRIVESHAFT LOOP KIT

M-5478-S197B*



- Fits 2005-2012 Mustang GT and 2007-2012 Shelby GT500
- Must drill holes for installation
- Zinc plated
- Includes hardware
- Includes front and rear loops for production two-piece driveshaft
- Will work with 2007-2009 Shelby GT500 Short Throw 6-speed Shifter M-7210-B
- Used on the Mustang FR500S race car



“PUT A FORD ON YOUR FORD”

FRPP uses the Society of Automotive Engineers (SAE) and American Society for Testing and Materials (ASTM) standards: SAE J175 and J328 for impact and fatigue testing and ASTM B368 for chrome testing. These standards define a series of tests that ensure the safety and finish of a wheel.

THESE TESTS ARE THE MINIMUM STANDARD USED TO DEFINE THE ENDURANCE OF FRPP WHEELS.

IMPACT TESTING

This test simulates a curb impact on the side of a tire/wheel assembly. During testing, a tire/wheel assembly is mounted at a 13-degree angle to a test fixture by the hub. A weight is dropped from 9 inches onto the assembly at the tire/wheel intersection. The mass of the weight is determined by a formula, using the vehicle weight.

DYNAMIC CORNERING FATIGUE TESTING

This test simulates lateral loads applied to a wheel by the vehicle. During testing, a wheel is clamped to a fixture by the front face and a constant bending moment is applied through the hub. A wheel of new design will run a minimum of 1,000,000 cycles before approved. The load applied is determined by a formula, using the vehicle weight.

DYNAMIC RADIAL FATIGUE TESTING

This test simulates axial loads applied to a wheel by the vehicle. During testing, a tire/wheel assembly is mounted to an axle by the hub. A large drum drives the assembly while a load is applied perpendicular to the tire patch. A wheel of new design will run a minimum of 5,000,000 cycles. The load applied is determined by a formula, using the vehicle weight.

CHROME QUALITY TESTING

Copper-accelerated acetic acid-salt spray, commonly known as CASS testing, is the standard method used to test the corrosive performance of copper/nickel/chromium-plated wheels. The test is performed in a sealed chamber with a highly acetic spray directed onto the wheel for a predetermined amount of time, usually 66 hours.

MUSTANG MATTE BLACK WHEEL

M-1007-P188MB*

- 2005-2012 Mustang GT and 2005-2012 Mustang V6
- 18" x 8" wide
- 5-lug 4.5" bolt circle
- 40 mm offset
- 6.25" backspacing
- Mesh spoke design
- Cast aluminum with matte black paint finish
- Not for use with OEM Mustang Brembo® brakes
- Includes "Ford Racing" center cap
- Band and valve stem TPMS compatible



20" MUSTANG SPYDER WHEEL

M-1007-P2085LN*

- 2005-2012 Mustang GT and 2005-2012 Mustang V6
- 20" x 8.5" wide
- 5-lug 4.5" bolt circle
- 6.75" backspacing
- 40 mm offset
- Mesh spoke design
- Cast aluminum with luster nickel paint finish
- Not for use with OEM Mustang Brembo® brakes or M-2300-S Brake Kit
- Includes "Ford Racing" center cap
- Band and valve stem TPMS compatible



NOTE:

① For 2005-2010 Mustang with 16" wheels from the factory: -Installing 17" x 8" wheels, use Steering Stop 4R3Z-3932-BA -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. For vehicles with 17" wheels from the factory: -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. 2011-2012 Mustang may require steering stops. Call the Techline at 1-800-FORD788 for more information.

2011 MUSTANG SVT FRONT WHEEL

M-1007-SA199*

- 2005-2012 Mustang GT, 2007-2012 Shelby GT500 and 2005-2012 Mustang V6
- 19" x 9" wide
- 5-lug, 4.5" bolt circle
- 40 mm offset
- 6.6" backspacing
- Forged aluminum
- Same look as production front wheel on 2011 Mustang SVT Track Pack in different width
- Includes Ford Racing center cap
- Clears OEM Brembo® brakes and M-2300-S Brake Kit
- Valve stem TPMS compatible



2011 MUSTANG SVT REAR WHEEL

M-1007-SA1910*

- 2005-2012 Mustang GT, 2007-2012 Shelby GT500 and 2005-2012 Mustang V6
- 19" x 10" wide
- 5-lug, 4.5" bolt circle
- 51 mm offset
- 7.6" backspacing
- Forged aluminum
- Same look as production rear wheel on 2011 Mustang SVT Track Pack in different height and width
- Includes Ford Racing center cap
- Clears OEM Brembo® brakes and M-2300-S Brake Kit
- Valve stem TPMS compatible



2005-2012 MUSTANG GT BLACK TRACK PACK WHEEL

M-1007-DC199B*

- 2005-2012 Mustang GT, 2007-2012 Shelby GT500 and 2005-2012 Mustang V6
- 19" x 9" wide
- 5-lug, 4.5" bolt circle
- 42 mm offset
- 6.8" backspacing
- Same as 2011-2012 Mustang GT Track Pack Wheel with gloss black finish
- Includes center cap
- Clears OEM Brembo® brakes and M-2300-S Brake Kit
- Valve stem TPMS compatible



2010 MUSTANG SVT WHEEL

M-1007-DC1895*

- 2005-2012 Mustang GT, 2007-2012 Shelby GT500, and 2005-2012 Mustang V6
- 18" x 9.5" wide
- 5-lug, 4.5" bolt circle
- 45 mm offset
- 7.125" backspacing
- Includes SVT center cap
- Same as production wheel on 2010 Shelby GT500 convertible
- Cast Aluminum
- Bright machined spoke and wheel face with dark charcoal wheel openings
- Clear coated to OEM standards
- Clears OEM Brembo® brakes and M-2300-S Brake Kit
- Band TPMS compatible



2012 MUSTANG FRONT WHEEL BLACK WITH MACHINED FACE

M-1007-DC199LGB*

- 2005-2012 Mustang GT, 2007-2012 Shelby GT500 and 2005-2012 Mustang V6
- Standard equipment on 2012 Ford Racing Mustang BOSS 302S factory-built Race Car M-FR500-B302S
- 19" x 9" wide
- 5-lug, 4.5" bolt circle
- 42 mm offset
- 169.3 mm backspacing
- Machined face with gloss black accents
- Includes Ford Racing center cap
- For 19" x 10" rear wheel, see M-1007-DC1910LGB
- Clears OEM Brembo® brakes and M-2300-S Brake Kit
- Valve stem TPMS compatible



2012 MUSTANG REAR WHEEL BLACK WITH MACHINED FACE

M-1007-DC1910LGB*

- 2005-2012 Mustang GT, 2007-2012 Shelby GT500 and 2005-2012 Mustang V6
- Standard equipment on 2012 Ford Racing Mustang BOSS 302S factory-built Race Car M-FR500-B302S
- 19" x 10" wide
- 5-lug, 4.5" bolt circle
- 47.5 mm offset
- 187.5 mm backspacing
- Machined face with gloss black accents
- Includes Ford Racing center cap
- For 19" x 9" front wheel, see M-1007-DC199LGB
- Clears OEM Brembo® brakes and M-2300-S Brake Kit
- Valve stem TPMS compatible



NOTE:

① For 2005-2010 Mustang with 16" wheels from the factory: -Installing 17" x 8" wheels, use Steering Stop 4R3Z-3932-BA -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. For vehicles with 17" wheels from the factory: -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. 2011-2012 Mustang may require steering stops. Call the Techline at 1-800-FORD788 for more information.



2005-2012 MUSTANG GT BLACK WHEEL

M-1007-S1885B* ①

- 2005-2012 Mustang GT, 2005-2012 Mustang V6
- 18" x 8.5" wide
- 5-lug, 4.5" bolt circle
- 50 mm offset
- 6.82" backspacing
- Black painted finish
- Includes Mustang center cap
- Fits 2005-2010 Mustang V6 with 2005-2010 Mustang V6 Brake Upgrade Kit M-2300-D
- Non-TPMS compatible
- Will not clear Brembo® M-2300-S Brake Package



2012 MUSTANG BOSS 302S RACE CAR WHEEL

M-1007-R1895*



- BOSS 302S Race Car for NASA American Iron class
- 18" x 9.5" size
- Fits front and rear (requires 0.25" spacer at front to clear race brakes)
- 5/8" wheel studs required
- 5-lug, 4.5" bolt circle
- 7.2" backspacing



2005-2012 MUSTANG SPECIAL EDITION BLACK WHEEL

M-1007-T178B* ①

- 2005-2012 Mustang GT, 2005-2012 Mustang V6
- 17" x 8" wide
- 5-lug, 4.5" bolt circle
- 45 mm offset
- 6.295" backspacing
- Fits 2005-2010 Mustang V6 with 2005-2010 Mustang V6 Brake Upgrade Kit M-2300-D
- Will not clear Brembo® M-2300-S Brake Package
- Non-TPMS compatible



2005-2012 MUSTANG GT SILVER WHEEL

M-1007-T178S* ①



- 2005-2012 Mustang GT, 2005-2012 Mustang V6
- 17" x 8" wide
- 5-lug, 4.5" bolt circle
- 45 mm offset
- 6.295" backspacing
- Fits 2005-2010 Mustang V6 with 2005-2010 Mustang V6 Brake Upgrade Kit M-2300-D
- Will not clear Brembo® M-2300-S Brake Package
- Non-TPMS compatible



NOTE:

① For 2005-2010 Mustang with 16" wheels from the factory: -Installing 17" x 8" wheels, use Steering Stop 4R3Z-3932-BA -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. For vehicles with 17" wheels from the factory: -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. 2011-2012 Mustang may require steering stops. Call the Techline at 1-800-FORD788 for more information.

2007-2009 MUSTANG SVT WHEEL

M-1007-S1895* ①

- 2005-2012 Mustang GT, 2005-2012 V6 and 2007-2012 Shelby GT500
- 18" x 9.5" wide
- 5-lug, 4.5" bolt circle
- 45 mm offset
- 7.125" backspacing
- Includes SVT center cap
- Same as production 2007-2009 Shelby GT500
- Manufactured in batches, color may not match factory wheels
- Clears M-2300-D 12.4" Brake Kit
- Fits M-2300-S Brembo® Brake Kit
- Band TPMS compatible
- Not compatible with valve stem mount TPMS



2007 MUSTANG SVT BLACK WHEEL WITH MACHINED LIP

M-1007-S1895B1* ①

- 2005-2012 Mustang GT, 2005-2012 V6 and 2007-2012 Shelby GT500
- 18" x 9.5" wide
- 5-lug, 4.5" bolt circle
- 45 mm offset
- 7.125" backspacing
- Includes SVT center cap
- Same as production 2007-2009 Shelby GT500 except wheel face is gloss black with machined lip
- Clears M-2300-D 12.4" Brake Kit
- Fits M-2300-S Brembo Brake Kit
- Band TPMS Compatible
- Not compatible with valve stem mount TPMS



NOTE:

① For 2005-2010 Mustang with 16" wheels from the factory: -Installing 17" x 8" wheels, use Steering Stop 4R3Z-3932-BA -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. For vehicles with 17" wheels from the factory: -Installing 18" x 8.5" or 18" x 9.5" wheels, use Steering Stop 6R3Z-3932-CA. 2011-2012 Mustang may require steering stops. Call the Techline at 1-800-FORD788 for more information.

F-150 SVT RAPTOR CHARCOAL GREY WHEEL

M-1007-F15RAA*

- 2010-2012 F-150 Raptor
- 17" x 8.5" wide
- 6-lug, 135 mm bolt circle
- 6.16" backspacing
- 34 mm offset
- Black painted finish with machined lip
- Includes Ford Racing center cap
- Requires stem-mounted sensor 9L3Z-1A189-A for Tire Pressure Monitoring System



F-150 SVT RAPTOR BLACK WHEEL

M-1007-F15RBA*

- 2010-2012 F-150 Raptor
- 17" x 8.5" wide
- 6-lug, 135 mm bolt circle
- 6.16" backspacing
- 34 mm offset
- Black painted finish with machined lip
- Includes Ford Racing center cap
- Requires stem-mounted sensor 9L3Z-1A189-A for Tire Pressure Monitoring System



EXTERIOR CHROME CLEANING PROCEDURES

- Wash the vehicle first, using cool or lukewarm water and a neutral pH shampoo, such as Motorcraft Detail Wash (ZC-3-A).
- Use Custom Brite Metal Cleaner (ZC-15), available from your authorized dealer. Apply the product as you would a wax to clean bumpers and other chrome parts; allow the cleaner to dry for a few minutes and then wipe off the haze with a clean, dry rag.
- **Never use abrasive materials such as steel wool or plastic pads as they can scratch the chrome surface.**

ALUMINUM WHEELS AND WHEEL COVERS CLEANING PROCEDURES

Aluminum wheels and wheel covers are coated with a clearcoat paint finish. In order to maintain their shine:

- Clean weekly with Motorcraft Wheel and Tire Cleaner (ZC-37-A) available from your authorized dealer. Heavy dirt and brake dust accumulation may require agitation with a sponge. Rinse thoroughly with a strong stream of water.
- Never apply any cleaning chemical to hot or warm wheel rims or covers.
- Some automatic car washes may cause damage to the finish on your wheel rims or covers. Chemical-strength cleaners, or cleaning chemicals, in combination with brush agitation to remove brake dust and dirt, could wear away the clearcoat finish over time.
- Do not use hydrofluoric acid-based or high caustic-based wheel cleaners, steel wool, fuels or strong household detergent.
- To remove tar and grease, use Motorcraft Bug and Tar Remover (ZC-42), available from your authorized dealer.



2003 FOCUS SVT SILVER WHEEL

M-1007-S177*

- 2000-2011 Focus
- 17" x 7" wide
- 4-lug, 108 mm bolt circle
- 49 mm offset
- 5.94" backspacing
- Includes SVT center cap
- Original equipment on the Focus SVT
- Clears M-2300-SVTF5 (300 mm) Brake Kit
- Non-TPMS compatible



2004 FOCUS SVT WHEEL

M-1007-S177A*

- 2000-2007 Focus
- 17" x 7" wide
- 4-lug, 108 mm bolt circle
- 49 mm offset
- 5.94" backspacing
- Includes SVT center cap
- Original equipment on the 2003-2004 Focus SVT
- Clears M-2300-SVTF5 (300 mm) Brake Kit
- Non-TPMS compatible



2003 FOCUS SVT EUROPEAN APPEARANCE PACKAGE 15-SPOKE DARK ARGENT WHEEL

M-1007-S177E*

- 2000-2011 Focus
- 17" x 7" wide
- 4-lug, 108 mm bolt circle
- 49 mm offset
- 5.94" backspacing
- Includes SVT center cap
- Original equipment on the Focus SVT with Euro Appearance Package
- Clears M-2300-SVTF5 (300 mm) Brake Kit
- Non-TPMS compatible



FORD RACING FOCUS RALLY WHEEL

M-1007-S177B*

- 2000-2011 Focus
- 17" x 7" wide
- 4-lug, 108 mm bolt circle
- 49 mm offset
- 5.94" backspacing
- Includes Ford Racing center cap
- Clears M-2300-SVTF5 (300 mm) Brake Kit
- Same as M-1007-S177E except painted black
- Non-TPMS compatible



FORD RACING 15-SPOKE FIESTA WHEEL

M-1007-FA*

- 2011-2012 Ford Fiesta sedan and hatchback
- 2000-2011 Focus
- 17" x 7" wide
- 4-lug, 108 mm bolt circle
- 49 mm offset
- 5.94" backspacing
- Includes Ford Racing center cap
- Valve stem TPMS compatible



FORD RACING LUG NUTS AND CENTER CAPS

WHEEL PART NUMBER	CENTER CAPS									LUG NUTS	
	M-1096-A	M-1096-B	M-1096-CA	M-1096-FR	M-1096-FR1	M-1096-J	M-1096-K	M-1096-M	M-1096-N	LUG NUT PART NUMBER	
M-1007-A179			O	O		O	O		X	M-1012-A	M-1012-K
M-1007-B178C			O	O		O	X		O	M-1012-A	M-1012-K
M-1007-C178										M-1012-A	M-1012-K
M-1007-C58								X		M-1012-A	M-1012-K
M-1007-DC1895										M-1012-A	M-1012-K
M-1007-DC199B					X					M-1012-A	M-1012-K
M-1007-DC199LGB					X					M-1012-A	M-1012-K
M-1007-DC1910LGB					X					M-1012-A	M-1012-K
M-1007-D178			O	O		O	O		O	M-1012-A	M-1012-K
M-1007-F15AA				X						M-1012-A	M-1012-K
M-1007-F15RBA				X						M-1012-A	M-1012-K
M-1007-F500			O	X		O	O		O	M-1012-A	M-1012-K
M-1007-F500B			O	X		O	O		O	M-1012-A	M-1012-K
M-1007-F500C			O	X		O	O		O	M-1012-A	M-1012-K
M-1007-G178			O	O					O	M-1012-A	M-1012-K
M-1007-J178			O	O		O	X		O	M-1012-A	M-1012-K
M-1007-K178			O	O		O	X		O	M-1012-A	M-1012-K
M-1007-M167										M-1012-A	M-1012-K
M-1007-M178			O	O		O	X		O	M-1012-A	M-1012-K
M-1007-N167										M-1012-A	M-1012-K
M-1007-P188MB					X					M-1012-A	M-1012-K
M-1007-P2085LN					X					M-1012-A	M-1012-K
M-1007-R189						X	O			M-1012-A	M-1012-K
M-1007-R1895										M-1012-A	M-1012-K
M-1007-R54								X		M-1012-A	M-1012-K
M-1007-R54C								X		M-1012-A	M-1012-K
M-1007-R58								X		M-1012-A	M-1012-K
M-1007-R189		O	O	O		X			O	M-1012-A	M-1012-K
M-1007-R189C		O	O	O		X			O	M-1012-A	M-1012-K
M-1007-SA199					X					M-1012-A	M-1012-K
M-1007-SA1910					X					M-1012-A	M-1012-K
M-1007-S177		O	O	O			O			NA	
M-1007-S177A			O	O					X	NA	
M-1007-S177B		O	O	O		O			X	NA	
M-1007-S177E			O	O					X	NA	
M-1007-S179			O	O					X	M-1012-A	M-1012-K
M-1007-S179C			O	O					X	M-1012-A	M-1012-K
M-1007-S1885	X	O			O					M-1012-A	M-1012-K
M-1007-S1885B	X	O			O					M-1012-A	M-1012-K
M-1007-S1885C	X	O			O					M-1012-A	M-1012-K
M-1007-S1895		O	O	O		O			X	M-1012-A	M-1012-K
M-1007-S1895B		O	O	O		O			X	M-1012-A	M-1012-K
M-1007-S1895B1		O	O	O		O			X	M-1012-A	M-1012-K
M-1007-T178B	X	O								M-1012-A	M-1012-K
M-1007-T178S	X	O								M-1012-A	M-1012-K
AS DELIVERED	X										
OPTIONS	O										

M-1096-CA



M-1096-FR



M-1096-FR1



M-1096-K



M-1096-A



M-1096-B



M-1096-M

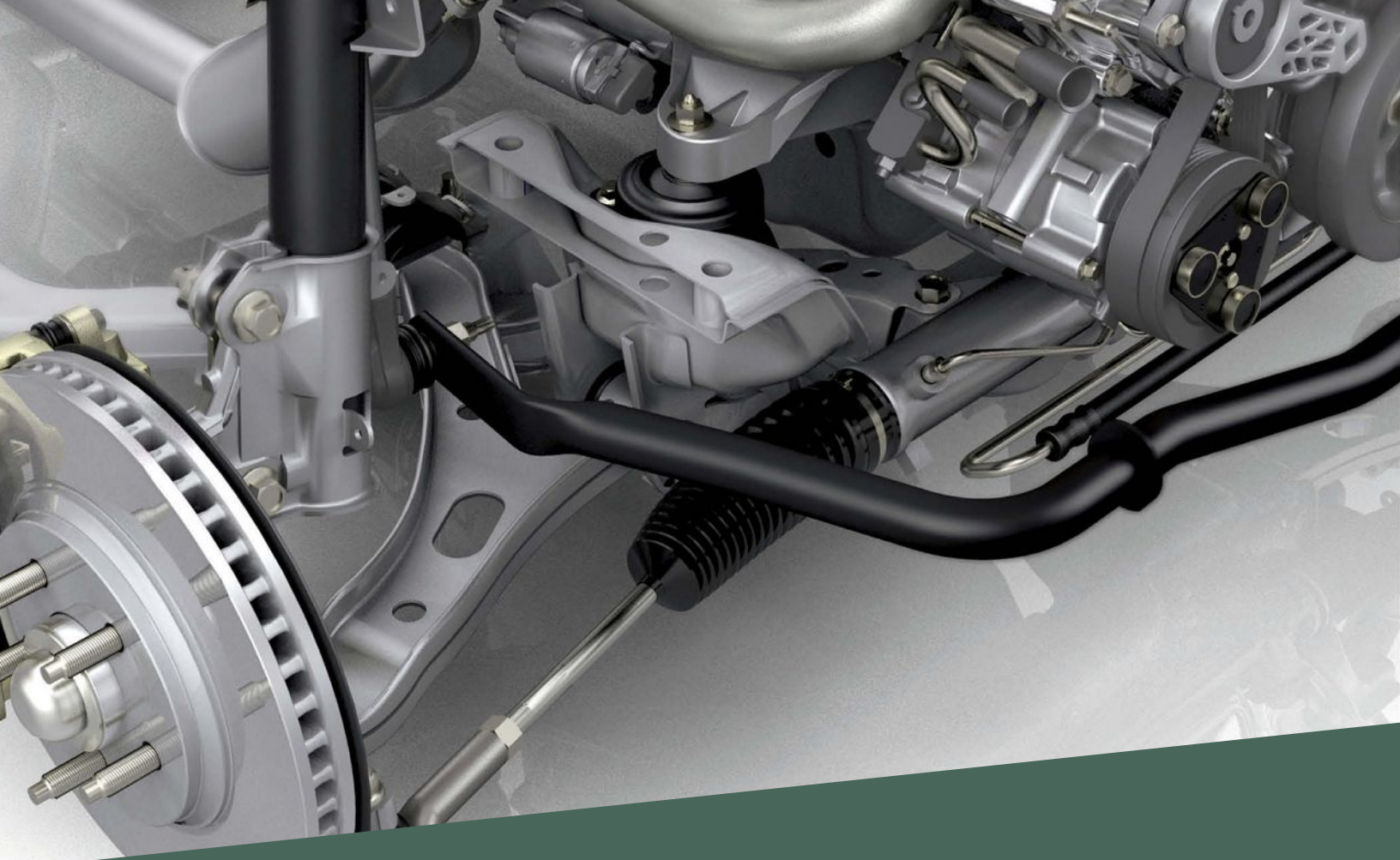


M-1096-N



M-1096-J





CHASSIS

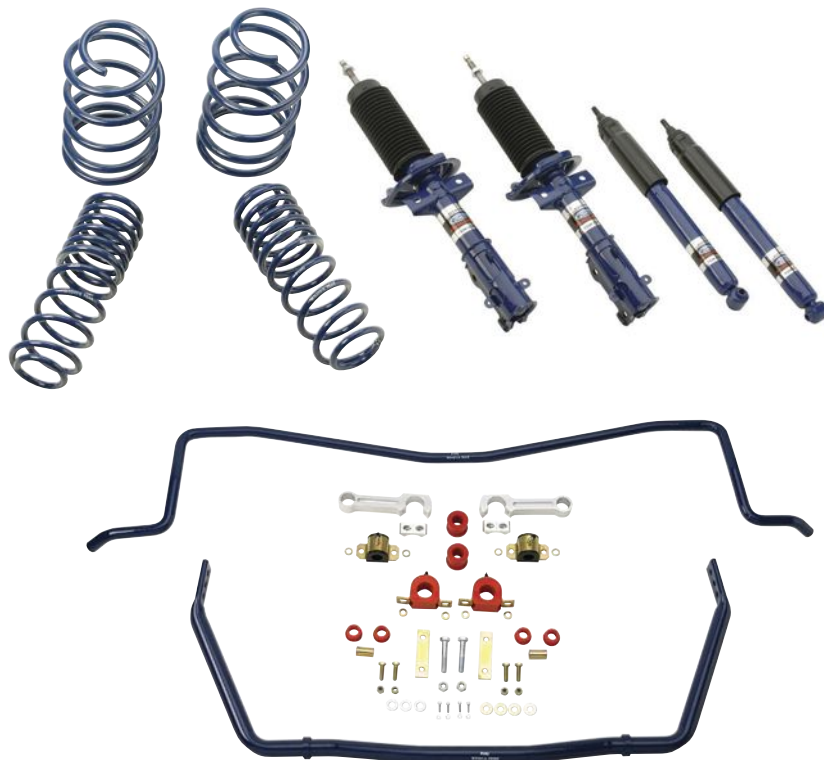


2011-2012 MUSTANG SVT COUPE HANDLING PACK

M-FR3-MSVTA*

- Make your 2011-2012 Shelby GT500 a corner-carving machine with the added performance of the FR3 handling pack. The pack is uniquely tuned to fit the the 2011-2012 Shelby GT500 Coupe. (Will **not** work on 2007-2010 Shelby GT500.) For 2007-2009 Shelby GT500, see M-2007-FR3SVT. For 2010 Shelby GT500, see M-FR3-MSVT
- Handling Pack includes:
 - Adjustable Struts/Shocks M-18000-C
 - Lowering Springs M-5300-L
 - Anti-roll Bar Kit M-5490-B
 - Upper Strut Mount M-18183-C
 - Jounce Stops M-5570-A
- Lowers car approximately 1.25"
- All components are designed to work together as a package
- Struts/shocks are adjustable and manufactured by Dynamic® Suspensions (the same company that makes struts/shocks for the Ford Racing Mustang race car)

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.



2007-2010 MUSTANG SVT COUPE HANDLING PACKS



M-FR3-MSVT*

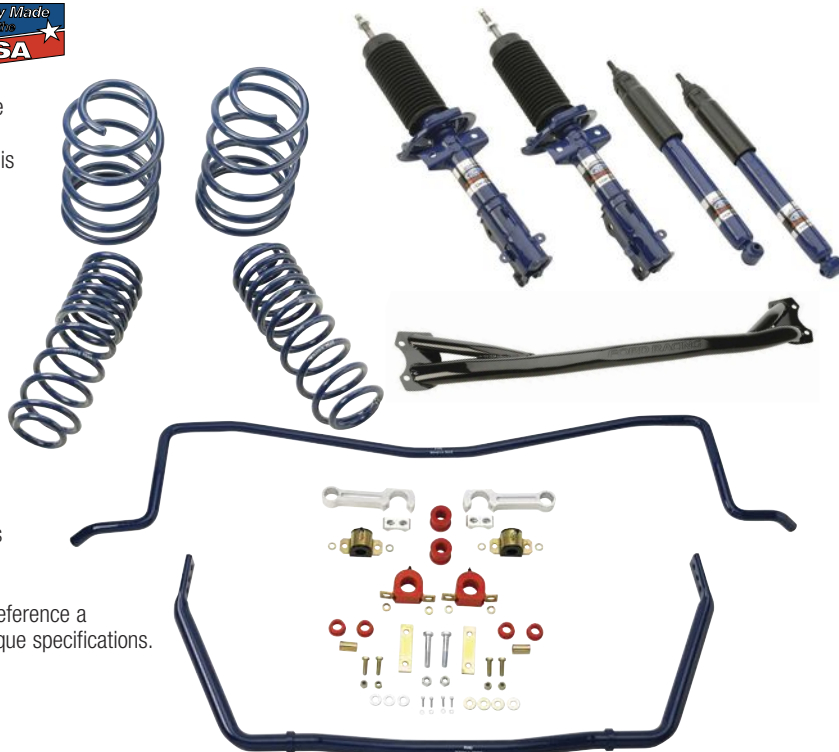
2010 Shelby GT500 Coupe

M-2007-FR3SVT*

2007-2009 Shelby GT500 Coupe

- Looking to take your Shelby GT500 to the next level in handling performance? Ford Racing's handling pack is tuned exclusively for the Shelby GT500 Coupe
- Handling Pack includes:
 - Adjustable Struts/Shocks M-18000-C
 - Lowering Springs M-5300-L
 - Anti-roll Bar Kit M-5490-B
 - Strut Tower Brace for 2010 Shelby GT500 M-20201-MSVTC
 - Strut Tower Brace for 2007-2009 Shelby GT500 M-20201-C
- All components are designed to work together as a package
- Lowers car approximately 1.25"
- Struts/shocks are adjustable and manufactured by Dynamic® Suspensions (the same company that makes struts/shocks for the Ford Racing Mustang race car)
- M-18183-C Strut Mounts recommended

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.



M-2007-FR3SVT shown

2005-2012 MUSTANG GT COUPE HANDLING PACK (1" DROP)

M-FR3-MGTA*

- Put a little "Road Race" into your Mustang GT with Ford Racing's handling pack, it's tuned to deliver improved handling without sacrificing ride quality
- Fits 2005-2012 Mustang GT Coupe. For Convertible, see M-FR3-MCGTA
- Handling Pack includes:
 - Struts/Shocks M-18000-A
 - Lowering Springs M-5300-P
 - Sway Bars M-5490-A
 - Strut Tower Brace M-20201-S197. Strut tower brace does not clear 2007-2010 plastic engine cover
 - Front Strut Mount Upgrade M-18183-C
 - Jounce Stops M-5570-A designed for improved stability/ride comfort when used in conjunction with lowering springs
- All components are designed to work together as a package
- Lowers car approximately 1.0". For 1.5" lowering springs, see M-5300-K, sold separately

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after installation.



2005-2012 MUSTANG GT COUPE ADJUSTABLE HANDLING PACK

M-FR3-MGTAA*

- Make your 2005-2012 Mustang GT a corner-carving machine with the added performance of the adjustable FR3 handling pack. The adjustable struts/shocks allow you to tune your suspension to street or track conditions. One click using the supplied tool adjusts for both compression and rebound
- Handling Pack includes:
 - Adjustable Struts/Shocks M-18000-C
 - Lowering Springs M-5300-P
 - Sway Bars M-5490-A
 - Jounce Stops M-5570-A
 - Strut Tower Brace M-20201-S197
 - Front Strut Mount Upgrade M-18183-C
- All components are designed to work together as a package
- Lowers car approximately 1.0"
- Single adjustment struts/shocks deliver two-way response in compression and rebound
- All components are designed to work together as a package
- Struts/shocks are adjustable and manufactured by Dynamic® Suspensions (the same company that makes struts/shocks for the Mustang race car)

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.



2005-2012 MUSTANG GT CONVERTIBLE HANDLING PACK (1" DROP)

M-FR3-MCGTA*

- Ford Racing's handling pack for the 2005-2012 Mustang GT Convertible delivers that aggressive stance without sacrificing ride quality
- Fits 2005-2012 Mustang GT Convertible. For Coupe, see M-FR3-MGTA
- Handling Pack includes:
 - Struts/shocks
 - Lowering springs
 - Sway Bars M-5490-D
 - Strut Tower Brace M-20201-S197
 - Front Strut Mount Upgrade M-18183-C
- All components are designed to work together as a package
- Lowers car approximately 1.0"

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after installation.



2011-2012 MUSTANG V6 COUPE HANDLING PACK (1" DROP)

M-FR3-MV6A*

- With 300 horsepower, the 2011-2012 Mustang V6 has moved into the muscle car ranks yet still delivers excellent fuel economy. Ford Racing has developed a suspension kit for enthusiasts looking to take the car to the next level of performance. Fits 2011-2012 Mustang V6 Coupe
- Handling Pack includes:
 - Struts/Shocks M-18000-A
 - Lowering Springs M-5300-N
 - Jounce Stops M-5570-A
 - Sway Bars M-5490-C
 - Strut Mounts M-18183-C
 - Strut Tower Brace M-20201-F
- All components are designed to work together as a package
- Lowers the car approximately 1.0"

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.



Photo may vary

2005-2010 MUSTANG V6 COUPE HANDLING PACK (1.25" DROP)



M-2007-FR3V6*

- For Mustang V6 owners looking for better handling and aggressive stance, Ford Racing offers a 1.50" drop kit for the 2005-2010 Mustang V6 Coupe
- Handling Pack includes:
 - Shocks/Struts M-18000-A
 - Lowering Springs M-5300-N
 - Anti-roll Bar Kit M-5490-C
 - Strut Tower Brace M-20201-F
- All components are designed to work together as a package
- Lowers car approximately 1.250"
- Shocks/struts are manufactured by Dynamic® Suspensions (the same company that makes shocks/struts for the FR500C race car)

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.





2007-2012 MUSTANG GT/SVT ADJUSTABLE STRUT/SHOCK KIT

M-18000-C*

- Fits 2007-2012 Shelby GT500 and 2005-2010 Mustang GT
- Will fit 2011-2012 Mustang GT. Requires use of Ford Racing springs and Upper Strut Mounts M-18183-C
- Engineered specifically for improved handling on both stock ride height and lowered 2007-2012 Shelby GT500 and 2005-2012 Mustang GT
- Single adjustment with two-way response
- Recommended for Shelby GT500 use with M-5300-L Spring Kit, M-5490-B Anti-roll Bar Kit and M-20201-C Strut Tower Brace (2007-2009 Shelby GT500 only)
- Recommended for Mustang GT use with M-5300-P Spring Kit (1.0" drop), M-5300-K Spring Kit (1.5" drop), M-5490-A Anti-roll Bar Kit and M-20201-S197 Strut Tower Brace

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after installation.



2005-2012 MUSTANG COUPE DYNAMIC STRUT/SHOCK KIT

M-18000-A*

- Fits 2005-2010 Mustang GT and Mustang V6
- Will fit 2011-2012 Mustang GT and Mustang V6. Requires Ford Racing springs and Upper Strut Mounts M-18183-C
- Dynamic® Suspension Strut/Shock, same manufacturer as Mustang road race car
- Unique Ford Racing performance tune
- Designed specifically for lowered vehicles
- Mustang GT coupe owners: Use with M-5300-K and M-5490-A for optimum performance
- Mustang V6 coupe owners: Use with M-5300-N and M-5490-C for optimum performance

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.



2005-2012 MUSTANG JOUNCE BUMPER KIT

M-5570-A

- Unique jounce stops designed for improved stability/ride comfort when used in conjunction with FRPP lowering springs
- Fits 2005-2012 Mustang V6, GT and 2007-2012 Shelby GT500
- Includes front and rear jounce stops



FOCUS DYNAMIC STRUT/SHOCK KITS

M-18000-ZXM* 2000-2005 Focus except wagon

M-18000-ZXM1* 2006-2007 Focus except wagon

- Tuned for track use
- Dynamic® strut/shock—same manufacturer as those on the Mustang road race car
- Kit includes front struts and rear shocks

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after installation.



FOCUS SVT STRUT/SHOCK KITS

M-18000-ZX3* 2000-2005 Focus except wagon

M-18000-ZX3B* 2006-2007 Focus except wagon

- Focus SVT strut/shock kit improves handling over OEM Focus strut/shock

- Includes front struts with strut mount, spring seats and rear shocks

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after installation.



2012 FOCUS HANDLING KIT

M-FR3-FB*

- Fits 2012 Focus
- Improved handling characteristics without ride degradation
- Reduced ride height
- Includes front struts, rear shocks, springs and roll bars
- See fordracingparts.com for more details

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after install.



2000-2005 FOCUS SUSPENSION KIT

M-3000-ZX3*

- Fits 2000-2005 ZX3, ZX4 and ZX5 Focus
- Original equipment on Focus SVT
- Upgrades your stock Focus suspension to Focus SVT
- Improved handling characteristics without ride degradation
- Reduced ride height approximately .5"

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after install.



2000-2005 FOCUS SUSPENSION KIT

M-3000-ZX3A*



- Fits 2000-2005 ZX3, ZX4 and ZX5 Focus
- Original equipment on Focus SVT suspension
- Upgrades your stock Focus suspension to Focus SVT
- Improved handling characteristics without ride degradation
- Reduced ride height approximately .5"
- Front struts come assembled with upper strut mounts and springs installed
- Kit does not include front or rear anti-roll bars, rear Anti-Roll Bar M-5400-Z3R recommended
- Additional hardware may be required for rear anti-roll bar installation
- Cars without factory rear stabilizer bar may require Adjustable Rear Subframe M-5035-ZX3

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after install.



2011-2012 FIESTA HANDLING KIT

M-FR3-FA*

- Fits 2011-2012 Fiesta sedan and hatchback
- Delivers improved handling characteristics without ride degradation
- Reduced ride height 12 mm-15 mm lower front
- Reduced ride height 22 mm-28 mm lower rear
- Includes front struts, front springs, rear shocks and rear springs

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after install.



2011-2012 FIESTA B-SPEC SUSPENSION KIT

M-FR3-FASB*

- Fits 2011-2012 Fiesta
- Kit includes front coilover and rear standard monotube gas shocks with performance-level valving and progressive rate coil springs
- Solid aluminum spring seat and lock nut allows for precise adjustment of the vehicle's lowered ride height from 30 mm to 50 mm
- Approved for SCCA B-Spec class

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.



2007-2012 MUSTANG SVT 1.25" LOWERING SPRINGS



M-5300-L*

- Fits 2007-2012 Shelby GT500 Coupe
- Gives a more aggressive-looking stance as well as increased handling dynamics
- Lowers car approximately 1.25"
- Recommended for use with M-18000-C Damper Kit and M-5490-B Anti-roll Bar Kit
- Mustang Jounce Bumper Kit M-5570-A recommended with installation of springs
- May cause slightly harsher ride compared to stock springs
- M-18183-C Strut Mounts recommended



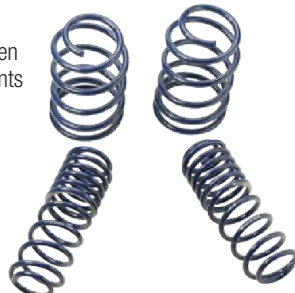
NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.

2005-2012 MUSTANG GT 1.0" LOWERING SPRINGS



M-5300-P*

- Fits 2005-2010 Mustang GT Coupe
- Fits 2011-2012 Mustang GT Coupe when used with M-18183-C Upper Strut Mounts and M-18000-A Dampers
- Gives a more aggressive looking stance as well as increased handling dynamics
- Lowers car approximately 1.00"
- Progressive spring with increased rate, designed for increased handling and performance
- Use with M-18000-A, M-20201-S197 and M-5490-A for optimum performance
- Mustang Jounce Bumper Kit M-5570-A recommended with installation of springs
- May cause slightly harsher ride compared to stock springs
- M-18183-C Strut Mounts recommended



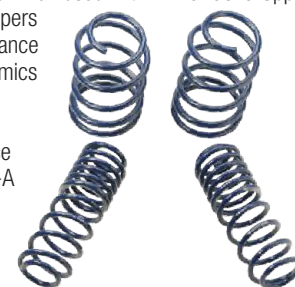
NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.

2005-2012 MUSTANG GT COUPE 1.5" LOWERING SPRINGS



M-5300-K*

- Fits 2005-2010 Mustang GT Coupe
- Fits 2011-2012 Mustang GT Coupe when used with M-18183-C Upper Strut Mounts and M-18000-A Dampers
- Gives a more aggressive-looking stance as well as increased handling dynamics
- Lowers car approximately 1.5"
- Progressive spring, designed for increased handling and performance
- Use with M-18000-A and M-5490-A for optimum performance
- Mustang Jounce Bumper Kit M-5570-A recommended with installation of springs
- May cause slightly harsher ride compared to stock springs
- M-18183-C Strut Mounts recommended



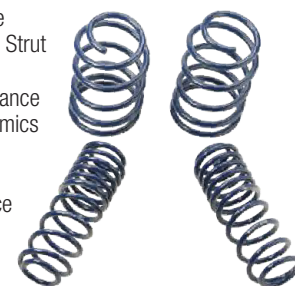
NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.

2005-2012 MUSTANG V6 COUPE 1.25" LOWERING SPRINGS



M-5300-N*

- Fits 2005-2010 Mustang V6 Coupe
- Fits 2011-2012 Mustang V6 Coupe when used with M-18183-C Upper Strut Mounts and M-18000-A Dampers
- Gives a more aggressive-looking stance as well as increased handling dynamics
- Lowers car approximately 1.25"
- Progressive spring, designed for increased handling and performance
- Designed to be used with M-18000-A and M-5490-C
- Mustang Jounce Bumper Kit M-5570-A recommended with installation of springs
- May cause slightly harsher ride compared to stock springs
- M-18183-C Strut Mounts recommended



NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after installation.

COBRA JET SPRING KITS



- Kits include front and rear springs
- For drag racing applications only

M-5300-Q*

- Service replacement for the 2008 Mustang FR500CJ race car
- Standard ride height
- May require alignment after install

M-5300-R*

- Fits 2010 Cobra Jet Mustang
- Lowers ride height: front 1.9", rear 2.5"
- May require alignment after install



1979-2004 MUSTANG FRONT/REAR SPRING KITS



- Fits 1979-2004 Mustang
- Lower your Mustang and improve handling
- The height on some cars will vary
- May require alignment after install

NOTE: Expect some deterioration in ride quality.

PART NUMBER	MODEL YEAR	AMOUNT LOWERED (V8)		SPRING RATES (LB/IN)	
		FRONT	REAR	FRONT	REAR
M-5300-B* ⑥	1979-2004 ⑤	.875" ①	.5" ②	425/530	200/300
M-5300-C* ⑥	1979-2004 ⑤	.875" ①	.5" ②	650	200/300
M-5300-F* ③⑥	1979-2004 ⑤	1.2"	1.0"	460/570	170/310
M-5300-G* ④⑥	1979-2004 ⑤	1.2"	1.2"	500/570	170/310

NOTES:

- ① 1994-2004 models – 1-1/8".
- ② 1994-2004 models – 3/4".
- ③ Coupe only.
- ④ Convertible only.
- ⑤ Will not fit 1999-2001 Cobra.
- ⑥ Due to vehicle assembly tolerances, these specifications may vary.



M-5300-F shown

FOCUS PERFORMANCE SPRING KITS

M-5560-ZXM* 2000-2005 Focus except wagon

M-5560-ZXM1* 2006-2007 Focus except wagon

- Lowers vehicle approximately 1.5"
- Gives a more aggressive-looking stance as well as increased handling dynamics
- May require M-5035-ZX3 (rear) and aftermarket camber plates (front) to achieve desired alignment

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after install.



2006-2007 FOCUS PERFORMANCE SPRING KIT



M-5560-ZX3B*

- Fits 2006-2007 Focus except wagon
- Improves handling
- Lowers vehicle approximately 1.5"
- Includes front and rear springs
- May cause slightly harsher ride compared to stock springs
- May require M-5035-ZX3 (rear) and aftermarket camber plates (front) to achieve desired alignment

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications. May require alignment after install.



2012 FOCUS SPRING KIT

M-5300-S*

- Fits 2012 Focus
- Improves handling
- Lowers vehicle approximately 1.0"
- Includes front and rear springs
- May cause slightly harsher ride compared to stock springs

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications. May require alignment after install.



2012 FOCUS ANTI-ROLL BAR KIT

M-5490-F*

- Fits 2012 Focus
- Designed to increase handling and performance
- Includes front and rear anti-roll bars



2004-2010 F-150 REAR LOWERING KIT

M-3000-G*

- Fits 2004-2010 F-150
- Lowers rear of vehicle
- Lowers 2.0" on 2WD or 1.5" on 4WD
- Contains all installation hardware
- May require alignment after install



2000-2009 FOCUS ZX3/4/5 ADJUSTABLE REAR SUBFRAME



M-5035-ZX3*

- Fits 2000-2009 Focus ZX3/4/5
- Allows easy camber adjustment
- Features anti-sway bar mounts
- May be required to mount rear Stabilizer Bar M-5400-Z3 on 2005-2009 Focus
- May require alignment after install



1999-2004 LIGHTNING/HARLEY-DAVIDSON® LOWERING KIT



M-3000-L*

- Fits 1999-2004 F-150 Lightning/F-150 Harley-Davidson®
- Lowers front and rear approximately 1.0"
- Improves appearance and lowers vehicle roll center for better handling with very acceptable ride characteristics
- Includes front coil springs and jounce bumpers, rear shackles and hangers
- May require alignment after install



1997-2003 F-150 2WD LOWERING KIT

M-3000-T1*



- Fits 1997-2003 F-150 and 2004 Heritage 2WD Standard Cab, SuperCab and SuperCrew with V6 or V8 (does not fit 4WD)
- For 1999-2004 F-150 Lightning, see M-3000-L
- Lowers approximately 2" front and 4" rear
- Improves appearance and lowers vehicle roll center for better handling with very acceptable ride characteristics
- Includes front coil springs, rear shackles and hangers, (4) specially tuned high-pressure gas shocks
- Fits vehicles with V6 or V8 engines in standard cab (long and short bed) and SuperCab (short bed)

NOTE: When used on 2001 SuperCab with 6' box and 5" dia. driveshaft, the driveshaft may hit the crossmember on hard bumps. May require alignment after install.



2007-2012 MUSTANG SVT ANTI-ROLL BAR KIT

M-5490-B*

- Anti-roll bar kit designed for increased handling and performance on 2007-2012 Shelby GT500 coupe
- Designed to be used with M-18000-C Dampers, M-5300-L Springs and M-20201-C Brace (2007-2009 only)
- Includes all mounting hardware

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.

2005-2012 MUSTANG GT COUPE ANTI-ROLL BAR KIT

M-5490-A*

- Anti-roll bar kit designed for increased handling and performance on 2005-2012 Mustang GT coupe
- Best when used with M-18000-A Dampers and M-5300-K Springs (1.5" Drop), or M-5300-P Springs (1.0" Drop)
- Includes all mounting hardware

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.

2005-2012 MUSTANG V6 COUPE ANTI-ROLL BAR KIT

M-5490-C*

- Anti-roll bar kit designed for increased handling and performance on the 2005-2012 Mustang Coupe V6
- Designed to be used with M-5300-N and M-18000-A
- Includes all mounting hardware

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications.

2005-2012 MUSTANG GT CONVERTIBLE ANTI-ROLL BAR KIT

M-5490-D*

- Anti-roll bar kit designed for increased handling and performance on 2005-2012 Mustang GT convertible
- Best when used with M-18000-A Dampers and M-5300-P Springs
- Includes all mounting hardware

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.



BUSHING KITS

M-5490-BKA*

- Includes all the bushings to rebuild the M-5490-A Sway Bar Kit
- Urethane bushings should be checked every 12 months of use

M-5490-BKB*

- Includes all the bushings to rebuild the M-5490-B Sway Bar Kit
- Urethane bushings should be checked every 12 months of use

M-5490-BKC*

- Includes all the bushings to rebuild the M-5490-C Sway Bar Kit
- Urethane bushings should be checked every 12 months of use



COMPLETE HARDWARE KIT

M-5490-HWA*

- Includes all the hardware and bushings to rebuild the M-5490-A Sway Bar Kit
- Sway bars not included

M-5490-HWB*

- Includes all the hardware and bushings to rebuild the M-5490-B Sway Bar Kit
- Sway bars not included

M-5490-HWC*

- Includes all the hardware and bushings to rebuild the M-5490-C Sway Bar Kit
- Sway bars not included



REPLACEMENT STABILIZER BAR LINK

M-5490-LINKA*

- Includes one stabilizer bar link with bushings
- Fits M-5490-A Anti-roll Bar Kit

M-5490-LINKB*

- Includes one stabilizer bar link with bushings
- Fits M-5490-B Anti-roll Bar Kit

M-5490-LINKC*

- Includes one stabilizer bar link with bushings
- Fits M-5490-C Anti-roll Bar Kit



2010 MUSTANG SVT STRUT TOWER BRACE

M-20201-MSVTC*

- Fits 2010 Shelby GT500
- Standard in Shelby GT500 Coupe Handling Pack M-FR3-MSVT
- Parallel beam design for added rigidity
- Grey powdercoated brace
- Stainless steel "Ford Racing" emblem
- Does not fit 2007-2009 Shelby GT500. See M-20201-C for 2007-2009
- Due to minimal clearance, some rubbing of hood blanket to brace may occur



2007-2009 MUSTANG SVT STRUT BRACE

M-20201-C*

- Fits 2007-2009 Shelby GT500
- **Standard on Shelby GT500KR**
- Black powdercoated with etched "Ford Racing" logo
- Single large-diameter oval tube construction



2005-2012 MUSTANG GT STRUT TOWER BRACE

M-20201-S197*

- Fits 2005-2010 Mustang GT without intake shroud
- Fits 2011-2012 Mustang GT with intake shroud
- Parallel beam design for added rigidity
- Black powdercoated
- Stainless steel "Ford Racing" emblem
- Does not fit V6, supercharged GT or 2007-2010 GT with intake shroud
- Does not fit with Intake Manifold M-9424-463V



NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.



2005-2012 MUSTANG V6 STRUT TOWER BRACE

M-20201-F*

- Fits 2005-2012 Mustang V6
- Silver powdercoated with etched "Ford Racing" Logo
- Parallel beam design for added rigidity

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.



2005-2012 MUSTANG REAR TUBULAR LOWER CONTROL ARM KIT

M-5649-S*

- Service replacement for 2012 Mustang BOSS 302S Race Car
- Fits 2005-2012 Mustang GT and 2007-2012 Shelby GT500
- Made from steel tube with high-strength spherical rod ends
- Increased stiffness for minimal suspension deflection
- Non-adjustable
- Off-road use only



NEW

2005-2012 MUSTANG LOWER CONTROL ARM RELOCATION BRACKET

M-5650-A*

- Service replacement for 2012 Mustang BOSS 302S race car
- Fits 2005-2012 Mustang GT and 2007-2012 Shelby GT500
- Bracket allows adjustment of rear lower control arm mounting point at axle housing
- Allows adjustment of instant center for optimum traction
- Off-road use only



NEW

2005-2012 MUSTANG FRONT STRUT MOUNT UPGRADE (PAIR)

M-18183-C*

- Original equipment on the 2011 Shelby GT500 Track Pack option
- Fits 2005-2010 Mustang V6/GT and 2007-2012 Shelby GT500
- Will fit 2011-2012 Mustang V6 and Mustang GT. Requires Ford Racing lowering springs and struts/shocks
- Increased durometer over base strut mount



Photo may vary

2005-2010 MUSTANG GT FRONT LOWER CONTROL ARM UPGRADE KIT

M-3075-E*

- Fits 2005-2010 Mustang GT
- Original equipment on 2007-2009 Shelby GT500
- Increased strength ball joints
- Kit contains 1 RH and 1 LH lower control arm assembly

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.



2005-2012 MUSTANG GT REAR LOWER CONTROL ARM UPGRADE KIT

M-5538-A*

- Fits 2005-2012 Mustang GT
- Original equipment on 2007-2010 Shelby GT500
- Increased bushing durometer and stiffness for higher horsepower applications

NOTE: Some factory fasteners are one-time use. Please reference service manual for reuse information and correct torque specifications.



MUSTANG FR500C REAR UPPER CONTROL ARM BUSHINGS

M-5638-R*

- Service replacement for the Mustang FR500C race car
- Includes bushings and sleeve for upper rear control arm
- Increased durometer bushing for precise handling and control

NOTE: Some factory fasteners are one-time use. Please reference a Ford service manual for reuse information and correct torque specifications.



2005-2009 MUSTANG GT COUPE FRONT LOWER A-ARM BRACE UPGRADE KIT

M-5025-A*

- Fits 2005-2009 Mustang GT Coupe
- Original equipment on convertible and 2007-2009 Shelby GT500
- Increases chassis stiffness



2010 COBRA JET REAR SUSPENSION KIT

M-5649-CJ10*

- Rear suspension service replacement for the 2010 Cobra Jet Mustang race car
- Also fits 2005-2011 Mustang equipped with 8.8" rear
- Adjustable upper control arm and bracket
- Tubular lower control arms with urethane bushings
- Anti-roll bar with adjustable links
- Designed to work with M-18000-CJ Cobra Jet Damper Kit and M-5300-Q Drag Race Spring Kit
- For drag racing applications only



Photo may vary

2005-2012 MUSTANG GT 14" SVT BRAKE UPGRADE KIT

M-2300-S*

- Fits 2005-2012 Mustang GT
- Kit will upgrade the front brakes to 2007-2012 Shelby GT500 14" rotors and 4-piston calipers
- Includes Shelby GT500 rear pads for use in stock Mustang GT rear calipers
- Includes Goodridge DOT four-piece hose kit and attaching parts
- Requires 18" M-1007-DC1895, M-1007-S1895, M-1007-S1895B1 or 19" M-1007-DC199B, M-1007-SA199 and M-1007-DC199LGB Ford Racing wheel or equivalent for caliper clearance



1994-2004 MUSTANG GT REAR BRAKE BRACKET UPGRADE KIT

M-2300-M*

- Used to install Mustang Cobra, Mach 1 or Special Edition rear calipers on a 1994-2004 Mustang GT
- Kit includes production 11.65" rotors, caliper mounting brackets, moan braces, dust shields and dust shield bolt



2005-2010 MUSTANG V6 BRAKE UPGRADE KIT

M-2300-D*

- Fits 2005-2010 Mustang V6
- Upgrades Mustang V6 11.5" front rotors to the larger Mustang GT 12.4" rotors for increased stopping power
- Uses existing calipers and brake pads
- Easily installed, no bleeding required
- Requires 17" or larger 2005-2009 Mustang wheels such as M-1007-T178B and M-1007-T178S for caliper clearance
- Allows use of M-1007-S1885B and 18"-style wheels on Mustang V6



1994-2004 MUSTANG COBRA "R" FRONT BRAKE UPGRADE KIT

M-2300-X*

- Front brake upgrade for 1994-2004 Mustang GT and 1994-2004 Cobra
- Original equipment on 2000 Cobra "R"
- Kit includes Brembo® 4-piston calipers, brake lines, hardware and "upgraded" slotted rotors
- May require larger wheels like M-1007-R189/R189C/F500/F500C



NOTE: 1994-1995 GT requires 1994 Cobra master cylinder.

1994-1998 MUSTANG COBRA SEVERE-DUTY BRAKE UPGRADE KIT

M-2400-C*

- Intended to upgrade braking performance of 1994-1998 Mustang Cobra
- Can be used as service replacement for 1994-2004 Mustang Cobra and M-2300-K Brake Kit
- Includes (2) improved strength brake hoses and (2) 13" Cobra brake rotors
- Highly recommended for open track events



5-LUG REAR DISC BRAKE KIT LATE MODEL FORD 9", 8.8" TRUCK AXLE HOUSING

M-2300-G2*

- Kit includes 11.8" vented rotors, single-piston calipers with integral parking brake, custom mounting brackets and attaching hardware
- Rotors feature the common 5-hole, 4.5" diameter passenger car bolt pattern with 2.780" center hub
- Mounting brackets fit the popular 8.8" Truck/9" Late Ford axle housings with 2" x 3.56" pattern and big 3.15" diameter bearing
- This kit is designed for vehicle installations with a 2.5" brake gap (housing flange to axle shaft flange)
- "E"-coated caliper mounting bracket and dust shield
- Due to large 11.8" diameter rotor and floating caliper design, most production and aftermarket 15" wheels will not fit

NOTE: Wheel spacers not recommended for use with brake kit. Does not fit Mustang 8.8" axle. Hoses, tubes, parking brake cables and wheels are NOT included in this kit. Additional parts and machining may be required. For more information, call the Techline at (800) FORD788.



FORD GT TWO-PIECE FRONT ROTOR SET M-1125-GT*

- Fits 2005-2006 Ford GT
- Two-piece 355 mm diameter front rotors for track use
- Cross-drilled for improved cooling
- Aluminum hat reduces rotating and unsprung mass
- Sold in sets of two
- Fits with stock Ford GT calipers
- Weight: 22.1 lbs ea.



FORD GT TWO-PIECE REAR ROTOR SET M-2026-GT*

- Fits 2005-2006 Ford GT
- Two-piece 330 mm diameter rear rotors for track use
- Cross-drilled for improved cooling
- Aluminum hat reduces rotating and unsprung mass
- Sold in sets of two
- Fits with stock Ford GT calipers
- Weight: 22.05 lbs ea.



2000-2004 FOCUS 300 MM FRONT BRAKE UPGRADE KIT M-2300-SVTF4*



- Complete kit to install Focus SVT front brakes on the 2000-2004 Focus ZX3/4/5
- Includes 300 mm front rotors
- Includes all calipers and mounting hardware for front brakes
- Includes front knuckles
- **Must be used with rear SVT disc brakes**



2005-2009 FOCUS 300 MM FRONT BRAKE UPGRADE KIT M-2300-SVTF5*

- Complete kit to install Focus SVT front brakes on the 2005-2009 Focus ZX3/4/5
- Includes 300 mm front rotors
- Includes all calipers and mounting hardware for the front brakes
- **Must be used with rear SVT disc brakes**



2000-2004 FOCUS RALLY FRONT BRAKE KIT M-2300-ZXR*



- Complete kit to put larger front brakes on 2000-2004 Focus ZX3/4/5
- Fits inside 15" wheels
- Includes 278 mm front rotors
- Includes calipers and mounting hardware
- Includes front knuckles
- Designed for the Spec Rally Focus



FR500 BREMBO® BRAKE CALIPER KIT M-2320-D*

- Service replacement for the Mustang FR500C and FR500S race car
- Brembo®, F40/F50-style radial mount with 40/44 pistons
- Includes a pair of front calipers and hardware to attach caliper to mounting bracket
- Pads are not included, M-2001-R recommended
- Hoses not included, M-2078-A recommended



MUSTANG FR500S FRONT ROTOR HAT KIT M-1125-E*



- Service replacement part for the Mustang FR500S race car
- Rotor hat for use with M-1125-D Rotors
- Used on FR500S and in the M-2300-J Brake Kit
- Kit contains one pair of rotor hats



MUSTANG FR500C AND FR500S BRAKE ROTOR HARDWARE KIT M-1125-F*

- Hardware to attach rotor to hat
- Fits front brakes on Mustang FR500C and FR500S race car
- Part of Front Brake Kit M-2300-A and M-2300-J
- Part of Front Rotor Kit M-1125-D and M-1125-G
- Kit contains fasteners to assemble one pair of rotors



MUSTANG BOSS 302 BRAKE LINE KIT M-2078-MB*

- Brake line kit used on 2012 Mustang BOSS 302
- Also fits 2005-2012 Mustang GT, Mustang GT with Brembo® brake package and 2007-2012 Shelby GT500
- Low expansion rubber lines for improved brake response
- Front and rear lines included



2010-2012 MUSTANG BRAKE DUCT KIT M-2004-MB*

- Includes powdercoated backing plates and 3" dual wall silicone brake ducting temperature rated at 550 degrees F
- Designed to fit 2010-2012 GT/CS lower fascia insert fog lamp opening
- Reduces front brake temperature by ducting air to the brake rotors



9" DRUM BRAKE BACKING PLATE KIT

M-2209-B*



- Fits Brake Drum M-1126-B
- 11" x 2.25" brakes for late model 9" axle housing
- 3.150" center pilot hole
- .381" attaching bolt holes
- 3.56" x 2" attaching bolt pattern
- Kit includes (2) new assembled backing plates with brake shoes, wheel cylinder, self-adjuster, parking brake and springs
- Sold in pairs



11" X 2.25" BRAKE DRUM

M-1126-B*



- Brake drum for Backing Plate Kit M-2209-B
- 5" on 4.5" bolt circle
- Axle center pilot hole 2.780"
- Sold individually



BRAKE PROPORTIONING VALVE

M-2328-C*



- Compact, light-weight (.5 lb) aluminum brake proportioning valve
- "Kneepoint" is adjustable from 100 to 1000psi
- Inlet and outlet ports have 1/8"-27 NPT threads for maximum installation flexibility



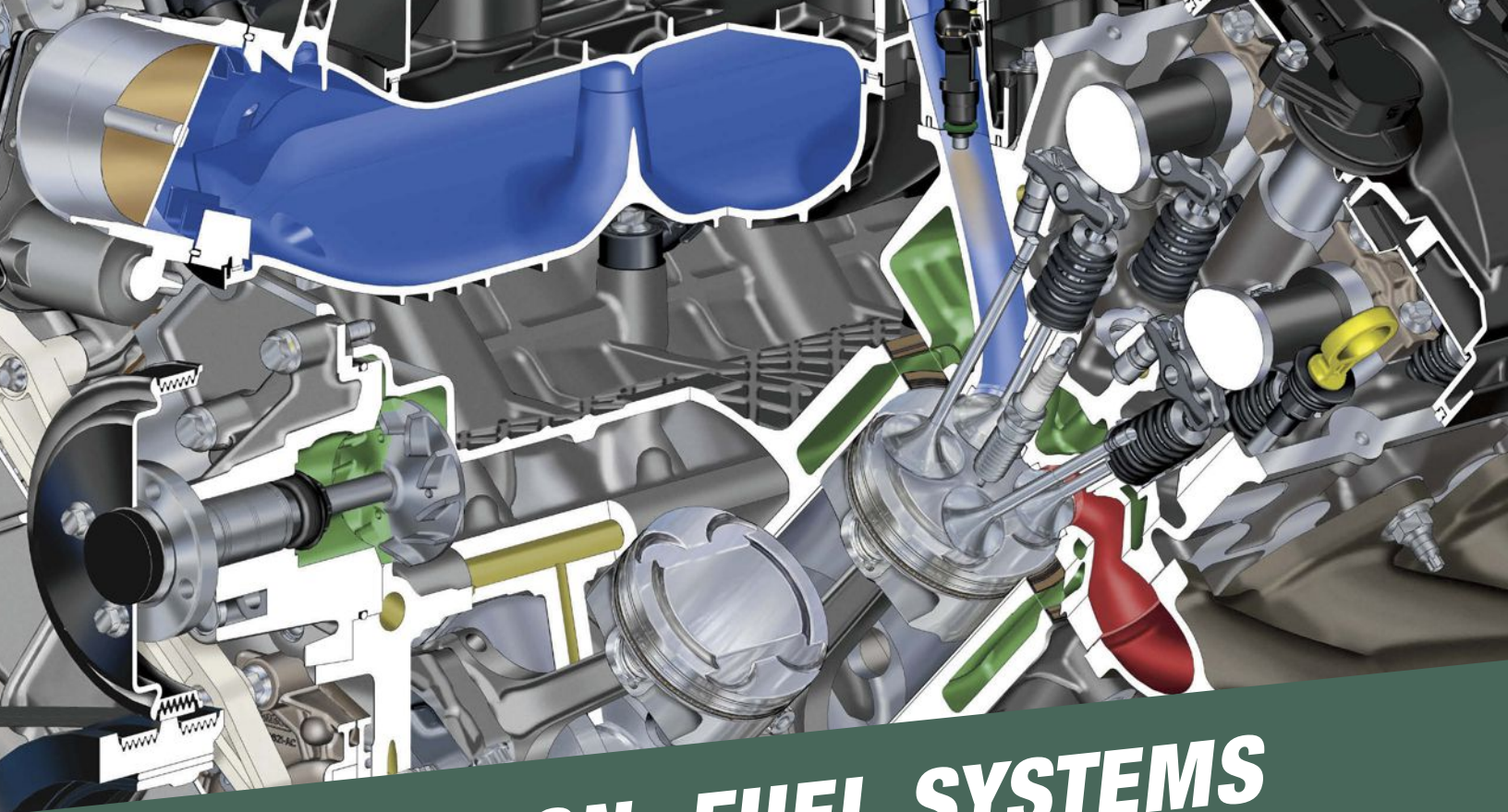
ADJUSTABLE PARKING BRAKE CABLE

M-2810-A*

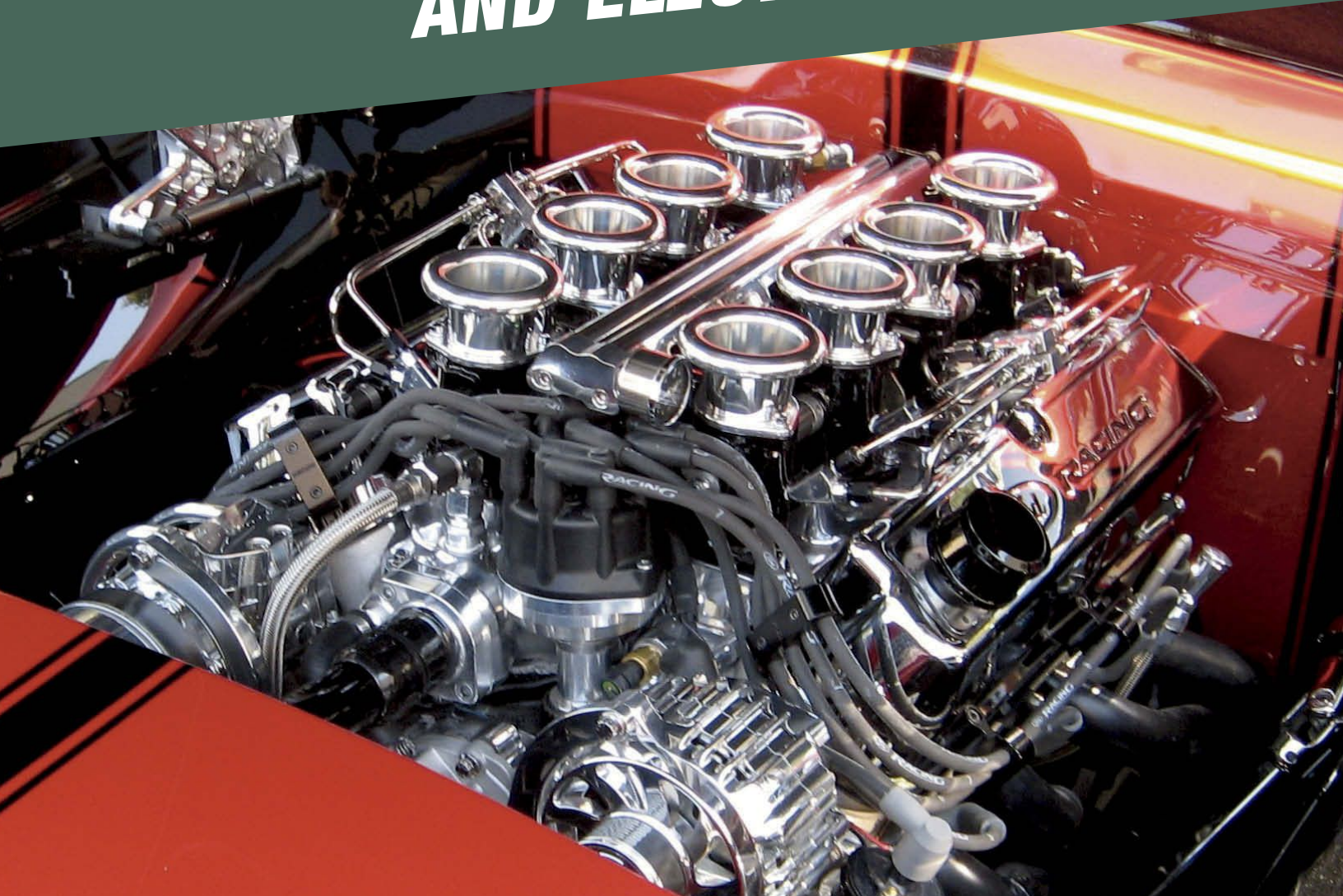


Front parking brake cable for the M-2300-F and M-2300-K Brake Kits.





IGNITION, FUEL SYSTEMS AND ELECTRICAL



IGNITION, FUEL SYSTEMS AND ELECTRICAL

CONTROL PACK – 4.6L 3V MANUAL TRANSMISSION

M-6017-463V*



- Take the complexity and mystery out of wiring a late model 4.6L 3V engine!
- Designed to run the 2005-2010 Mustang GT 4.6L 3V engine with stock camshafts or Ford Racing M-6550-3V Camshafts and manual transmission
- Includes PCM with Ford Racing calibration
- Includes Ford Racing Cold Air Kit M-9603-M463
- Includes electronic throttle control accelerator pedal eliminates throttle cable routing problems
- Unique body harness replaces stock body harness and is designed for street rod installation
- Features OBD-II diagnostic port to assist in vehicle calibration upload and problem diagnosis
- Includes unique downsized power distribution module, inlet tube, MAF sensor with bolts and EGO sensors
- PCM with Ford Racing calibration requires return-type fuel system, will not work with returnless fuel system

NOTE: Installation of this PCM in a 2005-2010 Mustang GT will result in a no-start condition. See "Tip sheets" for more tech tips about E.F.I. Requires 2007-2009 Mustang GT manual transmission engine harness.



CONTROL PACK – 4.6L 3V WITHOUT CALIBRATION

M-6017-463VTK*



- Take the complexity and mystery out of wiring a late model 4.6L 3V engine!
- Designed to run the 4.6L 3V engine with manual transmission
- Includes PCM without Ford Racing calibration
- Includes electronic throttle control accelerator pedal eliminating throttle cable routing problems
- Unique body harness replaces stock body harness and is designed for street rod installation
- Features OBD-II diagnostic port to assist in vehicle calibration upload and problem diagnosis
- Includes unique downsized power distribution module, MAF sensor with bolts and EGO sensors
- **Calibration Required! Calibration not included!**

NOTE: Installation of this PCM in a 2005-2010 Mustang GT will result in a no-start condition.



IGNITION, FUEL SYSTEMS AND ELECTRICAL

CONTROL PACK – 5.4L 4V SUPERCHARGED MANUAL TRANSMISSION



M-6017-54SC*

- Take the complexity and mystery out of wiring a late model 5.4L 4V supercharged engine!
- Designed to run 2007-2012 Shelby GT500 and M-6007-M54 5.4L Supercharged Crate Engine. Call techline for additional information
- Includes PCM with Ford Racing calibration
- Includes Ford Racing Cold Air Kit M-9603-54SC
- Includes electronic throttle control accelerator pedal eliminating throttle cable routing problems
- Unique body harness replaces stock body harness and is designed for street rod installation
- Features OBD-II diagnostic port to assist in vehicle calibration upload and problem diagnosis
- Compatible with 2007-2009 Shelby GT500 engine harness, 2010-2012 Shelby GT500 engines require Engine Harness M-12B637-A54SC
- Includes unique downsized power distribution module, inlet tube, MAF sensor with bolts, EGO sensors, thermostat housing with hoses and an integrated intercooler pump relay
- PCM with Ford Racing calibration requires return-type fuel system, will not work with returnless fuel system

NOTE: Installation of this PCM in a 2007-2012 Shelby GT500 will result in a no-start condition. See "Tip sheets" for more tech tips about E.F.I.

5.0L 4V SUPERCHARGED ENGINE HARNESS UPDATE KIT

M-12B637-A54SC

- When installing a 2009-2012 Mustang SVT 5.4L engine, this engine harness is required with the 5.4L Controls Pack M-6017-54SC



CONTROLS PACK – 2011-2012 5.0L 4V Ti-VCT MANUAL TRANSMISSION



M-6017-A504V*

- Take the complexity and mystery out of wiring a late model 5.0L 4V engine!
- Designed to run the M-6007-M50 5.0L 4-valve Crate Engine with manual transmission
- Includes PCM with Ford Racing calibration
- Includes electronic throttle control accelerator pedal eliminates throttle cable routing problems
- Unique controls pack harness replaces stock body harness and is designed for street rod installation
- Features OBD-II diagnostic port to assist in vehicle calibration upload and problem diagnosis
- Includes unique downsized power distribution module, air box, inlet tube, MAF sensor with bolts and EGO sensors
- PCM with Ford Racing calibration requires return-type fuel system, will not work with returnless fuel system

NOTE: Installation of this PCM in a 2011-2012 Mustang GT will result in a no-start condition.



IGNITION, FUEL SYSTEMS AND ELECTRICAL

302/351W MULTIPOINT EFI WIRING HARNESS

M-12071-A50*

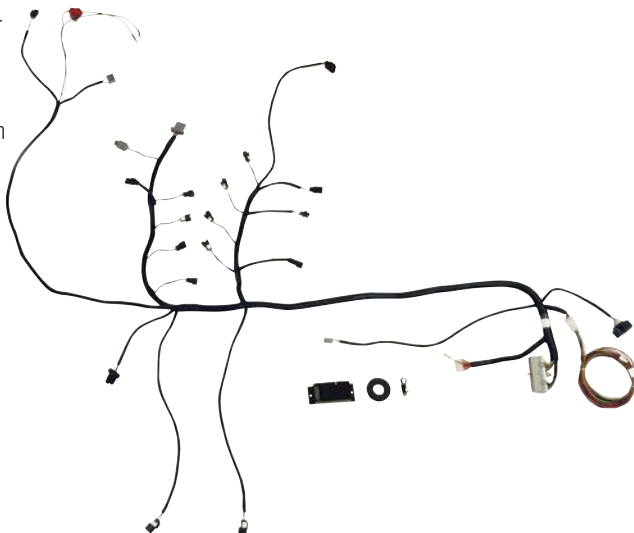
Complete Harness from PCM to Injectors!



Our technical support staff travels the country to dozens of various events and takes thousands of phone calls every year. One of the most common requests regarding the Electronic Fuel Injection wiring harness has come from performance enthusiasts requesting a cleaner-appearing harness and a simpler method to make connections. YOUR VOICE HAS BEEN HEARD! Ford Racing is committed to customer satisfaction and to meeting the demands and requests of its customers. We have tried to be as thorough as possible in developing a product which will provide you with the cleanest and simplest wiring harness on the market.

Some of the many new features of the multipoint EFI wiring harness include:

- Revised for simplified installation; uses a single connector for all required connections
- Kit consists of a single harness with integral connections for injectors and O₂ sensors
- Fully loomed, from PCM to all sensors and injectors, to save time on installation
- Typical installation takes less than 1 hour
- Direct fit on 1986-1993 302 H.O. engines
- Can be easily adapted to many other Ford V8 push rod engines
- Requires PCM (not included) from 1989-1993 Mustang 5.0L H.O.
- Compatible with engines using both H.O. and non-H.O. firing orders
- Provisions for electric fan control output
- Kit includes compact fuse and relay box, "Check Engine" light and all necessary grommets
- For a detailed list of harness support parts, see harness instruction sheet at www.fordracingparts.com

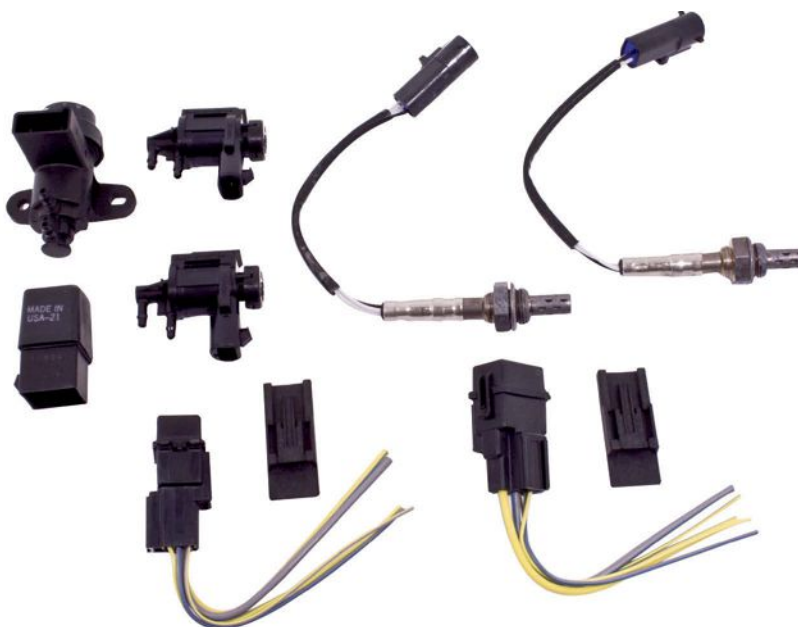


SENSOR AND RELAY PACKAGE

M-12071-K302*



Sensors for use with the M-12071-C302 Wiring Harness. Kit contains dual oxygen sensors; EGR solenoid, TAD and TAB solenoids; fuel, air-conditioning and EEC power relays. Engine-mounted and BAP sensors NOT included.



PROPERLY SELECTING ELECTRONIC FUEL INJECTION COMPONENTS

One of the more commonly misunderstood aspects of Electronic Fuel Injection (EFI) is how to select the correct size fuel injectors, fuel pump and Mass Air Flow (MAF) sensor for a particular engine horsepower output. The following information is intended to offer a very brief tutorial on properly selecting the most common EFI components.

FUEL INJECTORS

First and foremost, adding larger fuel injectors alone will **NOT** create extra horsepower! The purchase of larger fuel injectors should only be considered when your engine has exceeded the horsepower capacity of the existing fuel injectors, at which point larger injectors are then required to SUPPORT the additional horsepower. If you add larger-than-stock injectors to an otherwise stock engine, you should not expect any horsepower increase whatsoever. In fact, you will most likely create many drivability issues that were not present before the swap to larger injectors.



The nominal injection pressure for many Ford EFI systems is 39.15 psi (270kPa) “across the injector”. The term “across the injector” takes manifold pressure and fuel rail pressure into account, and is usually referred to as “delta pressure.” (See “Measuring Fuel Pressure” on pages 204-205 for more details.) Ford Racing’s fuel injectors are always rated at 39.15 psi delta, so the fuel injector sizing discussions found below will assume a fuel pressure of at least 39.15 psi delta.

There are some exceptions to the above-mentioned nominal injection pressure. In relatively recent years, emissions regulations have become so stringent that the government is now regulating the emissions output that gasoline vehicles are allowed to produce even when the engine is not running! This is referred to as “evaporative emissions” and results from unburned hydrocarbons (raw fuel) emitting into the atmosphere from the fuel tank, fuel lines, injector leakage, intake manifold, etc., when the engine is shut off. This is the fundamental purpose of the charcoal canister (and hydrocarbon trap in the air-box on many vehicles) and is also the reason that Ford and other manufacturers switched to the Returnless Fuel Systems (RFS) found in production vehicles today. These systems have only a fuel supply line from the tank to the engine, with no return line. The primary reason for these systems is that evaporative emissions increase as the temperature of the fuel in the tank increases. On a conventional return system, the fuel is sent to the engine through the supply line, and the excess is returned (via the mechanical fuel pressure regulator) to the tank through the return line. Since the engine is hot, this process heats up the fuel and thus increases evaporative emissions. To combat this, the returnless fuel systems were invented. Currently, Ford uses 2 primary types of RFS which are called Electronic Returnless Fuel System (ERFS) and Mechanical Returnless Fuel System (MRFS). The latter is the simpler of the 2 systems and controls the fuel rail to a constant pressure via a (non-vacuum referenced) regulator in the tank, which is typically set to 55 psi. The Powertrain Control Module (PCM) then calculates the pressure across the injector, either by inferring or measuring manifold pressure and subtracting from the calibrated rail pressure set-point. This is referred to as a Constant Rail Pressure (CRP) system. ERFS, on the other hand, has no mechanical regulator at all, but instead has a Fuel Rail Pressure Transducer (FRPT) mounted on the fuel rail that measures fuel rail pressure relative to manifold pressure and feeds that information back to the PCM. The PCM then controls the Fuel Pump Driver Module (FPDM), which in turn varies the voltage to the fuel pump (or pumps) in the tank to supply the correct pressure and flow rate to the injectors. Most of the time this pressure is maintained at 39.15 psi delta, but when the fuel temperature rises, this pressure can be boosted in order to delay the onset of boiling the fuel. Some vehicles also boost the pressure under some conditions in order to get away with using smaller flow-rate fuel injectors for various reasons beyond the scope of this tutorial. This is referred to as a Constant Injection Pressure (CIP) system. Both V6 and V8 Mustangs used ERFS between 1999 and 2010 and MRFS from 2011 forward.

If you are trying to compare injector flow rates and you have flow data at one delta pressure, you can easily calculate the flow rate at a different delta pressure as follows:

Flow rate at new delta pressure = (flow rate at old pressure) x $\sqrt{\text{new pressure/old pressure}}$

Example: What is the flow rate for an injector at 43.5 psi if it is rated at 60 lb/hr at 39.15 psi?

Flow rate at 43.5 psi delta = $60 \times \sqrt{43.5/39.15} = 63.2 \text{ lb/hr}$

You can use the following information to properly determine what size injectors are needed for various applications. For this example, we will use a naturally aspirated 5.0L V8 engine making 300 hp. Keep in mind, that this is FLYWHEEL (also known as brake) horsepower, NOT wheel horsepower.

Engines require a certain fuel flow rate that is generally measured in lb/hr (pounds per hour) and can be calculated via knowledge of its Brake Specific Fuel Consumption (BSFC). By definition, BSFC represents how much fuel (in lb) is required per hour per each brake horsepower the engine produces. Most naturally aspirated production gasoline engines generally operate on a 0.42 to 0.52 lb/hp-hr BSFC at wide open throttle (WOT). High-performance gasoline and race engines (12.5:1 compression ratio and higher), which tend to be extremely efficient, can sometimes have a BSFC as low as 0.38 to 0.42. More clearly stated, this means that if you have a gasoline engine that makes 300 brake horsepower, its total maximum fuel requirement in lb/hr can be calculated as follows:

Fuel flow requirement = (brake horsepower) x (BSFC)

Example: A 300 hp naturally aspirated gasoline powered V8 requires what size fuel injector?

First, assume a BSFC of 0.50 lb/hr and injection pressure of 39.15 psi across the injector.

$300 \text{ hp} \times 0.50 \text{ lb/hp-hr} = 150 \text{ lb/hr}$ maximum total fuel flow requirement

Since this is the total fuel flow requirement to the engine, we must now divide this by the number of injectors being used to determine the flow rate necessary for each injector so that you can select the correct size injector from this catalog. In this example, we have an 8-cylinder engine using 1 injector per cylinder, which gives: **150 lb/hr/8 injectors = 18.8 lb/hr per cylinder**

PROPERLY SELECTING ELECTRONIC FUEL INJECTION COMPONENTS (continued...)

So, technically, the engine only needs a 19 lb/hr fuel injector to support 300 hp, but this will require that the injector is at nearly a 100% duty cycle in order to achieve this horsepower level. Duty cycle refers to how long the injector needs to be open (flowing fuel) in order to supply the required amount of fuel. If the injector needs a 100% duty cycle at a particular engine speed and load to inject enough fuel, that means it is open all the time. Under most conditions, fuel is injected when the intake valves are closed, which helps with fuel atomization and efficiency. If the injectors need to be on 100% of the time to supply enough fuel, this means that some fuel is being injected while the intake valves are open. Depending on the overlap of the cam in the engine, some of this unburned fuel can be blown right past the exhaust valve, or be poorly atomized, which makes for a less efficient combustion process. Perhaps more importantly, operating a fuel injector between roughly 85% and 99% duty cycle does not give the injector sufficient time to close before it is commanded to open again. This can cause extreme variability in the amount of fuel actually injected, which can sometimes result in a rich condition. Similar issues exist at the low end of the flow region at extremely low duty cycles, but this is highly dependent on the type and flow rate of each model of injector. In this case, the injector does not have enough time to fully open before it is commanded to close again, which causes extreme variability that can result in a lean condition. For these reasons, we generally recommended selecting an injector with a flow rate sufficiently high that it will not be required to exceed an 85% duty cycle. So to figure out what size fuel injector will result in an 85% duty cycle, divide the original result by 0.85: **18.75 lb/hr/0.85 = 22.1 lb/hr requirement.**

Since the next popular injector size available is 24 lb/hr, this is the correct size injector that you should choose for this particular application. Keep in mind that this discussion assumes your fuel pump, lines, regulator, etc. are sufficient to be able to maintain at least 39.15 psi across the injector at all engine speeds and loads (even under boost, if applicable). Now that you have selected an injector, the calibration (or "tune") in the PCM must either be changed or a different MAF must be used (see "Mass Airflow Sensors" on page 206 for more details).

This calculation can also be reversed to give the maximum safe hp a set of injectors can support, which gives:

Max safe hp = [(injector size) x (total # of injectors) x (max duty cycle)]/BSFC

Example: The following guide is general rule of thumb for sizing fuel injectors on an 8-cylinder engine using a BSFC of 0.50. Forced-induction engines typically range from a BSFC of 0.55 to 0.65, with the latter value arising from the fuel enrichment necessary to keep exhaust temperatures below 1650 deg F and catalyst temperatures below 1750 deg F.

Naturally Aspirated: $(19 \text{ lb} \times 8 \times .85)/.50 = 258.4$ or approx 258 hp @ 85% duty cycle
Forced Induction @ 0.55: $(19 \text{ lb} \times 8 \times .85)/.55 = 234.9$ or approx 235 hp @ 85% duty cycle
Forced Induction @ 0.65: $(19 \text{ lb} \times 8 \times .85)/.65 = 198.8$ or approx 199 hp @ 85% duty cycle

Inj Flow Rate (@ 40 psid)

24 lb/hr
30 lb/hr
32 lb/hr
39 lb/hr
47 lb/hr
60 lb/hr
80 lb/hr

Naturally Aspirated hp (@ 0.50)

326 hp @ 85% Duty Cycle
408 hp @ 85% Duty Cycle
435 hp @ 85% Duty Cycle
530 hp @ 85% Duty Cycle
639 hp @ 85% Duty Cycle
816 hp @ 85% Duty Cycle
1088 hp @ 85% Duty Cycle

Forced-Induction hp (@ 0.65)

251 hp @ 85% Duty Cycle
314 hp @ 85% Duty Cycle
335 hp @ 85% Duty Cycle
408 hp @ 85% Duty Cycle
492 hp @ 85% Duty Cycle
628 hp @ 85% Duty Cycle
837 hp @ 85% Duty Cycle

Remember, the above calculations assume a fuel pressure of 39.15 psid. If you can raise fuel pressure and still be sure that your fuel pump can supply the desired flow rate, then these maximum horsepower numbers will increase.

FUEL PUMPS

Most EFI fuel pumps are rated for flow at 12 volts @ 40 psi. Most vehicle charging systems operate anywhere from 13.2 V to 14.4 V. Within limits, the more voltage you feed a pump (for a given current), the faster it spins, resulting in a higher output of fuel from the same fuel pump. Rating a fuel pump at 12 V should offer a fairly conservative fuel flow rating allowing you to safely determine the pumps ability to supply an adequate amount of fuel for a particular application, assuming the gauge of wire feeding power to the pump is sufficient to carry the current required.

As previously mentioned, engines actually require a certain **mass** of fuel, NOT a certain **volume** of fuel per hour per horsepower. This can offer a bit of confusion since most fuel pumps are rated by volume, and not by mass. To determine the proper fuel pump required, a few mathematical conversions will need to be performed using the following information. There are 3.785 liters in 1 U.S. gallon and 1 gallon of gasoline (0.72 specific gravity @ 65° F) weighs 6.009 lb.

An additional fact to consider regarding the BSFC is that the specific gravity of the fuel that you are using is very important. The fuel that you put in your car should only be obtained from a source which supplies fuel intended for an automobile. Some people make the mistake of using aviation fuel (sometimes referred to as "Av Gas"), thinking that the higher octane of this fuel may offer a performance gain. The problem is that TRUE aviation fuel has a much lower specific gravity (commonly as low as 0.62 to 0.65) than automotive grade fuel (0.72 to 0.76). As previously stated, an engine requires a certain **mass** of fuel per hour per horsepower, and 1 gallon of aviation gasoline has a lower mass than 1 gallon of automotive gasoline. Since the specific gravity of aviation gasoline is only about 90% that of automotive gasoline, all other things being equal, your engine will run approximately 10% lean by using aviation gasoline. Be sure to take the specific gravity and stoichiometric ratio of your desired fuel into consideration when sizing the fuel pump and injectors. Note that the stoichiometric ratio is highly fuel dependent and should be obtained from the fuel supplier prior to performing any PCM calibration.

It is always a good idea to apply a safety factor to account for things such as pump-to-pump variability, voltage loss between the pump and the battery, etc., so we recommend you multiply the final output of the fuel pump by 0.90 to determine the capacity of the fuel pump at 90% output to be on the safe side.



PROPERLY SELECTING ELECTRONIC FUEL INJECTION COMPONENTS (continued...)

To determine the overall capacity of a fuel pump rated in liters per hour (L/hr), use the following additional conversions:

<i>Do:</i>	<i>To Get:</i>
(L/hr)/3.785	→ US gallons/hr
Multiply above by 6.009 lb/gallon	→ lb/hr
Multiply above by 0.9	→ Capacity in lb/hr at 90%
Divide above by BSFC	→ "Horsepower Capacity" (flywheel)

So for a fuel pump rated at 110 L/hr for example, supplying a naturally aspirated engine:

110/3.785	= 29.06 U.S. gallons/hr
29.06 x 6.009	= 174.62 lb/hr
174.62 x 0.90	= 157 lb/hr @ 90% Capacity
157/0.50	= 314 hp safe naturally aspirated "Horsepower Capacity"

Safe "Horsepower Capacity" @ 40 psi with 12 V assuming 0.5 lb/hp-hr BSFC

60 L/hr pump = 95 lb/hr x 0.90 = 86 lb/hr, safe for up to 170 naturally aspirated flywheel hp
88 L/hr pump = 140 lb/hr x 0.90 = 126 lb/hr, safe for up to 250 naturally aspirated flywheel hp
110 L/hr pump = 175 lb/hr x 0.90 = 157 lb/hr, safe for up to 310 naturally aspirated flywheel hp
155 L/hr pump = 246 lb/hr x 0.90 = 221 lb/hr, safe for up to 440 naturally aspirated flywheel hp
190 L/hr pump = 302 lb/hr x 0.90 = 271 lb/hr, safe for up to 540 naturally aspirated flywheel hp
255 L/hr pump = 405 lb/hr x 0.90 = 364 lb/hr, safe for up to 720 naturally aspirated flywheel hp

Very Important Note: For any type of forced-induction engine, the above maximum power levels will be reduced because as the boost pressure increases, the fuel pressure required from the pump also increases, creating an additional load to the fuel pump, which results in a decreased fuel flow rate at the higher pressure. In order to do proper fuel pump sizing for these applications, a fuel pump map is required, which shows flow rate versus delivery pressure for a given voltage. For example, a 255 L/hr pump at 40 psi may only supply 200 L/hr at 58 psi (40 psi plus 18 lbs of boost). Additionally, if you use a fuel supply line that is not large enough, this can result in decreased fuel flow due to the pressure drop. For example, 255 L/hr at the pump may only result in 220 L/hr at the fuel rail because as the required pressure increases (due to the pressure loss from the supply line restriction), the maximum flow rate of the pump decreases. Figure 1 shows an example fuel pump map for a pump assembly at a supply voltage of 13 V.

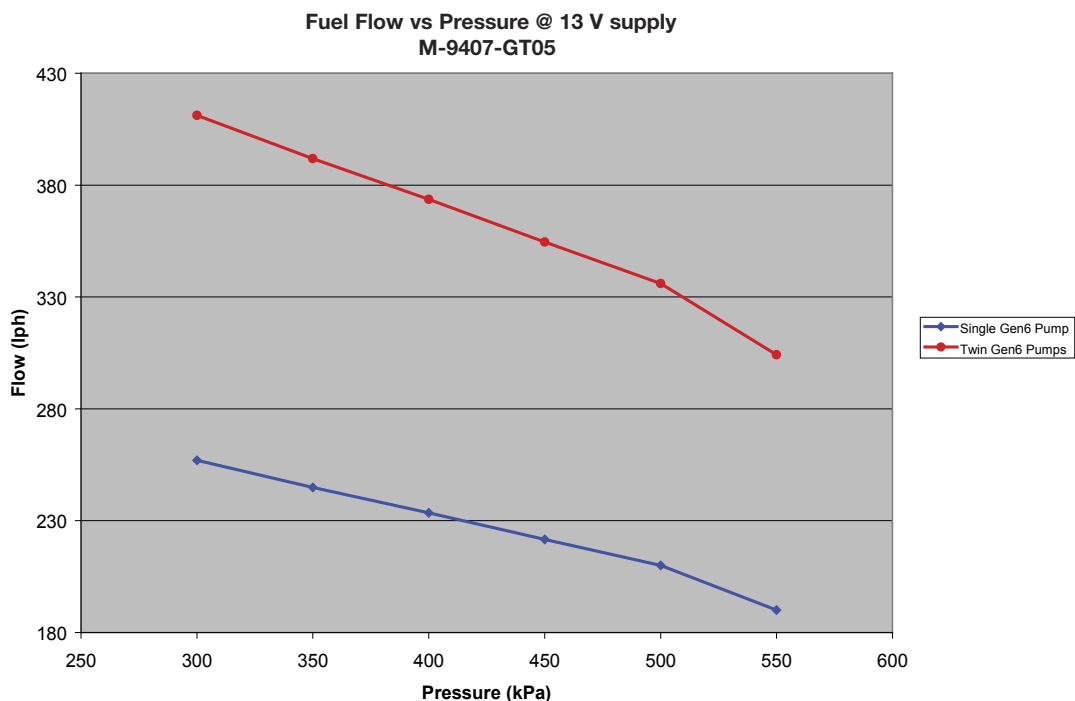


Figure 1

MEASURING FUEL PRESSURE

The above fuel pump sizing information should be regarded as a **guideline** in selecting the size of pump you need. Once installed in the car, you still need to **verify** that adequate fuel pressure (at least 39.15 psi across the injector) is maintained at all engine speeds and loads. Do not skip this fuel pressure verification step, as failure to maintain adequate fuel pressure can cause issues ranging from calibration difficulty to engine failure due to running lean.

PROPERLY SELECTING ELECTRONIC FUEL INJECTION COMPONENTS (continued...)



As mentioned earlier, all injector flow rates published in this catalog have been determined at a pressure of 39.15 psi (270kPa) across the injector, but to what does the phrase “across the injector” refer? To understand this fully, we first need to discuss three different methods of measuring pressure.

The first is called **absolute** pressure. This is defined as the pressure relative to a complete vacuum, such as would be found in outer space. For instance, atmospheric pressure (the air we breathe) is typically around 14.7 psi absolute (29.93inHg) at sea level, depending on temperature and weather conditions. An engine that has a vacuum signal of 12 “inches” simply means that the absolute pressure in the intake manifold is 12inHg less than the atmospheric pressure. When you subtract the 12inHg from the atmospheric pressure of 29.93inHg, you are left with a positive pressure of 17.93inHg, or roughly 9 psi absolute as compared to a complete vacuum. Sometimes you will see absolute pressure in psi written as “psia”.

The second is called **gauge** pressure, which is pressure relative to atmospheric pressure. In general, everyone is most familiar with gauge pressure, because it is what you measure when you check the air in your tires or when you connect a fuel pressure gauge to the fuel rail. An engine which makes 6 psi of boost at sea level is actually equivalent to 20.7 psi absolute, ($14.7 + 6 = 20.7$). Sometimes you will see gauge pressure in psi written as “psig”.

The third is called **delta** pressure and is very much like gauge pressure, but instead of being relative to atmospheric, it can be relative to any other pressure, such as the pressure in the intake manifold. Sometimes you will see delta pressure in psi written as “psid”.

When we quote pressure “across the injector”, what we really mean is the delta pressure (or difference) between the fuel rail and the intake manifold. On CRP systems, the rail gauge pressure is constant while the delta pressure varies depending on manifold pressure. This means if a fuel pressure gauge is connected to the rail, the reading it gives will be constant. On CIP systems, the system controls the delta pressure, either by use of a mechanical regulator referenced to the intake manifold (in a traditional or “return” system), or by the use of the FRPT and the PCM (with ERFS). This means that if you connect a fuel pressure gauge to the fuel rail on one of these systems, you will see fuel pressure vary depending on intake manifold pressure. This is because the gauge is measuring gauge pressure, which is relative to atmospheric, but the EFI system is controlling the fuel rail pressure relative to intake manifold pressure which is changing depending on engine load (your right foot) among other things. On a naturally aspirated engine, the manifold pressure at idle is typically around 10 psia, and the manifold pressure at WOT will be atmospheric, so typically at the fuel rail you will see approximately 30 psig at idle and at least 39.15 psig at WOT, depending on whether or not you have ERFS and whether or not it is boosting pressure for one of the reasons mentioned in the previous section. On a forced-induction engine, the highest manifold pressure that the engine can reach will be atmospheric plus the maximum boost your configuration can obtain. This means that to keep 39.15 psid across the injector, the gauge pressure will have to increase by the same amount as the maximum boost. A couple of examples should make these concepts more clear. First, consider a naturally aspirated conventional return fuel (non-ERFS, non-MRFS) EFI system with a mechanical vacuum referenced regulator set at the stock pressure setting. The system will try to keep the pressure across the injector at 39.15 psid regardless of engine load, so if you have a fuel pressure gauge attached to the fuel rail, you will see a maximum pressure of 39.15 psig at WOT if the system is doing its job properly. Now consider a forced-induction engine making a maximum of 10 psig boost, also with a conventional EFI system and mechanical regulator set to the stock pressure setting. The system will still try to keep the pressure across the injector at 39.15 psi, so this time your fuel pressure gauge attached to the rail should read a maximum of $39.15 + 10 = 49.15$ psig. If it never gets to 49.15 psig at WOT, your fuel system is inadequate for your engine. You will need to either increase the capacity of the pump, minimize the voltage loss between the pump and the battery or decrease the pressure loss between the pump and the engine through the use of larger lines, etc., and re-test. Do NOT try to “tune around” this type of fuel delivery problem. It will bite you in the long run, and can result in hard-to-diagnose problems at best all the way to engine failure at worst. Note that during a WOT event, the fuel pump in the forced-induction engine must supply fuel at a higher pressure than in the naturally aspirated engine. As mentioned in the previous section, this means that the fuel pump supplying the forced-induction engine will have a lower maximum flow rate capability than the fuel pump supplying the naturally aspirated engine. This is a critical concept to grasp because it means that in general, **for engines with equal brake horsepower, the fuel pump supplying the forced-induction engine will need to have more capacity than the fuel pump supplying the naturally aspirated engine!**

PROPERLY SELECTING ELECTRONIC FUEL INJECTION COMPONENTS (continued...)

MASS AIRFLOW SENSORS

On EFI systems that use a MAF sensor, this is the single most important sensor on the engine for determining a proper Air/Fuel (A/F) ratio. Unfortunately, it is also one of the most misunderstood sensors on the engine as well. The engine's air/fuel ratio and spark advance are determined by the PCM primarily from the input received from the MAF sensor. This is also why it is of critical importance that there are no air leaks (defined as air entering the intake stream between the MAF and the combustion chamber) in a MAF-based system. Air leaks can cause a check-engine light, rough idling, stalling, spark knock, electronic throttle control failure mitigation modes, drivability issues, and in extreme cases, complete engine failure, depending on their magnitude.



As with fuel injectors, changing the MAF alone will not result in more horsepower on an otherwise stock engine. A different MAF sensor should only be considered after engine modification which either causes the stock sensor to become a flow restriction **or** when the stock MAF sensor electronics are insufficient to measure the airflow that the modified engine is capable of ingesting. This latter point is critical in understanding when a MAF needs to be replaced. It is possible to have 2 MAF sensors that are equal in size, but capable of different maximum power levels. This is because the electronics in each MAF are different and are capable of measuring different maximum airflow, despite the fact that the size of the MAF housing is the same. For example, you can have two different 90 mm MAF sensors but one will be capable of measuring 60 lb/min of air, while the other can measure, say, 100 lb/min of air. They both present the same airflow restriction (which is dictated primarily by their physical size) but they are definitely NOT interchangeable. So how do you know how much air your MAF needs to be capable of measuring? If you have an approximation of the engine's BSFC at WOT, as well as a target air/fuel ratio in mind, the amount of air that your MAF sensor needs to be capable of measuring (in lb/hr) can be calculated as follows. Note that this formula includes a safety factor of 10%.

Max airflow = 1.10 x (Power x BSFC x A/F Ratio)

Example: What is the max airflow a naturally aspirated 300 hp gasoline engine will ingest?

First, assume a BSFC of 0.50 lb/hp-hr and A/F ratio of 12:1.

Max airflow = 1.1 x (300 x 0.50 x 12) = **1980 lb/hr**

Now that we know the minimum size fuel injector and MAF that we need, we have to consider what the PCM will do with this new hardware. The two main methods of dealing with the installation of a new MAF and injectors are to either "trick" the PCM by careful selection of injectors and a "matched" MAF, or by changing the calibration in the PCM to match the MAF and injectors that you selected.

The first method requires a MAF sensor that has been "curved" to a certain flow rate of injector. For instance, let's say your engine originally came with 19 lb/hr injectors and you replaced them with 39 lb/hr injectors. To use this method, you will need a MAF with electronics that have been modified such that it will output a signal proportional to an airflow that is 19/39 times as great as the stock MAF would measure. This will result in the PCM delivering the correct amount of fuel despite the fact that the injector size has been increased from 19 lb/hr to 39 lb/hr. The downside of this method is that many other variables such as spark advance are determined from the MAF sensor through a parameter called "load". For a given engine RPM, as load increases, required spark advance decreases. Since, by using this method, the MAF outputs a signal that is lower than the stock MAF, the calculated load will also be lower. This means that commanded spark advance will be higher than it should be, which can potentially result in spark knock and other concerns. While this method works quite well on less-sophisticated electronics, such as the EEC-IV found in a Fox body Mustang, it is not recommended for newer vehicles which have a much higher dependency on the calculated value of load.

The second, and much preferred method requires the ability to alter the calibration inside the PCM. When using this method, the actual flow data for the injector (available on our website for all FRPP injectors), as well as the "transfer function" for the MAF are entered into the calibration in the PCM. Generally, it is recommended to test the new calibration on a dynamometer to ensure that the engine receives the correct A/F ratio at all speeds and loads. Provided this is performed by a competent and experienced operator using proper equipment, this is by far the best method and will result in the best part-throttle drivability and idle, and the least amount of trouble with check-engine lights, returnless fuel, electronic throttle monitors, transmission shifting, etc. Ford Racing performance upgrade kits and their associated calibrations are designed to work together seamlessly, taking much of the hard work out of upgrading the performance of your vehicle.

Prior to tuning on a dyno, you should be absolutely certain that the ground circuits for the EFI system are in pristine condition. Doing so will help to ensure that the calibration you and your tuner develop on the dyno will also work when you leave the shop. It can't be overstated that prior to the vehicle being tuned in any way, all vacuum leaks, electrical issues, etc., need to be resolved. Fixing them before you go to the dyno will always be cheaper than paying for dyno time while you're wrenching on your car.

If you have any questions not addressed in this tutorial, please contact the Ford Racing technical hotline at 1-800-FORD-788 and we will be happy to assist you.

EFI SYSTEM TIPS

Always remember to disconnect the battery before doing any wiring on your vehicle!

ELECTRICAL GROUNDS

The single leading cause of most electrical problems is poor grounds.

Ideally, the ground for the fuel injection system should connect directly to the battery at the negative post. Using the steel chassis or engine block as a ground can create excessive resistance causing the Powertrain Control Module (PCM) to function improperly.



An example of how a high ground or connection resistance can have very serious effects is as follows. This particular case applies to a 2005 Mustang GT, but can easily be extended to any electronically controlled Ford vehicle: consider the case where a PCM is reading a MAF sensor signal of 4.1 V (due to a high ground or connection resistance) when it should really be reading 4.3 V. This equates to a difference in measured air mass of 13%. That is, the MAF will be telling the PCM that there is 13% less air entering the engine than there really is. Let's say this happens at WOT, where air/fuel ratio is critical not only to performance, but also to engine durability. The result is that the actual air/fuel ratio can go from a safe 12.5:1 to a potentially damaging 14.1:1, just from a 0.2 V change in the MAF return signal!

All PCM sensors, not just the MAF, are affected in a similar fashion, so it is absolutely critical that all electrical connections are solid and that the grounds are reliable. The potential penalty for a bad ground can range from strange drivability issues that are difficult to diagnose all the way to a damaged engine, as in the above example.

All resistance tests should be done with the ignition key in the off position. Having voltage going through the system can return a false reading of excessive resistance. Additionally, it is possible to have a ground that tests OK when the engine is cold, but not when the engine is hot. Heat increases resistance, so these tests should be performed on a warm engine when possible.

To test for an adequate ground circuit in the EFI system for a 1986 to 1993 5.0L Mustang, use a Volt/Ohm meter to check the resistance of the following circuits:

- **To verify a proper ground to the PCM**, check the resistance from pin 40 and pin 60 DIRECTLY to the negative side of the battery. Resistance should be no greater than 0.2 ohms.
- **To verify a proper ground to the main PCM harness**, check the resistance from the MAF sensor at pin 'B' DIRECTLY to the negative side of the battery. Resistance should be no greater than 0.2 ohms.
- **To verify a proper ground to the engine harness**, check the resistance from the black wire at the Throttle Position Sensor (TPS) DIRECTLY to the negative side of the battery. Resistance should be no greater than 0.3 ohms.

Note that while 0.2 ohms or less is desirable, a resistance as high as 0.5 ohms is considered acceptable. Greater than 0.5 ohms is excessive and could result in drivability concerns.

A weak ground connection can also cause the PCM's internal reference voltage regulator to function incorrectly. This can be checked at the TPS by checking voltage between the black ground wire and the orange reference voltage wire. With the key on, this voltage signal should be somewhere between 4.7 V and 5.3 V.

GENERAL TIPS

- Whenever possible, the PCM should be mounted inside the vehicle to protect it from water damage. The PCM should also be mounted with the electrical connectors at the bottom to avoid trapping water. Some PCM's on newer model cars are mounted under the hood, but they are sealed against moisture and designed to operate in such an environment. When in doubt, mount the PCM inside the vehicle.

EFI SYSTEM TIPS (continued...)

- When setting the voltage at the TPS, you should check the voltage between the black and green wires (1986-1993 5.0L Mustang). This voltage should be somewhere between 0.96 V and 0.98 V. If the key is on while the engine is off, set the voltage at 0.96 V. If the engine is running, set it at 0.98 V. The TPS can be set by loosening the mounting screws and slightly rotating the sensor. If you are unable to achieve the proper setting, you may need to elongate the TPS mounting holes.
- If you ever need to lengthen any harness leads for your specific application, it is strongly advised that you lengthen only one wire at a time, which will help to avoid making mistakes.
- If you are using long tube headers, and need to lengthen the leads of the harness to reach the Heated Exhaust Gas Oxygen (HEGO, also known as O₂ or oxygen) sensors, NEVER lengthen the wires of the O₂ sensor itself. These wires are made up of a unique material and you will disrupt the signal coming from the O₂ sensor **even if they are soldered correctly!** If you must increase the length of the leads to the O₂ sensor, always lengthen the wires on the wiring harness side of the O₂ sensor. Many aftermarket companies offer HEGO sensor extensions that work quite well and are a quick and easy solution to this problem.
- When soldering two or more wires together, you should "tin" the bare ends to be soldered. This will prevent cold solder joints and make the process easier. "Crimp" style or "solder-less" connectors are not recommended. Over time, these have a tendency to loosen and permit corrosion. Additionally, these connectors can commonly allow short circuits to develop within the connection. Many of these problems within the harness can be difficult to locate. Always use weather-tight heat shrink over all soldered joints.
- If the factory coolant tubes are not used, the Engine Coolant Temperature (ECT) sensor should be installed directly into the threaded boss in the intake manifold near the thermostat, if applicable. This is a coolant passage.
- The ACT sensor should generally not be moved from the stock location. Some aftermarket companies offer ACT relocation kits while making false claims of increased horsepower by reading cooler air. While it is true that a cooler air can result in more power, this "trick" is not cooling the incoming air, but instead is merely reading the temperature from a different location. This can have a negative effect on overall engine performance and drivability because the PCM was calibrated under the assumption that the ACT sensor was in the stock design location. On a forced-induction engine, it is generally preferable to have the ACT sensor located after the power adder and after the intercooler, if applicable, which will simplify the calibration ("tuning") process. Some of our FRPP supercharger kits leave the ACT sensor in the stock location upstream of the supercharger, but this was accounted for in the calibration and should not be changed.
- Protect the air filter element from turbulence created by the engine cooling fan. This is commonly referred to as "fan wash." If you are using an open element air filter on the end of the MAF sensor, it is strongly advised that you use a shield to reduce the effects of the turbulence.
- It's best if the air filter gets cold air from in front of the radiator. If the filter is located in the engine compartment, as in many street rod applications, the inlet air temperature can be up to 60 degrees hotter than ambient which can result in a 5% torque loss from the air density decrease. The PCM will also retard ignition timing for the hotter air which can result in an additional 5-10% torque loss. Colder air is always better.
- An improperly functioning charging system can cause engine running problems. Under-drive pulleys spin the accessories slower meaning that they consume less power from the engine. This results in a greater net horsepower available at the flywheel, but at a cost. Normally this is not a problem, but some systems may not perform properly if you under-drive the alternator excessively, especially if you've increased the electrical load on the system through the use of bigger cooling fans, high-capacity fuel pump, stereo system, etc. If the alternator does not generate enough voltage to keep the system adequately charged, it can have an adverse effect on the EFI system and result in a variety of drivability issues.
- The inside diameter of the fuel return line should be at least 75% of the size of the inside diameter of the fuel supply line.

FUEL PUMP LOCATION

A common and often overlooked problem is the location of the fuel pump or pumps. Optimally, the fuel pump should be mounted IN THE TANK to reduce the possibility of pump cavitation. Cavitation is essentially localized boiling caused by a reduction in pressure, generally occurring on the inlet side of a pump. This localized boiling results in fuel vapor bubbles which will reduce the volume of fuel the pump is capable of delivering to the engine. Any reduction in pressure or increase in temperature at the inlet side of the pump increases the chances that cavitation will occur. For this reason, it is always best to either have the pump inside the tank immersed in fuel or (in the case of an external pump) gravity fed, which will increase the pressure on the inlet side of the pump. If the fuel pump has to "pull" the fuel, this will result in a reduction in pressure at the fuel pump inlet potentially allowing cavitation and, thus, vapor bubbles to develop. These vapor bubbles are then drawn into the fuel pump and exit the high-pressure side of the fuel pump as compressed vapor. They travel the entire length of the fuel system and are expelled through the fuel injector. This can cause issues ranging from stumbles and hesitations to engine damage due to insufficient fuel delivery and lean A/F ratios. Sometimes this problem can characterize itself by only appearing when the weather gets warmer, which can confound the diagnosis of the issue. In certain cases, it may seem to only develop when driving on certain surfaces, because pavement reflects more heat than an off-road 4x4 trail. Remember, more heat and lower pressure on the inlet side of the pump means a greater chance of cavitation, which is to be avoided whenever possible.

If you are using an external mounted fuel pump, you should run a very coarse (typically around 100 micron) filter on the inlet side of the fuel pump, and a finer (typically around 10 micron) filter on the outlet side of the pump. A paper filter is NOT recommended on the inlet of the fuel pump because it can cause a restriction in fuel flow which, as mentioned previously, can lead to cavitation.

IGNITION, FUEL SYSTEMS AND ELECTRICAL

NOT ALL INJECTORS ARE ALIKE.

All Ford Racing injectors are held to the same original equipment specifications that are used in millions of Ford vehicles currently on the road. With mandatory emissions requirements for 100,000 miles, our injectors have to be durable and consistent. Some of our competitors' injectors are not built to original equipment standards and are often held to no specific build tolerance.

Don't trust your performance vehicle to just any injector, trust the brand with millions of vehicles on the road and over 100 years of racing experience, Ford Racing!

"After working with the Ford Racing 80 lb/hr injectors in several projects, I'm thoroughly convinced that they are the best all-around fuel injectors for most of today's Mustang performance applications; naturally aspirated and/or with power adders."

— KJ Jones, 5.0 and Super Fords Magazine

PART NUMBER (SETS OF 8)	FLOW RATE	IMPEDANCE	LENGTH	CONNECTOR	ADAPTOR	COLOR
M-9593-LU24*	24 lb/hr	11-18 ohms	L	USCAR®	M-14464-A8	Black
M-9593-BB302*	30 lb/hr	11-18 ohms	L	Jetronic®/Minitimer®	M-14464-U2J	Orange
M-9593-MU32*	32 lb/hr	11-12 ohms	M	USCAR®	M-14464-A8	Black w/Red Stripe
M-9593-LU34*	34 lb/hr	11-18 ohms	L	USCAR®	M-14464-A8	Black
M-9593-M39*	39 lb/hr	11-18 ohms	L	USCAR®	M-14464-A8	Dark Blue
M-9593-G302*	47 lb/hr	11-18 ohms	M	USCAR®	M-14464-A8	Black w/Yellow Stripe
M-9593-LU47*	47 lb/hr	11-18 ohms	L	USCAR®	M-14464-A8	Black w/Silver Tip
M-9593-LU60*	60 lb/hr	11-12 ohms	L	USCAR®	M-14464-A8	Black
M-9593-LU80*	80 lb/hr	11-12 ohms	L	USCAR®	M-14464-A8	Black w/Blue Tip

All injector flow rates are quoted at a delta pressure of 39.15psi. To convert to a delta pressure of 43.5psi, multiply flow rate by 1.054.

FUEL INJECTOR ADAPTOR KIT (JETRONIC® TO USCAR®)



M-14464-A8*

- Adapts your Jetronic®/Minitimer®-style harness to USCAR® fuel injectors
- Single-piece design for improved reliability and aesthetics over our competitors' adaptors
- Packaged in sets of (8)



FUEL INJECTOR ADAPTOR KIT (USCAR® TO JETRONIC®)



M-14464-U2J*

- Adapts USCAR®-style harness to Jetronic®/Minitimer®-style injector
- Single-piece design for improved reliability and aesthetics over our competitors' adaptors
- Packaged in sets of (8)



BODY STYLE



EV6



EV14



CONNECTORS

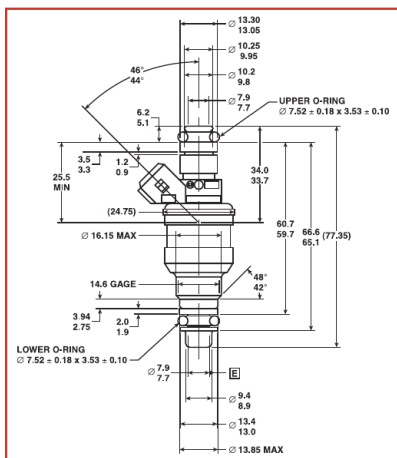


Jetronic®/
Minitimer®

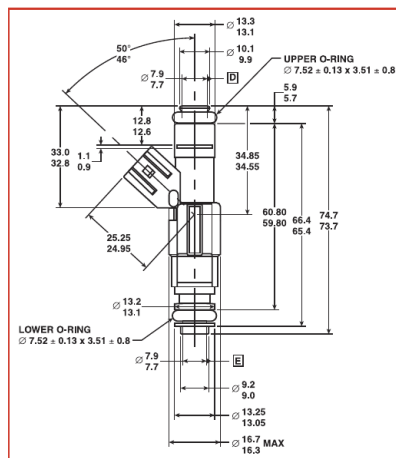


USCAR®

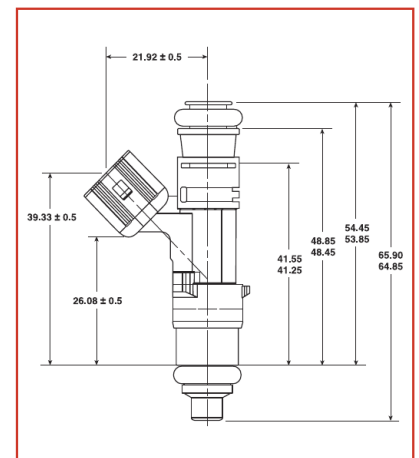
LENGTH



Long



Long



Medium

IGNITION, FUEL SYSTEMS AND ELECTRICAL

PERFORMANCE THROTTLE BODIES FOR VEHICLE EQUIPPED WITH ELECTRONIC THROTTLE CONTROL (ETC)

Electronic throttle control was introduced on the Mustang in 2005. Its introduction has made attention to detail and setup of replacement throttle bodies even more critical than in the past. Ford Racing throttle bodies are tested and engineered to give the customer trouble-free operation and are set up from the factory ready to bolt on.

All Ford Racing ETC throttle bodies feature:

- All factory sensors installed – no need to try and take apart your original throttle body
- Calibrated for consistent idle using the same equipment and procedure as production throttle bodies
- Precision billet construction with tapered inlet for consistent high flow
- Polished aluminum for great looks and underhood “bling”
- The only throttle bodies backed by Ford Racing with the logo CNC'd in
- Validation through hundreds of hours of dyno, racing and street performance driving
- For maximum performance and safe engine operation, most throttle bodies require custom calibration

PART NUMBER	ENGINE	FITS	SIZE	REQUIRES	NOTES
M-9926-M5090*	5.0L DOHC Coyote	2011-2012 Mustang GT/BOSS 302 (stock 80 mm)	90 mm	Adaptor M-9474-M50 for Mustang GT intake 15% counter-clockwise	Adaptor M-9474-M50 rotates throttle body approximately
				Adaptor M-9474-M50B for BOSS intake M-9424-M50BR	Engine Beauty Cover M-6P067-M50B covers throttle body on Mustang GT intake
				Calibration required	BOSS intake M-9424-M50BR can be port matched to accept throttle body w/out adaptor, requires custom gasket/RTV
M-9926-3V*	4.6L 3-valve	2005-2010 Mustang GT (stock dual 55 mm)	Dual bore 62 mm	Calibration required	
M-9926-CJ*	5.4L SC	2007-2012 Shelby GT500 (stock dual 62 mm)	Dual bore 63.5 mm	Calibration required	Increases flow but maintains stock-like idle rpm
		2008-2012 Cobra Jet			OE on 2008 Cobra Jet
M-9926-CJ65*	5.4L SC	2007-2012 Shelby GT500 (stock dual 62 mm)	Dual bore 65 mm	Calibration required	High-flow throttle body with flow characteristics to maintain a low idle speed
		2008-2012 Cobra Jet		Custom air inlet tube and 5" hose	OE on 2010-2012 Cobra Jet Used in 750 hp GT500 Supercharger Kit M-6066-MSVT,* 5.0L Supercharger Kit M-6066-MGT624, M-6066-MGT525 and M-6066-MGT23
M-9926-SCJ*	5.4L SC	2007-2012 Shelby GT500 (stock dual 62 mm)	Mono-blade oval	Calibration required	Highest flow throttle body - good for over 1000 hp!
		2008-2012 Cobra Jet		Custom air inlet tube and 5" hose	OE on 2010-2012 Cobra Jet with optional 4.0L supercharger May require minor clearance for motor on some 5.4L TVS supercharger castings Can be used on 5.0L Supercharger Kits M-6066-MGT624, M-6066-MGT624, M-6066-MGT52 and M-6066-MGT23 Requires port matching (~1 mm) when installed. (Calibration required)
M-9926-MSVT*	5.4L SC	2007-2012 Shelby GT500	Dual bore 62 mm		Stock replacement
M-9926-MGT*	4.6L 3-valve	2005-2010 Mustang GT	Dual bore 55 mm		Stock replacement

MECHANICAL REPLACEMENT THROTTLE BODIES FOR ELECTRONIC THROTTLE CONTROL

For those enthusiasts who want to run a late model engine with an aftermarket ECU that requires a mechanical linkage, Ford Racing offers throttle bodies to make the conversion easy.

Legal for NHRA® competition on Cobra Jet – check NHRA.com for full list of throttle bodies for year of Cobra Jet.

All mechanical linkage throttle bodies feature a 2003-2004 Cobra-style linkage and throttle cable connection.

Throttle cable and cable stop plate are not included and must be custom fabricated.

PART NUMBER	ENGINE	FITS	SIZE	REQUIRES
M-9926-3VM*	4.6L 3-valve	2005-2010 Mustang GT (stock dual 55 mm)	Dual bore 62 mm	Requires aftermarket engine control system
M-9926-CJM*	5.4L SC	2007-2012 Shelby GT500 (stock dual 62 mm) 2008-2012 Cobra Jet 2011-2012 GT with FR supercharger kit	Dual bore 63.5 mm	Requires aftermarket engine control system
M-9926-CJ65M*	5.4L SC	2007-2012 Shelby GT500 (stock dual 62 mm) 2008-2012 Cobra Jet 2011-2012 GT with FR supercharger kit	Dual bore 65 mm	Requires aftermarket engine control system
M-9926-SCJM*	5.4L SC	2007-2012 Shelby GT500 (stock dual 62 mm) 2008-2012 Cobra Jet 2011-2012 GT with FR supercharger kit	Mono-blade oval	Requires aftermarket engine control system



M-9926-3VM shown



M-9926-M5090 shown



M-9926-CJ shown

IGNITION, FUEL SYSTEMS AND ELECTRICAL

2011-2012 MUSTANG 5.0L 90 MM THROTTLE BODY

M-9926-M5090*

- Fits 2011-2012 Mustang GT/2012 BOSS 302 with stock 80 mm throttle body
- Ford Racing's performance electronic throttle bodies are for vehicles equipped with electronic throttle control (ETC)
- Electronic throttle control was introduced on the Mustang in 2005. Its introduction has made attention to detail and setup of replacement throttle bodies even more critical than in the past
- Includes jumper harness
- **Calibration required (not included)**

Requires:

Adaptor: M-9474-M50 for OEM Mustang GT 5.0L 4V Ti-VCT intake
Adaptor: M-9474-M50B for Ford Racing BOSS Intake M-9424-M50BR

NOTES: Adaptor M-9474-M50 rotates throttle body approximately 15% counter-clockwise. Engine Cover M-9680-M50 covers throttle body on 5.0L 4V Ti-VCT intake. BOSS Intake M-9424-M50BR can be port matched to accept throttle body without adaptor; requires custom gasket/RTV.



COBRA JET BILLET ALUMINUM THROTTLE BODY

M-9926-CJ*

- Service replacement for the 2008 Mustang FR500CJ race car
- Fits in factory location on 2007-2012 Shelby GT500
- Twin 63.5 mm bore (stock Shelby GT500 is twin 60 mm)
- Tested to over 800 hp in 2007-2012 Shelby GT500 applications
- Precision machined from billet aluminum to ensure consistency
- Polished finish with machined "Ford Racing" logo
- Tested to Ford original equipment specifications for cold and hot weather
- Fully assembled, complete with throttle position sensor and actuator motor, ready to bolt on!
- Uses OE gears to prevent gear bind and wear common with other aftermarket throttle bodies
- Does not include calibration, calibration may be required in some applications



62 MM THROTTLE BODY WITH MECHANICAL LINKAGE

M-9926-3VM*

For those enthusiasts who want to run a late model engine with an aftermarket ECU that requires a mechanical linkage, Ford Racing offers throttle bodies to make the conversion easy. All mechanical linkage throttle bodies feature a 2003-2004 Cobra-style linkage and throttle cable connection. Throttle cable and cable stop plate are not included and must be custom fabricated.

Our mechanical throttle bodies are legal for NHRA® competition on the Mustang Cobra Jet, check www.NHRA.com for a full list of throttle bodies for the 2008-2012 Cobra Jet.

- Fits 3V Mustang intake manifold
- Mechanical linkage
- Twin 62 mm bore (stock Mustang GT is twin 55 mm)
- Precision machined from billet aluminum to ensure consistency
- Polished finish with machined "Ford Racing" logo
- Perfect for tuners using aftermarket engine control system



5.0L 4V Ti-VCT 90 MM THROTTLE BODY INTAKE SPACER

M-9474-M50*

- Fits 2011-2012 Mustang GT
- Spacer used to adapt M-9926-M5090 90 mm Billet Aluminum Throttle Body to 5.0L Mustang GT Ti-VCT intake manifold
- Spacer rotates throttle body approximately 15% counter-clockwise to clear intake cover



BOSS 302 90 MM THROTTLE BODY INTAKE SPACER

M-9474-M50B*

- Fits 2012 Mustang BOSS 302 or 2011-2012 Mustang GT with Ford Racing Mustang BOSS 302 Intake Manifold M-9424-M50BR
- Spacer used to adapt 90 mm Throttle Body M-9926-M5090 to 2012 BOSS 302 Intake M-9424-M50BR



2005-2010 MUSTANG GT THROTTLE BODY

M-9926-MGT*

- Fits 2005-2010 Mustang GT with 3V 4.6L engine
- New stock replacement 55 mm throttle body



2007-2012 MUSTANG SVT THROTTLE BODY

M-9926-MSVT*

- Fits 2007-2012 Shelby GT500
- New stock replacement 60 mm throttle body



2005-2010 MUSTANG GT BILLET THROTTLE BODY

M-9926-3V*

- Performance throttle bodies for vehicle equipped with electronic throttle control (ETC), similar to Throttle Body M-9926-CJ on the 2008 Mustang FR500CJ race car
- Fits in factory location on 2005-2010 Mustang GT
- Twin 62 mm bore (stock Mustang GT is twin 55 mm)
- Precision machined from billet aluminum to ensure consistency
- Polished finish with machined "Ford Racing" logo
- Tested to Ford original equipment specifications for cold and hot weather
- Fully assembled complete with throttle position sensor and actuator motor
- Uses OE gears to prevent gear bind and wear common with other aftermarket throttle bodies
- Does not include calibration, CALIBRATION REQUIRED, sold for tuner use



COBRA JET OVAL THROTTLE BODY

M-9926-SCJ*

- Fits 2007-2012 Shelby GT500 (stock dual 62 mm), 2008-2012 Cobra Jet and 2011-2012 Mustang GT with Ford Racing supercharger kit
- OE on 2010-2012 Cobra Jet with optional 4.0L supercharger
- Does not include calibration, calibration required



IGNITION, FUEL SYSTEMS AND ELECTRICAL

COBRA JET 123 MM BILLET MAF HOUSING

M-9600-CJ*

- 123 mm mass airflow sensor housing
- Add to your underhood "bling" factor with this massive mass air housing that looks as good as it performs!
- Cobra Jet mass air meter housing—recommended for highly modified 2007-2011 Shelby GT500
- Proven to support over 800 hp in 2007-2011 Shelby GT500 applications
- Eliminates production resonator
- Fits production air tube
- Precision CNC'd billet aluminum
- Polished finish
- Perfect upgrade to existing Ford Racing Shelby GT500 power upgrade, cold air and supercharger kits!
- Does not include calibration, CALIBRATION REQUIRED, sold for tuner use



SUPER COBRA JET 140 MM MAF TUNER KIT

M-9600-SCJ*

- 140 mm mass airflow sensor housing
- 2010 Super Cobra Jet mass air meter housing—recommended for highly modified 2007-2011 Shelby GT500
- Proven to support over 1100 hp in 2007-2011 Shelby GT500 applications
- Precision CNC'd billet aluminum
- Polished finish
- This kit includes the housing and mounting tab
- Perfect upgrade to existing Ford Racing Shelby GT500 power upgrade, cold air and supercharger kits!
- Does not include calibration, CALIBRATION REQUIRED, sold for tuner use
- 140 mm MAF housing requires a custom air tube and may have interference issues with the factory hood when using production engine mounts



2007-2010 MUSTANG SVT RESONATOR ELIMINATOR KIT

M-9B659-MSVT*

- Fits 2007-2010 Shelby GT500
- Air inlet resonator eliminator for improved air flow
- Standard on 2010 Shelby GT500 660 hp Supercharger Upgrade Kit M-6066-MSVTA



2010 COBRA JET AIR INLET TUBE

M-9B659-CJ*

- Service replacement for the base 2010 Mustang Cobra Jet race car
- Air Inlet designed for improved air flow
- Works with the 2010 CJ 123 mm MAF unit
- Fits 2007-2012 Shelby GT500 w/123MAF



FUEL RAIL SPACER KIT

M-8510-M2L*

- Fits 2007-2012 Shelby GT500
- The spacers are placed between the fuel rail and intake manifold to provide the extra space needed for the taller injectors
- Competition proven in Mustang Cobra Jet
- Required for installation of Ford Racing M-9593-LU60 and M-9593-LU80 High-flow Injectors
- Kit includes 4 aluminum spacers and 4 fasteners



LIGHTNING MASS AIR METER

M-12579-L54*

- Stock replacement 90 mm 2001-2004 F-150 Lightning mass air meter
- Requires recalibration for use on other vehicles



2010 MUSTANG GT DUAL FUEL PUMP KIT

M-9407-MSVTA*

- Fits 2010 Mustang GT. For 2005-2009 Mustang GT, use M-9407-GT05
- Includes harness, dual fuel pumps, drop-in housing and fuel pump driver module from the 2010 Shelby GT500
- Includes all installation hardware
- Highly recommended for any application making over 400 hp
- CALIBRATION REQUIRED! Calibration not included

Note: Use of this kit in a 2005-2009 Mustang will result in an incorrect fuel gauge reading.



2005-2009 MUSTANG GT DUAL FUEL PUMP KIT

M-9407-GT05*

- Fits 2005-2009 Mustang GT. For 2010, use M-9407-MSVTA
- Includes harness, dual fuel pumps, drop-in housing and fuel pump driver module from the 2007-2009 Shelby GT500
- Includes all installation hardware
- Highly recommended for any application making over 400 hp
- CALIBRATION REQUIRED! Calibration not included

NOTE: Use of this kit in a 2010 Mustang will result in an incorrect fuel gauge reading.



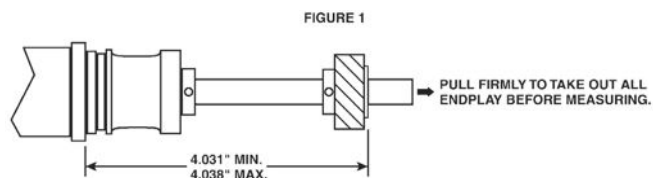
DISTRIBUTOR GEAR INSTALLATION

The following information covers the installation of a new distributor gear onto an existing distributor. When replacing the distributor gear, it is important that you choose the appropriate gear for your application. If you have questions regarding your gear selection, please contact the Ford Racing Techline at (800) FORD788. Failure to use the correct gear will lead to premature gear failure. Premature gear failure may also be attributed to improper meshing of the gear teeth between the camshaft and distributor. For that reason, we recommend that you install a new distributor gear when installing a new camshaft.

INSTALLATION INSTRUCTIONS:

- STEP 1:** Remove roll pin from distributor gear and shaft. Save pin for re-assembly.
- STEP 2:** Verify that the shaft endplay is .024" to .035". Modify collar if necessary. Some aftermarket distributors may be constructed in a manner that does not allow you to achieve .024" to .035" of endplay. See "Alternative method of verifying correct distributor gear installation" if your distributor does not have .024" to .035" endplay.
- STEP 3:** Press original distributor gear off shaft.
- STEP 4:** Mark location of original roll pinhole on the shaft by drawing a vertical line along the shaft that intersects the hole. Measure from the centerline of the roll pinhole to a fixed point above it. Note that dimension.
- STEP 5:** Press new distributor gear onto shaft.
NOTE: Replacement distributor gear does not have roll pinhole.
- STEP 6:** Pull distributor shaft out of distributor housing to eliminate endplay (see Figure 1).
- STEP 7:** Check location of distributor gear on distributor shaft (see Figure 1). If it is not in the correct location, use a press to move the gear to the correct location.
- STEP 8:** Using the vertical line on the distributor shaft and the noted dimension (see **STEP 4**), roughly plot where the original roll pinhole is located. Drill a new .125" hole 90° from the original hole, above or below it, through the gear and the shaft.
NOTE: It is important that the dimensions called out in Figure 1 are maintained while drilling.
- STEP 9:** Insert roll pin and check dimensions (see Figure 1).

WARNING: If the distributor gear is installed incorrectly, it may be forced down against the support in the block or may be held up away from the support in the block. Both conditions will cause damage to the block and/or the block and gears. When the gear is properly installed, the cut on the gears and the direction of rotation will pull the distributor gear down against the support (distributor gear thrust face) in the block.



ALTERNATIVE METHOD OF VERIFYING CORRECT DISTRIBUTOR GEAR INSTALLATION:

After **STEP 7**, install distributor assembly in the block you are using. Timing chain set and camshaft must be removed. With the aluminum distributor housing fully seated against the block, verify that the distributor gear can be lifted off the support in the block at least .005". Next pull the distributor gear down against the support in the block and hold it there. Pull up on the aluminum distributor housing and verify that you can lift it up at least .005" while holding the gear against the support in the block. This procedure will confirm that the gear is not being forced down against the support and not being held up off the support in the block.

Continue with **STEP 8**.

COMMON DISTRIBUTOR PROBLEMS:

Distributors with very little or no shaft endplay. This has been found with new and remanufactured distributors. Improper endplay may force the gear against the support in the block or hold it up off the support, causing damage.

Distributors that have a different material gear than advertised. It is important to run the correct distributor gear for the camshaft that you are using. Consult the manufacturer of the camshaft you are using for gear recommendation.

Some heavy-duty oil pump drive shafts may not allow an EFI distributor to slide down far enough over the oil pump drive shaft. EFI distributors have a longer shaft below the gear.

Running an HV oil pump with production bearing clearances can cause abnormally high oil pressure and possible premature distributor gear wear.

Gears on camshafts with a very poor finish. This could cause premature distributor gear wear.

New and remanufactured distributors with the gear installed at the wrong height.

DISTRIBUTOR GEARS



PART NUMBER	MATERIAL	COLOR	DIAMETER		APPLICATION
			OUTSIDE	INSIDE	
M-12390-G*	Cast Iron	Green	1.421"	0.531"	All 351C/351M/400/429/460 engines. ①
M-12390-H*	Bronze	Bronze with Green Stripe	1.421"	0.531"	All 351C/351M/400/429/460 engines. ①
M-12390-L*	Polymer	None	1.249"	0.531"	302 EFI/all 351W all camshafts.

MATERIAL SELECTION NOTES:

- Cast iron gears are compatible with cast iron camshafts (hydraulic or solid flat tappet type).
- Steel gears are compatible with billet steel camshafts (hydraulic roller tappet type).
- Bronze gears can be used with either cast iron or billet steel camshafts. They are usually recommended by manufacturers of aftermarket billet steel solid roller tappet camshafts. Since the bronze is softer than cast iron or steel, it will wear at a faster rate.
- Polymer gears are compatible with all camshafts.

IMPORTANT INSTALLATION NOTE:

- ① Distributor gears do not have pre-drilled holes. See instructions on page 214.

DISTRIBUTOR GEAR

M-12390-H*



- Fits 351C/351M/400/429/460 point, Duraspark® and EFI distributors with .531" diameter shaft
- Recommended for billet steel mechanical roller camshafts
- Bronze is softer than cast iron or steel, it will wear at a faster rate

NOTE: Distributor gears do not have pre-drilled holes, see Distributor Gear Instruction Sheet.



POLYMER DISTRIBUTOR GEAR FOR 302/351W

M-12390-L*



- Fits 302 EFI, 351W EFI, point and Duraspark® distributors with .531" diameter shaft
- Compatible with cast iron and billet steel camshafts
- For "extreme duty" race engines
- Excellent wear characteristics

NOTE: Distributor gears do not have pre-drilled holes, see Distributor Gear Instruction Sheet.



1977-1987 DURASPARK® DISTRIBUTOR CAP AND ROTOR KIT

M-12106-A302*



- Fits all 1957-1987 V8 distributors (except EEC). High-performance replacement for high-energy OEM rotor and cap on 1977-1987 V8 distributors. Installation on 1957-1976 distributor (which had smaller diameter cap) reduces possibility of crossfire between terminals at high rpms
- Compatible with Ford Racing ignition wire sets
- Aluminum terminals



1986-1996 EFI V8 DISTRIBUTOR CAP AND ROTOR KIT

M-12106-B302*



- Fits 1986-1996 V8 EEC/TFI distributors
- Compatible with Ford Racing ignition wire sets
- Aluminum terminals



IGNITION, FUEL SYSTEMS AND ELECTRICAL

FRPP 3V COLD SPARK PLUG SET (16 MM THREAD)

M-12405-3V0*

- Fits 2005-2008 3V heads requiring the 16 mm thread
- For use in engines with higher-than-stock cylinder combustion pressures or sustained high rpm
- Unique design is proprietary to Ford 3-valve engines
- One heat range colder than the stock Mustang GT plug
- Two heat ranges colder than the stock 5.4L 3V truck engine
- Sold in engine sets of 8
- Use M-12405-3V12MM Spark Plugs for 2008 and newer 3V heads

NOTES:

- 2008 engines with late style 12 mm spark plugs can be identified by coil engineering number 8L3E.
- 2005-2008 engines with early style 16 mm "High Thread" design spark plugs can be identified by coil engineering number 3L3E.
- All 2009-2010 engines use 12 mm spark plugs.



HIGH-TORQUE MINI STARTER - SMALL BLOCK

M-11000-B51*

- Fits most 289/302/351W/351C engines **except 164-tooth manual transmission**. For 164-tooth flywheel, see M-11000-MT164
- Small diameter mini-starter great for additional header clearance
- Weighs approximately 5 lbs less than pre-1989 production starters, yet provides more cranking power
- Comes with special battery cables and instructions. Must use diode protected fenderwell solenoid



HIGH-TORQUE MINI STARTER - SMALL BLOCK

M-11000-MT164*

- Fits most 289/302/351W/351C engines **with 164-tooth manual transmission** flywheel. For 157-tooth applications, see M-11000-B51
- Small diameter mini-starter great for additional header clearance
- Weighs approximately 5 lbs less than pre-1989 production starters, yet provides more cranking power
- Comes with special battery cables and instructions. Must use diode protected fenderwell solenoid



FRPP 3V COLD SPARK PLUG SET (12 MM THREAD)

M-12405-3V12MM*

- Fits 2008 and newer 3V heads requiring the 12 mm thread
- For use in engines with higher-than-stock cylinder combustion pressures or sustained high rpm
- One heat range colder than the stock Mustang GT and 5.4L 3V truck engine spark plugs
- Sold in engine sets of 8
- Use M-12405-3V0 Spark Plugs for early style 2005-2008 3V heads

NOTES:

- 2008 engines with late style 12 mm spark plugs can be identified by coil engineering number 8L3E.
- 2005-2008 engines with early style 16 mm "High Thread" design spark plugs can be identified by coil engineering number 3L3E.
- All 2009-2010 engines use 12 mm spark plugs.



FRPP 5.0L 4V Ti-VCT COLD SPARK PLUG SET

M-12405-M50*

- Recommended for use with 5.0L 4V Ti-VCT Supercharger Kit M-6066-MGT525D and M-6066-MGT624D
- One heat range colder than the stock 5.0L 4V Ti-VCT engine spark plugs
- 0.035 plug gap for supercharged applications recommended
- Sold in engine sets of 8



IGNITION, FUEL SYSTEMS AND ELECTRICAL

FORD RACING 9 MM SPARK PLUG WIRE SETS



Wire-wound custom ignition wire sets feature low resistance for minimum spark loss. Silicone insulation and boots withstand high temperatures and voltage loss for minimum crossfire and are highly resistant to fuels, oils and solvents. Long-life, tough stainless steel terminals for "post"-type distributor caps. Includes coil wire for socket-type coil and "Ford Racing" identification. Cylinder number appears on each wire.

NEW AND IMPROVED

Spark plug wires feature high-quality 9 mm wire available in 4 colors: blue, black, yellow and red.

PART NUMBER	APPLICATION	WIRE COLOR	END CONFIG.
M-12259-C301*	5.0L/5.8L V8 Engine	Blue	45° Boot
M-12259-R301*	5.0L/5.8L V8 Engine	Red	45° Boot
M-12259-M301*	5.0L/5.8L V8 Engine	Black	45° Boot
M-12259-Y301*	5.0L/5.8L V8 Engine	Yellow	45° Boot
M-12259-C460*	7.0L/7.5L V8 Engine	Blue	45° Boot
M-12259-R460*	7.0L/7.5L V8 Engine	Red	45° Boot
M-12259-C302*	V6 and V8 Universal	Blue	45° Boot
M-12259-M302*	V6 and V8 Universal	Black	45° Boot
M-12259-C462*	4.6L 2V Mustang	Blue	45° Long Boot
M-12259-R462*	4.6L 2V Mustang	Red	45° Long Boot
M-12259-C464*	4.6L 4V Mustang	Blue	45° Long Boot
M-12259-R464*	4.6L 4V Mustang	Red	45° Long Boot
M-12259-T462*	4.6L 2V F-150 Truck	Blue	45° Long Boot

NOTES:

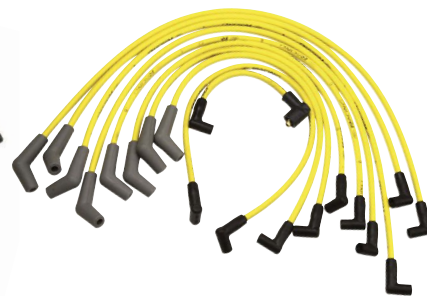
- Universal sets can be cut to length with a crimping tool. Includes terminals for post- and socket-type coils, plus easy-to-follow instructions.
- Wire Sets M-12259-C301/R301/M301/Y301/C302/M302 do not fit distributorless ignition system (DIS) 5.0L/302 Explorer engines. The universal wire sets do not fit distributorless ignition system (DIS).



M-12259-C462/Mustang 4.6L SOHC 9 mm Wire Set



M-12259-R301/5.0L/5.8L V8 Engine SOHC 9 mm Wire Set



M-12259-Y301/5.0L/5.8L V8 Engine SOHC 9 mm Wire Set

CUSTOM BILLET WIRE LOOM

M-12297-L900* Ford Oval

Billet aluminum spark plug wire loom with ball milled logo. Fits 8 mm and 9 mm wire. Keeps all wires neat and away from headers. Adjustable brackets fit all big and small block engines except FE V8. Use universal spark plug wires.



Photo may vary

2007-2012 MUSTANG SVT 4V IGNITION COIL SET



M-12029-4V*

- Fits 2007-2012 Shelby GT500 5.4L DOHC
- One engine set of stock replacement coils



IGNITION COIL BRACKET

M-12044-A2*

Canister style, universal





APPEARANCE/DRESS-UP



MASTERPIECE GAUGE COLLECTION



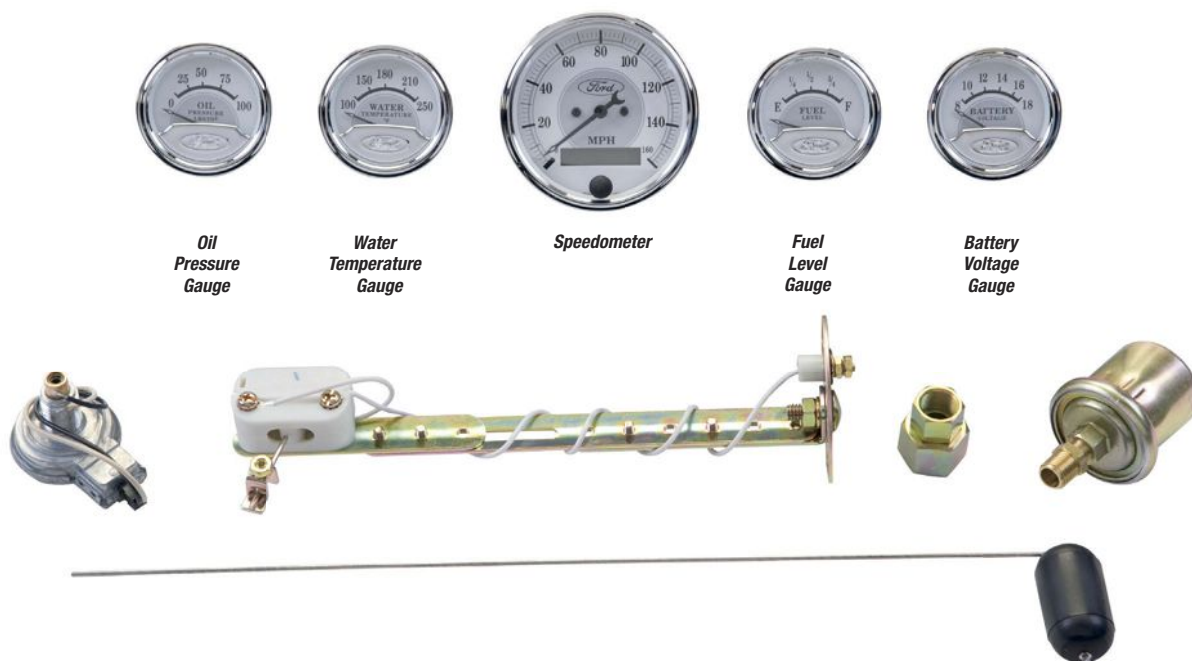
CHROME BEZEL SERIES KIT ①

M-19017-B961*

- Bezel embossed with "Ford" emblem
- Luxurious chrome design with white background, gray sweep zone, black graphics and needle-style pointer
- Includes all components necessary to install
- All gauges are electric operation. Case diameter is 3-1/8" (speedometer) and 2-1/16" (water, oil, fuel and battery)
- Fuel level sender compatibility is 240 OHM empty, 33 OHM full – 12 volt
- Fuel level sender is adjustable from 6" to 23"
- Speedometer②, oil pressure gauge and sender, water temperature gauge and sender, fuel level gauge and sender and battery voltage gauge

NOTES:

- ① 5-gauge kit includes: speedometer, oil pressure gauge and sender, water temperature gauge and sender, fuel level gauge and sender and battery voltage gauge.
- ② Needles do not zero.



FORD RACING MUSTANG GAUGE PACK

M-6304GPACK-MA*

- Fits 2010-2012 Mustang GT
- Includes dash-mounted gauge pod and three gauges
- Oil pressure gauge
- Vehicle performance gauge
- Water temperature gauge
- Includes wiring harness



FORD RACING MUSTANG GAUGE POD

M-6304GPOD-A*

- Fits 2005-2012 Mustang GT, Shelby GT500 and Mustang V6
- Gauge pod accepts standard 2.0625" gauge
- Includes dash mounting bracket



APPEARANCE/DRESS-UP

"FORD RACING" COMPETITION GAUGES



Ford Racing's line of through-the-dial LED competition-style gauges. These high-quality, full-sweep gauges are available in 2-1/16" diameter along with our new 3-3/8" tachometer with shift light. They all sport the new red and blue "Ford Racing" logo on a black background with white numerals.



M-9275-BFSE*

2-1/16" Electric
Fuel Pressure Gauge
0-100psi



M-9278-BFSE*

2-1/16" Electric
Oil Pressure Gauge
0-100psi



M-10883-BFSE*

2-1/16" Electric
Water Temperature Gauge
100°-260°F



M-10885-BFSE*

2-1/16" Electric
Pyrometer measures
from 0-1600° F.
Includes K-type
thermocouple



M-11622-BFSE*

2-1/16" Electric
Vacuum/Boost
Pressure Gauge
30" hg/30psi



M-10898-CPIC*

2-1/16" Electric
Dynamic Performance
Information Center Gauge
(7-digit LED display)



M-17360-B*

3-3/8" Electric
Pedestal Mount
Shift Light Tachometer
10,000 rpm



MUSTANG SUPER COBRA JET 5" TACHOMETER W/SHIFT LIGHT

M-17360-SCJ*

The Super Cobra Jet tachometer is the newest compliment to the full line of Ford Racing gauges. Featuring the "Cobra Jet" logo, this is the exact tach/shift light combo used in the 2010 Mustang Cobra Jet race car.

- Through-the-dial LED lighting
- Adjustable shift light
- Used on 2010 Cobra Jet

For the complete line of Ford Racing Competition Gauges, see AutoMeter.com

SMALL BLOCK 427 VALVE COVERS



M-6582-W427B* Black satin

M-6582-W427P* Polished

- Fits 289/302/351W (except EFI)
- Pentroof 427 style, used on Ford Racing SB 427 crate engines (see pages 60-62)
- Die-cast aluminum with baffle
- "427 Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware
- Valve covers are not compatible with Gasket M-6584-A50, Fel-Pro® VS 13264T recommended



BOSS VALVE COVER SETS



M-6582-BOSS* Black wrinkle

M-6582-BOSSP* Polished (shown)

- BOSS 302-style valve covers that fit 289/302/351W cylinder heads
- Used on Ford Racing BOSS 302 block-based crate engines
- Cast aluminum
- Fits most 289/302/351W cylinder heads and rocker arm combinations
- With PCV and breather grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware
- Does not fit EFI applications
- Valve covers are not compatible with Gasket M-6584-A50, Fel-Pro® VS 13264T recommended



BOSS 302 VALVE COVER SET



M-6582-BOSS302*

- BOSS 302-style valve covers that fit 289/302/351W cylinder heads
- Used on the Ford Racing BOSS 302 crate engine
- Cast aluminum with black wrinkle finish
- Fits most 289/302/351W cylinder heads and rocker arm combinations
- With PCV and breather cap grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware
- Does not fit EFI applications
- Valve covers are not compatible with Gasket M-6584-A50, Fel-Pro® VS 13264T recommended



APPEARANCE/DRESS-UP

CIRCLE TRACK VALVE COVERS



M-6582-C7

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Polished finish
- "Ford Racing" logo
- Roller rocker arm to cover clearance should be checked
- Includes 2 clamp on breathers



CHROME ALUMINUM VALVE COVERS



M-6582-LE302SC

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Chrome finish
- "Cobra" snake logo laser etched
- Will clear stud girdle and roller rocker arms (3.75" tall)
- Includes oil fill cap and grommets



BLACK SATIN VALVE COVERS



M-6582-F302

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Black satin finish
- "Cobra" logo (original open-letter Cobra)
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6582-LE302SBK

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Black satin finish
- "Cobra" snake logo laser etched
- Will clear stud girdle and roller rocker arms (3.75" tall)
- Includes oil fill cap and grommets



BLACK SATIN VALVE COVERS



M-6582-LE302BK

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Black satin finish
- "Ford Racing" logo
- Will clear stud girdle and roller rocker arms (3.75" tall)
- Oil fill cap and grommets



BLUE SATIN VALVE COVERS



M-6582-LE302SBL

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Blue satin finish
- "Cobra" snake logo laser etched
- Will clear stud girdle and roller rocker arms (3.75" tall)
- Includes oil fill cap and grommets



BLUE SATIN VALVE COVERS



M-6582-LE302BL

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Black satin finish
- "Ford Racing" logo
- Will clear stud girdle and roller rocker arms (3.75" tall)
- Oil fill cap and grommets



POLISHED ALUMINUM VALVE COVERS



M-6582-F303

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Polished finish
- "Cobra" logo (original open-letter Cobra)
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6582-A

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Black satin finish
- "Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



CHROME ALUMINUM VALVE COVERS



M-6582-LE302C

- Fits 289/302/351W
- Die-cast aluminum with baffle
- Chrome finish
- "Ford Racing" logo
- Will clear stud girdle and roller rocker arms (3.75" tall)
- Includes oil fill cap and grommets



BLACK SATIN VALVE COVERS



M-6582-A301R

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Black satin finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6582-B301

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Black satin finish
- "Mustang" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6000-C302

- Fits 1986-1993 EFI Mustang
- Die-cast aluminum with baffle
- Black satin finish
- "Cobra" logo (original open-letter Cobra)
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



POLISHED ALUMINUM VALVE COVERS



M-6000-F302

- Fits 1986-1993 EFI Mustang
- Die-cast aluminum with baffle
- Polished finish
- "Mustang" logo
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



POLISHED ALUMINUM VALVE COVERS



M-6582-F301

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Polished finish
- "Mustang" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



POLISHED ALUMINUM VALVE COVERS



M-6000-D302

- Fits 1986-1993 EFI Mustang
- Die-cast aluminum with baffle
- Polished finish
- "Cobra" logo (original open-letter Cobra)
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



POLISHED ALUMINUM VALVE COVERS



M-6000-K302R

- Fits 1986-1993 EFI Mustang
- Die-cast aluminum with baffle
- Polished finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



POLISHED ALUMINUM VALVE COVERS



M-6582-A302R

- Fits 289/302/351W (except EFI)
- Die-cast aluminum with baffle
- Polished finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6000-E302

- Fits 1986-1993 EFI Mustang
- Die-cast aluminum with baffle
- Black satin finish
- "Mustang" logo
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



BLACK SATIN VALVE COVERS



M-6000-J302R

- Fits 1986-1993 EFI Mustang
- Die-cast aluminum with baffle
- Black satin finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



APPEARANCE/DRESS-UP

BLACK SATIN VALVE COVERS



M-6582-A341R

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Black satin finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



CHROME ALUMINUM VALVE COVERS

M-6582-R351*

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Chrome finish
- "Ford Racing" logo
- Will clear stud girdle and roller rocker arms (4" tall)
- Includes oil fill cap and grommets



POLISHED ALUMINUM VALVE COVERS

M-6582-Z351*

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Polished finish
- "Ford Racing" logo
- Will clear stud girdle and roller rocker arms (4" tall)
- Includes oil fill cap and grommets



DRY SUMP VALVE COVERS



M-6582-DS

- Fits 302 BOSS 351/351W
- Die-cast aluminum
- Polished finish with laser etched "Ford Racing" logo
- Will clear most stud girdles



BLACK SATIN TRUCK VALVE COVERS



M-6582-A351R

- Fits 302 and 351W EFI trucks
- Die-cast aluminum with baffle
- Black satin finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap
- 50-States Street Legal



POLISHED ALUMINUM VALVE COVERS



M-6582-C351PD

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Polished finish
- "351 CLEVELAND" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



POLISHED ALUMINUM VALVE COVERS



M-6582-A342R

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Polished finish
- "Ford Racing" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6582-C351BK

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Black satin finish
- "351 CLEVELAND" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



POLISHED ALUMINUM VALVE COVERS



M-6582-A427

- Fits 352/360/390/427/428
- Die-cast aluminum with baffle
- Polished finish
- "Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



COBRA JET VALVE COVERS



M-6582-LECJ1

- Valve cover used on Ford Racing 352 and 428 Cobra Jet push rod engines (will not fit FE engines)
- Die-cast aluminum with baffle
- Black satin finish with etched "Cobra Jet" script
- Will clear stud girdles and roller rocker arms (3.75" tall)
- Includes oil fill cap and grommets
- Also fits 289/302/351W engines



BLUE SATIN VALVE COVERS



M-6582-C351BL

- Fits 302 BOSS/351C/351M/400
- Die-cast aluminum with baffle
- Blue satin finish
- "351 CLEVELAND" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK SATIN VALVE COVERS



M-6582-B

- Fits 352/360/390/427/428
- Die-cast aluminum with baffle
- Black satin finish
- "Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLACK 427 COBRA FE VALVE COVERS



M-6582-FE352BK

- Fits 352/360/390/427/428
- Die-cast aluminum with baffle
- Black satin finish
- "427 Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



BLUE 427 COBRA FE VALVE COVERS



M-6582-FE352BL

- Fits 352/360/390/427/428
- Die-cast aluminum with baffle
- Blue satin finish
- "427 Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



POLISHED ALUMINUM VALVE COVERS



M-6582-FE352PD

- Fits 352/360/390/427/428
- Die-cast aluminum with baffle
- Polished finish
- "427 Cobra" logo
- May require modifications for roller rockers
- Includes oil fill cap and grommets
- 50-States Street Legal when installed with appropriate closed PCV hardware



POLISHED ALUMINUM VALVE COVERS

M-6582-C460*

- Fits 429/460
- Die-cast aluminum with baffle
- Polished finish
- "Ford Racing" logo
- Will clear stud girdle and roller rocker arms (4.5" tall)
- Includes oil fill cap and grommets



2007-2012 MUSTANG SVT COATED CAM COVERS



M-6582-C

Powdercoated blue appearance – similar to production 2011

M-6582-CC

Powdercoated chrome appearance

- Fits 2007-2012 Shelby GT500
- Original equipment cam cover
- Contains new gaskets and grommets for easy installation
- Can be used with factory Shelby GT500 coil covers or M-6067-D coil covers



COATED 3-VALVE CAM COVERS 4.6L/5.4L

M-6582-C543V



M-6582-3VB

M-6582-3VBLK

- Fits 2005-2010 3-valve 4.6L/5.4L engines



M-6582-C543V

Powdercoated chrome appearance finish. Comes with a bolt/grommet assembly.



M-6582-3VB

Blue powdercoated finish



M-6582-3VBLK

Black powdercoated finish

FORD RACING COATED 3-VALVE CAM COVERS



M-6582-FR3VBL Blue powdercoated finish

M-6582-FR3VBLK Black powdercoated finish

- Fits 2005-2010 3-valve 4.6L/5.4L engines
- Laser-etched "Ford Racing" logo
- Includes cam cover gasket





NEW!

Ford 289-302-351W Slant-Edge Valve Covers

Turn heads with this new aggressive and modern look for your engine. As a result of innovative mold design, these die-cast valve covers offer more internal clearance for large valvetrain applications. With six choices available, they will provide a totally personalized look. Tall, with a removable baffle. Grommets and bolts included. Sold in pairs.

Note: Not for use on engines with EFI manifolds.

Ford RACING

Black Crinkle, Raised emblems	302-135
Ford® Blue, Raised emblems	302-136
Cast Gray Crinkle, Raised emblems	302-137
Polished, Recessed black emblems	302-138
Chrome, Recessed black emblems	302-139

Ford MUSTANG

Black Crinkle, Raised emblems	302-140
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Ford 289-302-351W Die-Cast Aluminum Valve Covers

New Ford COBRA and Ford MUSTANG styles join the venerable Ford RACING style. These premium valve covers are "Tall", and designed to clear roller rockers and polylock nuts. They have recessed emblems with inlaid paint. All valve covers include baffles and grommets. Sold in pairs.

Note: Not for use on engines with EFI manifolds.

Ford RACING

Polished, Black emblems (was M-6582-E302P).....	302-001
Chrome, Black emblems (was M-6582-R302)	302-002
Black Crinkle, Red emblems (was M-6582-L302)...	302-003

Ford COBRA

Polished, Black emblems	302-055
Black Crinkle, Red emblems	302-056

Ford MUSTANG

Polished, Black emblems	302-030
Black Crinkle, Red emblems	302-031



Ford 289-302-351W Stamped Steel Valve Covers

These affordable, high-quality stamped steel valve covers are offered in a deep chrome plated look, and a distinctively bold black crinkle look. In addition to the classic raised Ford RACING emblem, you may choose from a new selection of recessed styles featuring the striking COBRA, MUSTANG, and RACING emblems. All valve covers include baffles and grommets. Sold in pairs.

Note: Not for use on engines with EFI manifolds.



Ford RACING

Chrome, Embossed emblems302-070
Black Crinkle, Red emblems302-072
Chrome, Black emblems.....302-071
Carbon-Style, Red emblems.....**NEW!** 302-008

Ford MUSTANG

Black Crinkle, Red emblems302-101
Chrome, Black emblems302-100

Ford COBRA

Black Crinkle, Red emblems302-117
Chrome, Black emblems.....302-116



Engine Dress-Up Kits

Give your Ford Engine a complete makeover with our new Ford RACING dress-up kits! Available in three different styles, perfect for customizing your engine and giving it that "complete look." *Note: Hold-Down clamps not shown.*

Deluxe Kits with recessed emblems and inlaid paint.

Black Crinkle, Red emblems302-500
Chrome, Black emblems302-510

Traditional Kit with embossed emblems



Chrome, Embossed emblems302-515

DRESS-UP KITS	302-500	302-510	302-515
Valve Covers	302-072	302-071	302-070
Air Cleaner	302-352	302-351	302-350
Air Breather Cap	302-216	302-215	302-215
12 Mini Nuts	302-316 x3	302-315 x3	302-315 x3
Oil Dip Sticks	—	—	302-401
Wire Looms	—	—	302-636

*Except those in categories with asterisks, these products are not legal for sale or use on pollution-controlled vehicles.



OFFICIAL LICENSED PRODUCT

APPEARANCE/DRESS-UP

BLUE 6.2L CAM COVERS

M-6582-62BL*

- Fits 6.2L F-150 and SuperDuty trucks, including SVT Raptor model equipped with 6.2L engine
- Powdercoated, Magnesium cam covers
- Includes fasteners, grommets, gaskets and camshaft position sensor grommets
- Color complements blue flame body color



WHITE 6.2L CAM COVERS

M-6582-62WH*

- Fits 6.2L F-150 and SuperDuty trucks, including SVT Raptor model equipped with 6.2L engine
- Powdercoated, Magnesium cam covers
- Includes fasteners, grommets, gaskets and camshaft position sensor grommets
- Color complements oxford white body color



ORANGE 6.2L CAM COVERS

M-6582-62OR*

- Fits 6.2L F-150 and SuperDuty trucks, including SVT Raptor model equipped with 6.2L engine
- Powdercoated, Magnesium cam covers
- Includes fasteners, grommets, gaskets and camshaft position sensor grommets
- Color complements molten orange body color



PRO STOCK ROCKER COVER - MIRROR IMAGE HEAD

M-6582-JC50*

- Fits M-6049-JC50 Mirror Image Chamber Cylinder Head only
- Cast thin-wall aluminum cover with "Ford Racing" logo
- O-ring sealed to head



PRO STOCK ROCKER COVER - SEQUENTIAL HEAD

M-6582-JC51*

- Fits M-6049-JC51 Sequential Chamber Cylinder Head only
- Cast thin-wall aluminum cover with "Ford Racing" logo
- O-ring sealed to head



SILVER 6.2L CAM COVERS

M-6582-62SL*

- Fits 6.2L F-150 and SuperDuty trucks, including SVT Raptor model equipped with 6.2L engine
- Powdercoated, Magnesium cam covers
- Includes fasteners, grommets, gaskets and camshaft position sensor grommets
- Color complements silver body color



4.6L/5.4L 4V "FORD RACING" CAST COIL COVERS

M-6067-D*

- Fits most 4.6L/5.4L DOHC engines with coil on plug ignition
- Polished die-cast aluminum
- Features two-color "Ford Racing" logo



BLACK 6.2L CAM COVERS

M-6582-62BK*

- Fits 6.2L F-150 and SuperDuty trucks, including SVT Raptor model equipped with 6.2L engine
- Powdercoated, Magnesium cam covers
- Includes fasteners, grommets, gaskets and camshaft position sensor grommets
- Color complements tuxedo black body color



2007-2010 MUSTANG SVT COIL COVERS

M-6067-C*

- Original equipment on the 2007-2010 Shelby GT500
- Fits most 4.6L/5.4L DOHC engines with coil on plug ignition



BREATHER CAP

M-6766-G302*

- Closed crankcase
- Push-in type



BREATHER CAPS W/"FORD RACING" LOGO

M-6766-FRNVBK* Black powdercoated

M-6766-FRNVBL* Blue powdercoated

M-6766-FRNVCH* Chrome

- Push-in type
- Laser-etched "Ford Racing" logo
- Open crank design
- Fits most 289/302/351W Ford Racing valve covers



BREATHER CAPS W/"FORD RACING" LOGO

M-6766-FRVBK* Black powdercoated

M-6766-FRVBL* Blue powdercoated

M-6766-FRVCH* Chrome

- Push-in type
- Laser-etched "Ford Racing" logo
- Closed crankcase design
- Fits most 289/302/351W Ford Racing valve covers



BREATHER CAPS

M-6766-NVBK* Black powdercoated

M-6766-NVBL* Blue powdercoated

M-6766-NVCH* Chrome

- Push-in type
- Open crankcase design
- Fits most 289/302/351W Ford Racing valve covers



BREATHER CAPS WITH VENT TUBE

M-6766-VBK* Black powdercoated

M-6766-VBL* Blue powdercoated

M-6766-VCH* Chrome

- Push-in type
- Includes vent outlet for emissions applications
- Closed crankcase design
- Fits most 289/302/351W Ford Racing valve covers



OIL FILL CAP COVERS FOR 4.6L/5.4L/6.8L



M-6766-BKCC* Wrinkled black powdercoated

M-6766-BLCC* Wrinkled blue powdercoated

- Fits all years of Modular engine
- Installs over factory plastic oil fill cap (not included)



CHROMED ALUMINUM OIL FILL CAP COVER FOR 4.6L/5.4L/6.8L



M-6766-MP46A*

- Fits all years of Modular engine
- Installs over factory plastic oil fill cap (not included)
- Features "Ford Racing" logo painted in blue and red



5.4L MUSTANG SVT ENGINE ALUMINUM CAP KIT



M-6766-M54*

- Fits 2007-2012 Shelby GT500
- Machined from 6061-T6 billet aluminum
- "Ford Racing" logo featured on each cap
- Kit Includes:
 - Radiator cap cover
 - Oil cap cover
 - Washer fluid cap cover (fits 2010-2011 only)
 - Brake fluid cap cover
 - Power steering cap cover
 - Intercooler reservoir cap cover
 - Oil dipstick handle



UNIVERSAL VALVE COVER BREATHER CAP GROMMETS

M-6892-F*

- Kit includes one grommet for push-in breather cap and one for a PCV valve
- Grommets fit all Ford Racing valve covers for push rod engines
- Converts twist-in breather valve cover to push-in style breather



Air Cleaners

The air cleaner is one of the most visible parts on a car's engine, so now is the time to add a premium Ford RACING, MUSTANG, or COBRA emblem to your ride for the perfect customized look! These 13" diameter air cleaners fit 2V and 4V carburetors, and are supplied with a 2-5/8" high filter element. The tops and bases have matching finishes (excluding Carbon-Style), and each kit is supplied with necessary mounting hardware. Air cleaner kits are supplied with special die-cast Ford Oval center nuts (also offered separately).

New in 2012: black crinkle air cleaner kits will contain center nut 302-339 (Black Crinkle, Red emblem)

Technical Note: After installing a new air cleaner kit, always lower the hood slowly to confirm sufficient clearance visually. Minimum clearance of 4" is required from the top of the carburetor gasket area to the underside of the hood.

Ford RACING

Black Crinkle, Red emblem..... 302-352
 Chrome, Embossed emblems (was M-9600-A302R) 302-350
 Chrome, Black emblem 302-351
 Carbon-Style, Red emblem..... **NEW!** 302-354

Ford COBRA

Chrome, Black emblem 302-371
 Black Crinkle, Red emblem..... 302-372

Ford MUSTANG

Black Crinkle, Red emblem..... 302-362
 Chrome, Black emblem 302-361



NEW!

Air Cleaner Center Nuts*

Add some extra flair to your custom air cleaner by topping it with a distinctive Ford or Mustang center nut available in chrome or black finishes. Fits 1/4-20 carburetor studs.



Ford Oval

Chrome (was M-9697-A)..... 302-333
 Black Crinkle 302-334
 Black Crinkle, Red emblem **NEW!** 302-339

Updated Mustang Pony Emblem!



Mustang Pony

Chrome (was M-9697-C)..... 302-337
 Black Crinkle 302-338

Oil Filler Cap*

Screw-in oil filler cap prominently displays the Ford Oval. This is a direct replacement part.



Chrome (was M-6766-F302) **302-230**

Mini Nuts*

High-quality steel mini nuts are the perfect way to finish your engine dress-up project. Small and unobtrusive with the Ford Oval cut sharply into the top. All nuts are supplied with a separate stud which permits precise gasket positioning on the head prior to mounting the valve covers. 1/4-20 threads. Does not fit FE engines. 4 per package.



Chrome (was M-6680-A) **302-315**

Black Crinkle **302-316**

Air Breather Caps

The top of each air breather cap is embossed handsomely with Ford RACING, COBRA, or MUSTANG emblems. The perfect complement to your valve covers. Push-in unless noted.



Ford RACING

Chrome (twist type, not shown) (was M-6766-A302) . **302-200**

Chrome (was M-6766-B302) **302-215**

Black Crinkle **302-216**

Chrome, filter, with hood (not shown)

(was M-6766-K302)..... **NEW!** **302-235**

Chrome, filter, without hood

(was M-6766-H302)..... **NEW!** **302-236**

Ford MUSTANG

Chrome (not shown) **302-220**

Black Crinkle (not shown) **302-221**

Ford COBRA

Chrome (not shown) **302-225**

Black Crinkle (not shown) **302-226**

Wire Looms and Dividers*

Keep that mess of ignition wires under control with wire looms and dividers. 6 wire dividers per package. Wire looms sold in pairs and fit 289-302-351W engines, 5/16" bolt hole.

Ford RACING Wire Looms

Chrome with Blue (was M-12297-B14) **302-636**

Chrome with Black **302-640**

Ford Oval Wire Dividers

Blue: 2, 3, 4-wire, 2 each (was M-12297-B02/B03/B04)..**302-637**

Black: 2, 3, 4-wire, 2 each **302-641**

Engine Oil Dipsticks*

Don't forget the dipstick! Blue anodized aluminum handle is knurled and has the Ford Oval embossed and silver script printed prominently on the top. Fits 289-302-351W engines 1962-1978 only.



Chrome w/Blue anodized aluminum handle

(was M-6750-B302) **302-400**

Chrome (was M-6750-A302) **302-401**

Wing Nuts*

The Ford Oval is cut sharply into the top of each wing nut. The lower ends of the shafts are manufactured with wide shoulders for broad load distribution. All nuts are supplied with a separate stud which permits precise gasket positioning on the head prior to mounting the valve covers. 1/4-20 threads. Does not fit FE engines. 4 per package.



Chrome (was M-6680-A302) **302-325**

Black Crinkle **302-326**

Fuel Pump Block-Off Plates*

Finish your engine off properly with a chrome block-off plate that prominently features the Ford Oval.



Chrome (was M-9351-A302) **302-290**

Billet Aluminum Keychain*

This billet aluminum piston rod keychain is the perfect gift for the Ford enthusiast. "A little bling for your ring."



Ford Oval Keychain **302-700**



OFFICIAL LICENSED PRODUCT

APPEARANCE/DRESS-UP

Show off your engine compartment with this dazzling, head-turning collection of Ford Racing accessories. Many are unique items. All give your car a personal touch.

COBRA INTAKE PLAQUES

M-1447-D46 1996-1998

M-1447-F46 1999-2001

- Design in the shape of the "Cobra" snake
- High-quality embossed "Cobra" snake
- Blue inlay on brushed aluminum background
- Two-way tape for easy installation



OVAL AIR CLEANER ASSEMBLIES

M-9600-C302* "Cobra" logo

M-9600-K302* "Mustang" logo

- For single 4V carburetors
- Replacement Air Filter M-9601-A302
- Assembly height is 2.5"



MUSTANG 5.0L 4V Ti-VCT BLUE COIL COVERS

M-6P067-M50B

- Original equipment on Mustang BOSS 302
- Fits 2011-2012 5.0L Mustang GT
- "POWERED BY FORD" script with blue finish



BILLET ALUMINUM FORD AIR CLEANER NUT

M-9697-E

- CNC-machined billet aluminum construction
- Features the Ford Oval in blue paint



BILLET ALUMINUM "FORD RACING" AIR CLEANER NUT

M-9697-F

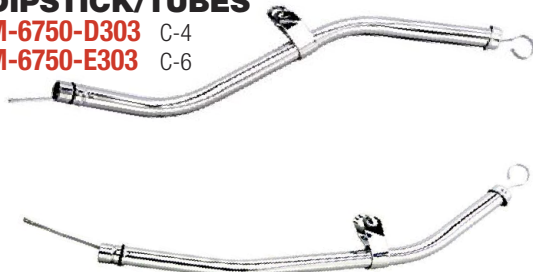
- CNC-machined billet aluminum construction
- Features the "Ford Racing" logo in red and blue paint



AUTOMATIC TRANSMISSION DIPSTICK/TUBES

M-6750-D303 C-4

M-6750-E303 C-6



2005-2010 MUSTANG GT INTAKE SHROUD

M-6949-3V

- Original equipment on 2007-2010 Mustang GT
- Fits 2005-2010 Mustang GT
- May require 2007 Mustang Throttle Body Studs (W712289 S437) and Nuts (W520411 S437) from Ford Dealer
- Will not fit with Ford Racing Strut Tower Brace M-20201-S197 or with Ford Racing superchargers



CARBON FIBER AIR CLEANER ASSEMBLY

M-9600-CFAC13

- Carbon fiber composite air cleaner lid, embossed with "Ford Racing" logo
- Steel dropped base, painted black
- 13" round assembly includes 2.750" tall air filter element
- Fits 2V and 4V carbs with 5-1/8" flange
- Replacement Element Motorcraft® PN FA-612



2011-2012 5.0L 4V Ti-VCT ENGINE COVER KIT

M-9680-M50

- Original equipment on manual transmission 2011-2012 Mustang GT 5.0L 4V Ti-VCT engine
- Intake cover includes 5.0L emblem and "32V Ti-VCT" script
- Coil covers include "POWERED BY FORD" script
- Perfect add-on for Ford Racing 5.0L 4V Ti-VCT M-6007-M50 Crate Engine install



ENGINE OIL DIPSTICK/TUBE

M-6750-C303

- For 1983-1993 5.0L Mustang



2007-2009 MUSTANG SVT STEERING WHEEL



M-3600-C

- Fits 2005-2009 Mustang
- Dark charcoal leather with red stitching
- Does not include air bag. Mustang air bag can be reused
- Uniquely contoured for performance driving
- Original equipment on 2007-2009 Shelby GT500



1994-2012 MUSTANG "FORD RACING" LOGO FLOOR MATS



M-13086-B

1994-2004 Mustang

M-13086-C

2005-2009 Mustang

M-13086-MA

2010-2012 Mustang

- Constructed with 18oz nylon with PVC backing
- Factory-style anti-slide hook hole and bottom grip knobs
- Black mats with 3-color "Ford Racing" logo
- Kit contains 1 pair front floor mats



M-13086-MA shown

2007-2009 MUSTANG SVT BLACK STITCH STEERING WHEEL AND SHIFT BOOT



M-3601-C

- Fits the 2005-2009 Mustang and 2007-2009 Shelby GT500
- Same as 2007-2009 Shelby GT500 dark charcoal leather but with black stitching
- Does not include air bag. Mustang air bag can be reused
- Steering wheel uniquely contoured for performance driving



ALUMINUM AND URETHANE SPECIAL EDITION MUSTANG PEDAL COVERS



M-2301-A

Accelerator pedal

M-2301-B

Brake or clutch pedal cover (1 per package)

M-2301-C

Left foot dead pedal

- Direct replacement for stock pedals and pedal covers
- Easy to install, no drilling required
- Brushed aluminum finish with urethane knobs for better grip
- Custom styling for the muscle car enthusiasts
- Fits 1994-2004 Mustang



FORD CUSTOM SILL PLATES

Customize your sill plates with your name, a message or any of our official Mustang logos.

- Works with 2005 and up model year Mustangs
- Compatible with ambient lighting-equipped Mustangs
- Add your own name or statement, up to 22 characters
- Choose from many logos
- Quick, DIY installation
- Contains fully assembled driver's and passenger's side sill plates
- Resistant to scratching and scuffing
- Protected from UV fading
- Tested to OEM engineering standards
- Direct OEM replacement part
- Available in black, stone and dove

Available at www.FordShowParts.com or 800-367-3788



APPEARANCE/DRESS-UP

2010 COBRA JET FIBERGLASS HOOD



M-16612-CJ*

- Service replacement part for 2010 Mustang Cobra Jet race car
- FOR OFF ROAD USE ONLY! NOT FOR STREET USE!
- Extra wide 4" cowl induction hood allows intake tube, supercharger and front pulley clearance.
- Top-quality hand-laminated fiberglass
- Hood pins required to secure hood
- Bolts to stock hood hinges
- Hood weight 27 lbs
- Shipped unfinished



2007-2009 MUSTANG SVT HOOD



M-16612-C*

- Fits 2005-2009 Mustang GT when used with 2007-2009 Shelby GT500 fascia. Front edge of Shelby GT500 hood interferes with stock GT fascia
- Original equipment on 2007-2009 Shelby GT500
- Bolts to stock hood hinges and uses stock hood latch
- Includes two hood grille inserts
- Must be fitted and painted to match color of car



MUSTANG GT SHAKER HOOD SYSTEMS



M-16612-SHKB* Fits 2011-2012 Mustang GT

- Delivers cold air to airbox
- System attaches to intake manifold, through factory engine cover
- Includes engine tray with cast aluminum scoop that is reminiscent of the original 1969-1970 Shaker models
- Kit includes all mounting hardware, ductwork, template and detailed instructions
- Factory strut tower brace can remain in place
- Installation can be completed in two hours or less with basic tools



M-16612-SHK* Fits 2010 Mustang GT



- System attaches directly to the engine
- Includes engine cover with "Ford Racing" badges and cast aluminum scoop that is reminiscent of the original 1969-1970 Shaker models
- Kit includes all mounting hardware, ductwork, template and detailed instructions
- Installation can be completed in three hours or less with basic tools



M-16612-SHK59* Fits 2005-2009 Mustang GT



- System attaches directly to the engine
- Includes engine cover with "Ford Racing" badges and cast aluminum scoop that is reminiscent of the original 1969-1970 Shaker models
- Kit includes all mounting hardware, ductwork, template and detailed instructions
- Installation can be completed in three hours or less with basic tools
- SHAKER TRIM RING DOES NOT COVER FACTORY HOOD SCOOP FASTENER HOLES ON 2007-2009 MUSTANG!

HOOD LATCH AND PIN KIT

M-16700-A

- That "competition look" you've always wanted is available from Ford Racing
- This is similar to the original hood pin kit used on early Mustangs and Fairlanes
- Can be used with most original and aftermarket hoods
- This part is not designed to fit on the 2005 and newer Mustang



2007-2009 MUSTANG SVT REAR SPOILER

M-16600-SVTC*

- Fits 2005-2009 Mustang GT
- Original equipment on 2007-2009 Shelby GT500
- Fits into existing Mustang GT spoiler bolt holes
- No drilling required when installed on Mustang GT with factory spoiler
- Must be painted to match color of car



2005-2009 MUSTANG QUARTER-WINDOW LOUVERS

M-1784-MS*

- Fits 2005-2009 Mustang
- Urethane construction
- Primed for paint, MUST PAINT TO MATCH
- Comes with installation instructions
- Requires no drilling
- Use with M-2784-M to make your Mustang like the FR500!



2010-2012 MUSTANG GT FRONT SPLITTER KIT

M-16601-MB*

- Fits 2010-2012 Mustang GT with GT/CS or BOSS lower fascia insert part # BR3Z-17626-AB
- Increases front down-force for road racing and open track applications
- Splitter made from durable ABS material
- Brackets are black powdercoated
- Includes M-16601P-MB Splitter, M-17A626-MB Bracket and installation hardware
- Off-road use only



2010-2012 MUSTANG GT FRONT SPLITTER KIT, SERVICE KIT

M-16601P-MB*

- Fits 2010-2012 Mustang GT with GT/CS or BOSS lower fascia insert part # BR3Z-17626-AB
- Increases front down-force for road racing and open track applications
- Splitter made from durable ABS material
- Does not include M-17A626-MB Bumper Beam Bracket
- Off-road use only

FORD RACING MUSTANG SPLITTER KIT BRACKET

M-17A626-MB*

- Bracket used to attach Mustang Splitter Kit M-16601-MB to 2010-2012 Mustang front bumper beam
- Black powdercoated metal construction



APPEARANCE/DRESS-UP

2005-2009 MUSTANG ALUMINUM FUEL FILL DOOR

M-2301-5M*

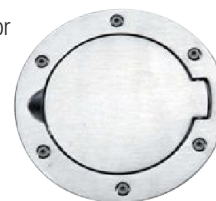
- Fits 2005-2009 Mustang
- Brushed aluminum finish
- Billet aircraft styling
- Easy installation



ALUMINUM FUEL DOOR

M-2301-E*

- Fits 1999-2004 Mustang
- Fits 1997-2003 F-150 with round fuel door
- Fits 2000-2005 Focus with modifications to the fuel filler neck plastic box
- Original equipment on 2001 Special Edition Mustang
- Manufactured by the OEM supplier, not a reproduction part
- 6.250" diameter



2003 FOCUS SVT FRONT FASCIA

M-17831-F*

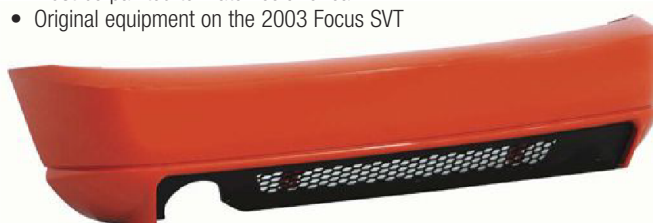
- Fits all 2000-2004 Focus ZX3 and ZX5
- Complete with driving lights, lower grille insert, lower valance, side marker lights and Focus SVT horn
- Must be painted to match color of car
- Original equipment on the 2003 Focus SVT



2003 FOCUS SVT REAR FASCIA

M-17835-F*

- Fits 2000-2005 Focus ZX3 and ZX5
- Complete with honeycomb insert
- Must be painted to match color of car
- Original equipment on the 2003 Focus SVT



"FORD RACING" WINDSHIELD BANNER

M-1820-M*

- Windshield banner designed to fit a 2005-2012 Mustang
- Die-cut white lettering that will easily attach to a properly prepared windshield
- 50" long banner with 2" tall "FORD RACING" block lettering



"COBRA" SNAKE FENDER EMBLEMS

M-1447-SR*

- Original equipment on 1994-2004 Mustang SVT Cobra
- Includes right- and left-side emblems
- Two-way tape for easy installation



2007-2009 MUSTANG SVT "COBRA" SNAKE FENDER EMBLEMS

M-1447-C*

- Original equipment on 2007-2009 Shelby GT500
- Includes right- and left-side emblems
- 4.250" tall by 2.50" wide



STAINLESS STEEL "FORD RACING" LICENSE PLATE

M-1828-SS304B*

- Dress up your vehicle with this high-quality license plate frame
- Brushed 304 stainless steel with black laser-etched "Ford Racing" logo



"FORD RACING" LICENSE PLATES (12/PK)

M-1828-FR*

- This license plate has a blue Ford Oval with red Racing logo on white background
- Sold in packs of 12
- Check with your Ford Racing distributor for single plates CM-1828-FRCM



FORD OVAL LICENSE PLATES (12/PK)

M-1828-F*

- This license plate has a blue Ford Oval on white background
- Sold in packs of 12
- Check with your Ford Racing distributor for single plates CM-1828-FCM



COBRA JET GRILLE EMBLEM

M-16098-CJG*

- Inspired by the Ford Racing Cobra Jet Mustang
- Laser-cut metal snake with flames, painted red, white and blue
- Complete with two studs for mounting
- Can be affixed to grille or kept as a keepsake
- Approximately 3" tall x 4.5" wide



2011-2012 MUSTANG 5.0L FENDER EMBLEM

M-1447-M50*

- Original equipment on 2011-2012 Mustang GT
- Includes right- and left-side emblems
- Two-way tape for easy installation



MUSTANG SVT DECK LID EMBLEM

M-1447-SVT*

- Original equipment on Mustang SVT Cobra and Mustang SVT Contour
- Similar to Mustang SVT emblem used on Focus SVT
- Two-way tape for easy installation



CHROME V8 BADGE

M-7843-V8*

- Two-way tape for easy installation
- 2.5" tall, 1.5" wide



APPEARANCE/DRESS-UP

6" ROUND AUXILIARY HALOGEN LIGHTS

M-15200-F15R6HAL*

- Fits 2010-2012 F-150 SVT Raptor Light Bar M-15266-F15RBAR
- Black powdercoated housing
- 100-watt halogen bulbs
- Matching black ABS stone guards
- Four lights per kit
- Two long-range lights and two driving lights
- Light bar sold separately
- May obstruct frontview camera on 2012
- FOR OFF-ROAD USE ONLY!

NOTE: Displayed with M-15266-F15RBAR (sold separately).



8" ROUND AUXILIARY HIGH-INTENSITY DISCHARGE LIGHTS

M-15200-F15R8HID*

- Fits 2010-2012 F-150 SVT Raptor Light Bar M-15266-F15RBAR
- Black powdercoated housing
- 35-watt HID
- Matching black ABS stone guards
- Four lights per kit
- Two long-range and two driving lights
- May obstruct frontview camera on 2012
- FOR OFF-ROAD USE ONLY!

NOTE: Displayed with M-15266-F15RBAR (sold separately).



8" ROUND AUXILIARY HALOGEN LIGHTS

M-15200-F15R8HAL*

- Fits 2010-2012 F-150 SVT Raptor Light Bar M-15266-F15RBAR
- Black powdercoated housing
- 100-watt halogen bulbs
- Matching black ABS stone guards
- Four lights per kit
- Two long-range lights and two driving lights
- May obstruct frontview camera on 2012
- FOR OFF-ROAD USE ONLY!

NOTE: Displayed with M-15266-F15RBAR (sold separately).



2010-2012 F-150 SVT RAPTOR FRONT AUXILIARY LIGHT BAR

M-15266-F15RBAR*

- Fits 2010-2012 F-150 SVT Raptor
- Made from 1-3/4" OD, .120 wall steel tubing
- Comes with light tabs for mounting (4) 6" or 8" diameter lights
- Easy installation, bolts up to existing factory holes, no drilling required
- Gray powdercoated finish
- **Lights sold separately**
- For 8" Round Auxiliary Halogen Light, see M-15200-F15R8HAL
- For 6" Round Auxiliary Halogen Light, see M-15200-F15R6HAL
- For 8" Round Auxiliary High Intensity Discharge Lights, see M-15200-F15RBHID
- May obstruct frontview camera on 2012
- FOR OFF-ROAD USE ONLY!
- This product will impact performance of airbag system



2010-2012 F-150 SVT RAPTOR ENHANCED FRONT SKID PLATE

M-5018-F15R

- Fits 2010-2012 F-150 SVT Raptor
- Replaces production front skid plate
- Added side and center reinforcements
- Complete with mounting brackets and hardware
- Powdercoated "foundry finish" gray
- "Ford Racing" logo, right and left sides



INBOARD TIREGATE WHEEL AND TIRE CARRIER

M-1B120-F15

- Fits 2010-2012 F-150 SVT Raptor and 2004-2012 standard bed F-150 trucks
- Allows you to carry a spare tire while maintaining ground clearance
- Easy to open with two quick release pins
- Designed for inboard mounting of up to a 40" spare tire
- No cutting, welding or drilling required
- Mandrel-bent, MIG welded tubular construction
- Powdercoated with black polyester semi-gloss and is equipped with zinc-plated hardware for long-lasting performance in extreme conditions
- **NOTE:** Backup camera will not function with installation of tiregate.



ACCESSORIES AND APPAREL



ACCESSORIES AND APPAREL

TRAILSIDE KIT

M-19515-GENKIT



- For highway or off-road use
- A must for all F-150 SVT Raptor owners!
- Kit includes:
 - Multi-tool knife
 - Leather gloves
 - Moving blanket
 - Glow sticks
 - Jumper cables
 - Reflective vest
 - LED flashlight
 - Trash bags
 - S.O.L. Survival Pak
 - Tire pressure gauge
 - (2) 1" ratchet straps
 - (3) light sticks
 - Triangle reflector
- See M-19515-TOW for Tow Kit



TOW KIT W/STRAP

M-19515-TOW



- For off-road use
- A must for all F-150 SVT Raptor owners!
- Kit contains:
 - Three galvanized 3/4" SPA shackles
 - One receiver hitch block
 - One hitch pin
 - One 3" x 35' recovery strap. Loops feature a double-reinforced wear pad. Break strength 21,000 lbs. Web tensile strength 27,000 lbs
 - One pair leather gloves
 - One NATO-approved folding spade. Fully extended for normal digging or used at 90 degrees as a pick. Made of aluminum glass-filled ABS and Boron steel
 - One multi-pocket gear bag



"FORD RACING" CARRY BAG

M-19515-BAG

- Multi-pocket nylon carry bag great for road gear or tools
- Includes "Ford Racing" logo



"FORD RACING" FENDER COVER

M-1822-A2 Blue

Protect that beautiful paint job from scratches, chemicals and oil with this strong, sturdy and slip-resistant "Ford Racing" fender cover. Measures 27" x 36" and is acid- and grease-resistant. Features handy "ridged" area in which to place small tools and parts.



ACCESSORIES AND APPAREL

E-Z UP® INSTANT SHELTERS®

"Ford Racing" E-Z UP® Instant Shelter®

includes: top, frame and cover bag; blue with white logo.

PART NUMBER	SIZE
M-1827-T10	10' x 10'
M-1827-T20	10' x 20'

ACCESSORIES

"Ford Racing" E-Z UP® Instant Shelter® Sidewall

with large "Ford" logo; blue with white logo.

PART NUMBER	SIZE
M-1827-W10	10' Sidewall
M-1827-W10	(2) 10' Sidewalls*

*Two 10' sidewalls are required to cover a 20' section.

ORDER THESE PRODUCTS FROM ANY FORD RACING DEALER. NO RETURN ON SPECIAL ORDERS.



"FORD RACING" TIRE SHADE



M-1822-A3

Ford Racing's tire shade blocks the sun's hot rays from your rear tires and keeps them cool for more consistent pressures at the track.

- Size 42" x 36"
- Safely attaches to body panels via five heavy-duty suction cups
- Made from durable white vinyl with screen-printed "Ford Racing" logo
- Fits over most wheel opening sizes



FORD "DRIVE ONE" BANNER



M-1827-D1

- 72" W x 36" H
- Multi-purpose banner ideal for races, car shows, car clubs, promotions or garage
- Black with blue Ford Oval logo and white "Drive One" lettering
- Includes grommets at attachment points



"FORD RACING" 50-FT PENNANT STRING



M-1827-P1

- Ideal for races, car shows, car clubs, promotions, garage or den
- White with blue lettering on heavy-gauge plastic



"FORD RACING" BANNER



M-1827-A1 "Ford Racing" (68" x 28")

- Multi-purpose banners ideal for races, car shows, car clubs, promotions, garage or man cave
- White with blue lettering on heavy-gauge plastic
- Includes grommets at attachment points



"FORD RACING" DECALS

M-1820-A3 Pkg. of 10



9-3/8" x 5-3/8"

"Ford Racing" decals with adhesive backing that easily peels off for fast application.



"FORD RACING" MINI-DECALS



M-1820-B1 Pkg. of 25

Single sheet of "peel-off" vinyl decals. Includes (4) small, (1) medium and (1) large decal. Overall size of group—approximately 6" x 1-3/4". White with blue "Ford" and red "Racing".



"FORD RACING" VINYL DIE-CUT 15" DECAL



M-1820-FR15

- 15" "Ford Racing" logo decal, red and black
- Die-cut decals are cut around the letters and logos within the decal to make it appear to be printed directly onto surface after it is applied
- Sold in package of 10



ACCESSORIES AND APPAREL

SPORT-TEK COLOR BLOCK POLO

Snag-free, micropique polyester design features a self-fabric collar, three-button placket and moisture-wicking finish. Black/red. Men's M-2X.

A. FRDC300372

PIT CREW SHIRT

Peached twill camp shirt. Iconic racing stripes, full button front, left chest pocket and back yoke. 60/40 cotton/poly blend. Navy/white. Men's M-2X.

B. FRDC300408

DOUBLE STRIPE CAP

Fabric stripes and "Ford Racing" logo. Unstructured crown, low-profile styling and adjustable Velcro® closure. 100% cotton. Navy/white.

C. FRDC300407

FLEX-FIT CAP

Permacurve® visor and spandex headband that fits most L-XL sizes. Mid-profile silhouette and structured crown. 110th Racing Anniversary art. Black.

D. FRDC300381

LADIES' NORTH END SPORT™ POLO

Collar with decorative inner tape opens into feminine Y-placket with fabric piping. Moisture-wicking fabric features UPF 15-39 sun protection. Easy care. Black. Women's S-XL.

E. FRDC300401

TRACK BAG

Large top-zippered compartment and front slash pocket. Adjustable, webbed shoulder strap. Denier nylon. 11 1/2" x 14" x 4". Black.

F. FRDC300404



ACCESSORIES AND APPAREL



MEN'S FLEECE RACING JACKET

Full front zip, drawcord hem with drop tail and front zippered pockets. Machine-washable 100% polyester microfleece. Black. Men's M-2X.

A. FRDC300383

LADIES' FLEECE RACING JACKET

Full front zip, drawcord hem with drop tail and front zippered pockets. Machine-washable 100% polyester microfleece. Black. Women's S-XL.

B. FRDC300382

PORT AUTHORITY STORM JACKET

Waterproof zippers, pockets, seams, interlock shell and breathable design. Welded chest and sleeve pockets, snap-off hood and interior audio pocket. 100% polyester outer bonded to 100% polyester microfleece. Black. Men's M-2X.

C. FRDC300388

LADIES' DRYTEC™ SPORT SHIRT

Moisture-wicking finish. Three-button placket, back half-moon and side vents. Machine-washable 65/35 cotton/poly fabric. White. Women's S-XL.

D. FRDC300387

MEN'S DRYTEC™ SPORT SHIRT – WHITE

Moisture-wicking finish. Shape-retaining collar opens into three-button placket. Back half-moon, drop shoulder and side vents. Machine-washable 65/35 cotton/poly fabric. White. Men's M-2X.

F. FRDC300385

MEN'S DRYTEC™ SPORT SHIRT – BLACK

Moisture-wicking finish. Shape-retaining collar opens into three-button placket. Back half-moon, drop shoulder and side vents. Machine-washable 65/35 cotton/poly fabric. Black. Men's M-2X.

G. FRDC300384

ACCESSORIES AND APPAREL

NORTH END™ WIND JACKET

Zippered water-resistant jacket. Contrast inner collar, front armhole panels, seam coverstitching and mesh lining in back. Taffeta lining in front. Self-fabric color and reflective stitching on locker loop. 100% polyester. Black/gray luster. Men's M-2X.

A. FRDC300392

VELOCITY HOODIE

1/4-zip sweatshirt with drawstring hood, rib-knit cuffs/hem and front hand pouch with interior phone pocket. 80/20 cotton/poly fabric combed and ringspun. Black/gray/white. Men's M-2X.

B. FRDC300375

FRENCH TERRY JOGGING HOODIE

Thumbholes at cuffs, anti-pill yarn, twill neck tape and contrast drawcords with metal tips. French terry cotton.

Navy heather. Unisex M-2X.

C. FRDC300398

OGIO® LOCKER DUFFEL

Zippered main compartment and front pocket. Fabric-wrapped drop handles, webbed shoulder strap and side grab handle. 18" x 10" x 9". Navy.

D. FRDC300399

LADIES' FULL-ZIP FLEECE HOODIE

Microfiber fleece sweatshirt with full-zip front. Anti-pill finish, front pouch pockets and durable double-needle stitching. 100% polyester. Imported. Latté cream. Women's S-XL.

E. FRDC300403

A.



B.



C.



D.



E.



ACCESSORIES AND APPAREL

A.



SPEEDOMETER T-SHIRT

Easy-care tee is reinforced with shoulder-to-shoulder tape and double-needle stitching. 50/50 cotton/poly blend. Racing oval on back yoke. Black. Men's M-2X.

A. FRDC300374

WINGED TIRE T-SHIRT

Ringspun jersey cotton tee. Modern, slightly fitted shape is super soft to the touch. Red. Men's M-2X.

B. FRDC300391

FLAME PONY T-SHIRT

Easy-care tee is reinforced with shoulder-to-shoulder tape and double-needle stitching. 50/50 cotton/poly blend. White. Men's M-2X.

C. FRDC300373

SWOOP MESH CAP

Soft mesh side and back panels. Contrast underpeak, sweatband and tape. Structured crown, precurved visor and matching 3-D embroidery. Adjustable buckle backstrap with hidden Velcro® system fits most. 70/30 poly/cotton fabric. White/navy.

D. FRDC300395

RAGLAN PACESETTER T-SHIRT

Tee sports "01" to celebrate the beginning of our Ford Racing legacy. TopShield™ moisture management system and anti-microbial finish that inhibits odor. Color block inserts, crew neck. 100% polyester. Navy/white. Men's M-2X.

E. FRDC300397

MOSSY OAK® BREAKUP CAP

Solid front panels/undervisor with Mossy Oak® camo. Precurved visor, structured crown and mid-profile silhouette. Adjustable slide buckle closure fits most L-XL. 100% brushed cotton twill.

F. FRDC300371

B.



C.



D.



E.



F.



ACCESSORIES AND APPAREL

ELEVATE RACING T-SHIRT

Double stripes and "Ford Racing" logo. Easy-care tee is reinforced with shoulder-to-shoulder tape and double-needle stitching. 50/50 cotton/poly blend. Black. Men's M-2X.

A. FRDC300396

PLAYING CARDS

"Ford Racing" logo. Made in the U.S.A.

B. FRDC300405

OAKLEY® TEN® SUNGLASSES

XYZ OPTICS® enhances the curved lenses, which prevent peripheral glare and wind. Durable PLUTONITE® blocks impact particles and UV rays. Sculpturally integrated hinges and Oakley's Three-Point System ensure a comfortable fit. Matte black frame/warm gray lenses.

C. FRDC300394

INSULATED CAN COOLER

American-made scuba foam koozie. Folds flat for easy storage. Custom track art. Black.

D. FRDC300377

SODA CAN TUMBLER

Can-shaped container has doubly insulated acrylic walls. Spill-resistant slide spout and BPA-free. 12 oz. Custom art.

E. FRDC300409

LADIES' SLIM-FIT T-SHIRT

Extra-long body length and slim design. 100% sheer jersey cotton body features set-in neck and sleeves. Berry.

F. FRDC300402



A.



B.



C.



D.



E.



F.



ACCESSORIES AND APPAREL

A.



FORD RACING DECAL

Removable when applied to glass window. Vinyl. 3 1/2" wide. White.

A. FRDC300393

B.



WAVE FRONT REFLECTIVE CAP

Double-back stitching and reflective fabric on bill, sandwich and backstrap. Low-profile silhouette, structured body and contrast eyelets. Adjustable Velcro® closure fits most. 100% chino cotton twill. Black.

B. FRDC300389

LEATHER KEY TAG

Chrome trim and dynamic laser etching. 4 1/4" x 3/4". Red.

C. FRDC300378

ALUMINUM WATER BOTTLE

BPA-free bottle. Sport cap fits opening wide enough for ice cubes and cleaning brushes. 24 oz. Fits most standard cup holders. 3" x 10 3/4". Silver.

D. FRDC300400

MONSTER MUSTANG RC MODEL

Drifting champion Vaughn Gittin, Jr.'s Monster Energy Ford Mustang GT! 1:10 scale model. 2.4 GHz power and Plazma battery pack/AA batteries. AC wall charger included.

E. FRDC300406

CHECKERED FLAG PEN

Twist-action ball point with black ink. Glossy barrel and chrome accents. Solid brass construction. Black.

F. FRDC300379

D.



C.



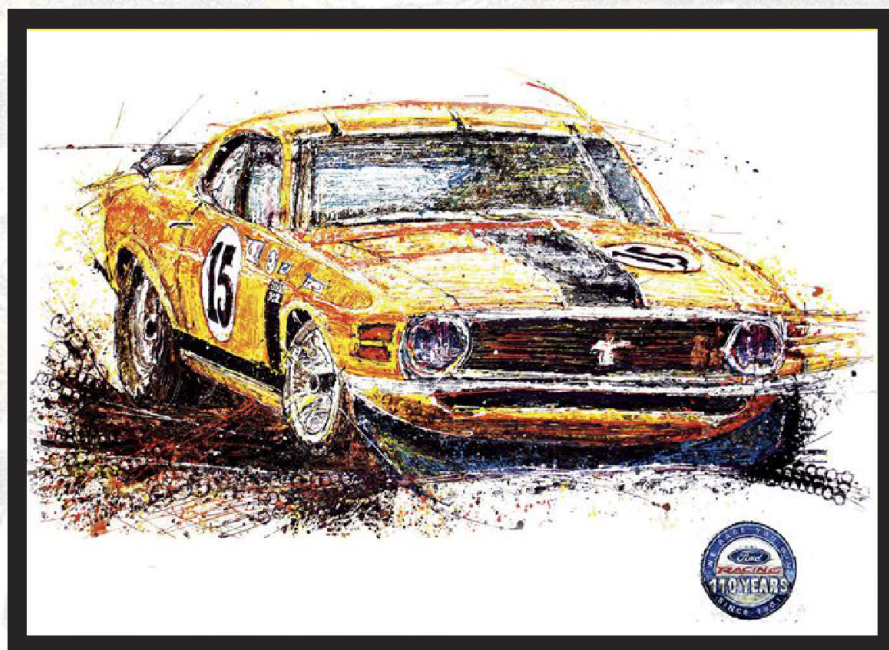
F.



E.



Ford Racing Legacy In Art



1970 Parnelli Jones BOSS 302

To help celebrate Ford Racing's 110th anniversary, artist Ian Cook plans to capture historic Ford Racing moments with his unique painting style. Cook uses radio-controlled cars and tires to help create the artwork.

Below is a brief interview with Cook followed by information on how to purchase his artwork.

Cook grew up in Birmingham, the heart of the West Midlands, where his love for artistry, creativity and the automotive industry began.

"From a very young age, I always knew I wanted to be an artist," said Cook. "It was always my ideal job. How to get to that, I wasn't ever too sure, but I was always very good at art."

With his uncle working in the automotive industry throughout his childhood, Cook was introduced to the lifestyle and air of classiness that came with owning a luxury vehicle.

"I was always interested in what he was doing. When you're a kid and you see your uncle driving the latest car, it's a fantastic luxury vehicle," Cook said. "I wanted to do that. I wanted to be him because he's got these cars; that is my passion."

Rather than frequenting the local cricket or football games as an adolescent, Cook said he would choose to attend motorsport events. His parents would take him to the local race track to see stock car and touring car racing, where he was quickly inspired by the colors and fast pace of the racing world.

In December 2006, Cook received a radio-controlled version of "Lightning McQueen" from the Disney animated film, *Cars*. In the same moment he received the gift, he was simultaneously told "don't go to the studio with this and get paint all over it." At that instant, Cook started to brainstorm just how he could take paint to this car and make it a piece of artwork.

The result? A career that includes a foundation of radio-controlled cars, paint and most importantly, an intrigued and enthused audience.

"Part of my performance of an artwork is people being able to see it being done live," Cook explained.

When performing (or creating a piece of art), Cook will either produce a video, stream a live feed via his social media sites or create in front of a live audience.

"I get a buzz off it. I enjoy it. I get a lot of people coming up to me saying 'I don't believe you do this with radio-controlled cars.' If they can see the video, see the live feed, it makes them believe it a little bit more."

Cook performs his art work live throughout the U.K. at various race circuits and events or venues. He's also an artist in residence at The Heritage Motor Centre in Warwickshire, where the largest collection of British cars is housed.

Autosport International's "The Racing Car Show" is held at the beginning of every year in the U.K. Cook says it is comparable to the Special Equipment Market Association (SEMA) show held in Las Vegas, but not quite as large. He was being featured and creating artwork there when he was approached about partnering with Ford Racing.

"At the time, I was actually creating a Ford Mustang Super Snake, which was looking really mean and lovely. They asked me if I could create artwork to celebrate their 110 years," said Cook about the offer from Ford Racing. "I meet a lot of people and thought, 'Is this for real? Is this really going to happen?' I do get approached about doing a lot of projects, some happen and some don't, but that's the nature of my business."

Cook said he's always been drawn to American culture and really jumped at the chance to highlight the iconic nature of Ford race vehicles.

"For me, to know there are people all over the world tuning in to see what I'm doing and what's happening next, and know the story behind the artwork is great. Hopefully, this will make Ford Racing appeal to more markets throughout the U.S. and Europe."

Thus far, Cook has released three pieces of art to commemorate the 110th anniversary of Ford Racing, including the 1970 BOSS 302, the 1965 Indy-winning Jim Clark Lotus and the Ford GT-40 finish at Le Mans in 1966. All pieces of art are available at www.fordimages.com.

He will continue to create Ford Racing art projects every month through the end of the year.

To order, please visit www.fordimages.com and click on the Ford Racing tab. Prices start at \$59.99 with custom framing, limited editions and ready-to-hang stretched canvas options available.

If you have any questions or would like to place an order, please give us a call at: 805-884-9626.



1-2-3 Ford GT finish at Le Mans in 1966



Jim Clark Lotus at Indianapolis 1965



ZERO TO BLOWN AWAY IN UNDER 3 SECONDS.¹

That's about how long it'll take you to connect with accessories.ford.com to start personalizing your ride, fast and furious. Because nothing goes better with Ford Racing guts than Ford Custom Accessories glory. Splitter, spoiler, scoops, stripes and so much more — precision-designed and -engineered for perfect form and fit. For your weekend racer or daily driver, you can't beat 'em.



Decked out in Ford Custom Accessories: 2012 Mustang GT in Yellow Blaze Metallic Tri-coat with 19" x 8.5" Foundry Black-painted GT wheels² and wheel lock kit, Dark Stainless billet-style grille insert, GT grille adapter, front lower fascia with spherical fog lamps, front lower fascia air splitter kit,³ hood scoop, side scoops, quarter-window louvers, rear pedestal-mount spoiler, plus Ford Custom Graphics by Original Wraps™, Inc.⁴ (side stripes, hood blackout and front fascia lettering). **Ford Custom Accessories inset pics.** Top: quarter-window louvers. Middle: hood scoop, Dark Stainless billet-style grille insert, GT grille adapter and Ford Custom Graphics by Original Wraps™, Inc.⁴ Bottom: rear pedestal-mount spoiler, rear deck lid blackout and diffuser-style lower rear fascia.

¹The time it takes to make the accessories.ford.com connection is dependent on the speed of your Internet connection. ²Vehicle application and restrictions apply. Additional components are required. See dealer for details. ³Front air splitter is intended for race track use only and is not legal for street driving. May degrade crash performance and void vehicle warranty. Must be installed by customer. ⁴Ford Licensed Accessory. Ford Motor Company reserves the right to make changes in product specifications and availability at any time without incurring obligations. © 2011 Ford Motor Company.

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FORD RACING POWERS UP CONNECTION WITH ENTHUSIASTS

By JOHN M. CLOR

The annual Ford Racing Performance Parts catalog is like a Christmas Wish Book for Ford enthusiasts, offering the latest and greatest hardware to help many of us make our performance dreams come true – and this 2012 version is no exception. But our catalog also serves as a very real physical link between Ford's on-track racing operations and its production-car engineering credibility.

"Track-bred = street cred" is more than just a slogan for the Ford Racing Performance Parts business. It's as much a mantra for how we develop new products as it is a purchase-driver for Ford performance enthusiasts. More importantly, as our overall product guideline it demonstrates Ford Racing's commitment to enhancing the ownership experience for you, our most passionate of Ford fans.

We think it's important you know that, like you, the people who work at Ford Racing also "bleed Ford blue." From our car-guy managers to the hot-rod engineers to the motorhead marketers, even the tech-heads on the Ford Performance Info Line – you've gotta "love it, know it and show it" around here to be successful.

Fans may think the primary focus of Ford Racing is simply to help racers who drive Fords go flat-out faster to the finish line. But in reality, the main purpose behind Ford Racing is to help build the Ford brand in the hearts, minds and eyes of everyday consumers. Racing and winning on the professional stage shows off to the world a car company's

engineering expertise and product integrity – and thus, it helps influence sales. Just as important, racing success on the grassroots level also drives brand awareness and purchase consideration with real-world car buyers.

Research proves that enthusiasts – including racers, amateur sportsmen, car collectors, car club members and active brand loyalists – all serve to drive word-of-mouth sales by promoting a company's image as they interact with fellow car-buyers on their own turf.

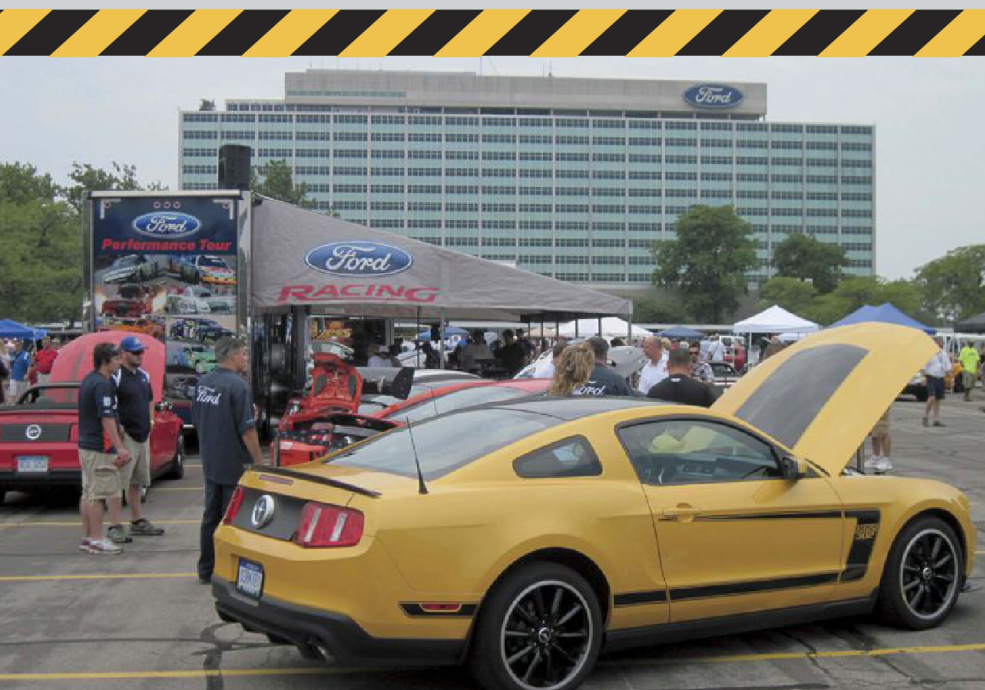
At Ford Racing, the connection to enthusiasts goes far beyond simply the selection, quality and value of the parts in this catalog. It is truly a personal relationship that we work to grow and improve upon every day. As racing and performance vehicle fans ourselves, we well know that enthusiast owners are among the most vocal and visible of all Ford brand loyalists. Making performance products that satisfy their desires serves to activate them at the grassroots level as "disciples" who preach the Ford "gospel" to their peers. And that kind of direct third-party endorsement sends a very influential message to our prospective customers.

Fueled by the unequalled popularity of the Mustang, it's a fact that there are far more Ford-based vehicle clubs than any other automotive marque. Instead of building cars as mere appliances, Ford has a heritage of building cars and trucks that connect with owners on an emotional level. Such a connection between car and owner has enabled Ford to amass a veritable army of loyal enthusiasts over the years that is the envy of nearly every other automaker on the planet.

In today's world, customers don't particularly like being "sold to" and don't entirely trust what they hear about a product from big corporations or manufacturers' ads. On top of that, many no longer even trust what they hear or read about a product in the media! More and more, people are putting their purchasing faith in personal recommendations from their friends, neighbors, coworkers and acquaintances – and that's precisely where you as Ford loyalists can play a major role by asking your non-Ford peers to Drive One.

To that end, Ford Racing has spearheaded several initiatives designed specifically to help Ford Motor Company build on this key relationship with loyalists – one of which is the Ford Performance Group enthusiast outreach program, which puts a "face" and a "place" on Ford's connection to vehicle clubs and the performance aftermarket. Using an umbrella approach, we created the Ford Performance Group of enthusiast organizations – a collection of independent clubs promoted on www.FordPerformanceGroup.com – whose members can now enjoy a variety of benefits beyond the establishment of an online information clearinghouse. Thanks to all those years of working with enthusiasts at the grassroots level, Ford Racing is able to offer these clubs what they want the most – a sustainable connection with the company.

Anchoring the program is the special "Enthusiast" section of the recently revamped FordRacing.com web site that establishes an online footprint for Ford's relationship with its past, present and future performance customers. Its goal is to help promote





Ford-based clubs and their activities, centralize the company's contact with, and promotion for, the myriad of Ford-centered events across the country each year, and provide a web showcase for how performance vehicle ownership opens the door to an entire Ford enthusiast lifestyle – all in one place.

Ford Racing has institutionalized this connection with enthusiast clubs as part of our core business, primarily because we are enthusiasts, too! We know that our friends and neighbors recognize us as being car-savvy, and as opinion leaders we don't mind sharing our thoughts when car shoppers seek us out to get advice. We like to show off our performance or classic Ford because we don't just drive it from Point A to Point B – we LOVE it, and openly show our affection for it in public! The other part of our effort involves making face-to-face connections, one show, one club and even one person at a time. It's why you can see our products and talk to Ford Racing staffers in person at automotive events and car shows all across the country.

Oh sure, a lot of other car companies put marketing efforts into racing and enthusiast events for that same reason. The influence of you, the enthusiast owner, has even attracted other Ford groups – both inside the company and via our agencies – to look at enthusiast marketing programs of their own. Ford Racing has made a true connection to, and interaction with, fans, racers and enthusiasts a part of what we do each day.

Just like Ford's 1-2-3 finish at Le Mans in 1966, Ford Racing's got an impossible-to-beat 1-2-3 enthusiast program at work for you to utilize: 1.) FordPerformance.com web space on Fordracing.com, with content for, by, and about YOU. 2.) "Fast News From Ford Racing" e-newsletter that goes out to more

than 350,000 Ford fans, plus the daily updates you'll find on our Ford Racing Facebook page. And 3.) is our toll-free 1-800-FORD-788 Ford Performance Info Center and Ford Racing Tech Line, where you can get vehicle, product, club and event information – and even expert technical advice on Ford performance engines and hardware.

Together, they provide the only service of its kind offered by any of the major automakers. The fact is, no other carmaker promotes their enthusiast clubs this directly, communicates with fans this consistently, nor offers their loyal performance customers this kind of direct, toll-free assistance line to the factory.

If you appreciate the idea that Ford has put into place a program to stay connected with you as a Ford performance enthusiast, then we suggest that you employ and enjoy this unique relationship. For starters, you should bookmark www.FordRacing.com and sign up for our weekly Fast News e-newsletter, where you'll get the inside story on what's happening in the world of Ford performance. Then check out www.FordPerformanceGroup.com and visit it regularly. You should also become friends on our Facebook

page. And don't hesitate to call the Ford Performance Info Center (1-800-FORD-788) if you have a question about past and present performance Fords, want to share an idea about Ford products you'd like to see, or need to tap into the experts on the Ford Racing Tech Line. And don't forget to ask about our special Ford enthusiast merchandise available through the Info Center via www.FordShowParts.com.

Finally, by all means get out there and enjoy your performance Ford! Head out to the racetrack and cheer on your favorite Ford vehicle! Find a club and attend a meeting, a car show, cruise or any driving or racing event – and discover the fun and all of the friendly people involved in the world of Ford performance. Hopefully, we'll all be "Driving Ford Passion" with Ford Racing and its Ford Performance Group of enthusiast organizations for many more years to come!

Ford Performance Group

powered by 



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RACE PROGRAMS





In 1968, Ford took the NHRA® Winternationals by storm with the Cobra Jet Mustang. Only 50 factory light-weights were built, and in its first appearance, the Cobra Jet won.

Forty years later, Ford Racing returned to NHRA® competition with the 2008 Cobra Jet, a turn-key race-prepped Mustang for drag racing competition. The Cobra Jet debuted at the 2009 Winternationals, and it won again!

The legend has continued with 2010 and 2012 model year Cobra Jets. Record-setting performances have proven the Cobra Jet to be one of the fastest Stock and Super Stock cars in history. Cobra Jets are consistent winners with both NHRA® national and divisional event wins in 2009, 2010 and 2011. Cobra Jets hold numerous NHRA® national records and are multiple Class Runoff winners every year at the "Big Go" U.S. Nationals.

Pre-orders are being accepted for the next generation Cobra Jet M-FR500-CJ and ONLY 50 units are planned to be built. With the limited production run, the next generation Cobra Jet is extremely rare. While every racer may not have the opportunity to own a Cobra Jet, Ford Racing is proud to offer many of the Cobra Jet performance parts to all Mustang drag racers. Cobra Jet parts have been validated through rigorous testing and are proven to win! Whether you are looking for the best turn-key drag race car or hopping up your existing street/strip pony, turn to Ford Racing to put you in the winner's circle!

2008-2012 COBRA JET SERVICE PARTS

COBRA JET CHASSIS

2010 CJ TIE DOWN, FRONT

M-17000-CJ10F*

2010 CJ TIE DOWN, REAR

M-17000-CJ10R*

SAFETY HARNESS, 5-POINT

M-61108-RA*

SHIFT KNOB MANUAL TRANS

2008-2010 BASE 5.4L

M-7213-M*

CJ POWER BRAKE BOOSTER MODIFICATION KIT

M-2005-CJ10*

ALUMINUM PROPORTIONING VALVE

M-2328-C*

2010 CJ BALLAST BOX

M-40115-CJ10*

CJ LOWER RADIATOR SUPPORT

M-5019-A*

2010 CJ C4 CROSSMEMBER

M-5059-CJ10*

2010 CJ PANHARD BAR

M-4264-B*

2010 CJ REAR SUSPENSION KIT

M-5649-CJ10*

2008-2010 CJ DRIVESHAFT LOOP

M-5478-CJ*

2010 CJ DAMPER KIT

M-18000-CJ*

2008-2010 CJ SPRING SET

M-5300-Q*

2010 CJ SPRING SET - LOWERED STANCE

M-5300-R*

COBRA JET ELECTRICAL

CJ BATTERY TRAY AND STRAP

M-010-CJ10*

2010 CJ BODY WIRING - INCLUDES GAUGES

M-6018-CJ10*

WATER TEMPERATURE GAUGE (100-250 F) (INCL. IN M-6018-CJ10)

M-10883-BFSE*

FUEL PRESSURE GAUGE (0-100PSI) (INCL. IN M-6018-CJ10)

M-9275-BFSE*

OIL PRESSURE GAUGE (0-100PSI) (INCL. IN M-6018-CJ10)

M-9278-BFSE*

2010 CJ 5" TACHOMETER

M-17360-SCJ*

COBRA JET BODY AND APPEARANCE

2010 CJ FAUX GAS CAP

M-16098-CJ10*

CJ HOOD PIN KIT

M-16700-S*

2010 CJ DECK LID LATCH AND LOCK

M-6343282-CJ10*

5.4L COBRA JET ENGINE ACCESSORIES

CRANK DAMPER SFI

M-6316-CJ*

CJ SOLID MOTOR MOUNT UPRIGHTS KIT

M-6038-A*

2010 CJ 65 MM DUAL BORE THROTTLE BODY – 435 HP

M-9926-CJ65*

2010 CJ 65 MM DUAL BORE THROTTLE BODY MECHANICAL – 435 HP

M-9926-CJ65M*

2010 SCJ OVAL THROTTLE BODY – 500 HP

M-9926-SCJ*

2010 SCJ OVAL MECHANICAL THROTTLE BODY – 500 HP

M-9926-SCJM*

2010 CJ SUPERCHARGER

M-6066-MSVT72*

4.6L COIL COVER SET

M-6067-D*

80# FUEL INJECTOR 8 PACK

M-9593-LU80*

FUEL INJECTOR SPACER

M-8510-CJ*

2008-2012 CJ 2.3L SUPERCHARGER

M-6066-TVS*

CJ A/C DELETE KIT

M-19216-CJ*

5.4L CJ CRANKSHAFT

M-6303-C54SC4*

5.4L TIMING CHAIN KIT

M-6004-54SVT*

5.4L HEAD GASKET KIT

M-6067-MSVT*

2010 CJ EGR BLOCKOFF PLATE

M-9Y456-CJ*

2008 CJ 63.5 MM DUAL BORE THROTTLE BODY – 425 HP

M-9926-CJ*

2008 CJ 65 MM DUAL BORE MECHANICAL THROTTLE BODY – 425 HP

M-9926-CJM*

BLUE COATED VALVE COVERS

M-6582-C*

4V CJ CYLINDER HEAD

M-6049-MSVT*

4V CJ CYLINDER HEAD

M-6050-MSVT*

VALVE KIT FOR MUSTANG SVT 5.4L HEAD

M-6C521-MSVT*

5.4L CYLINDER BLOCK CAST IRON

M-6010-M54*

SUPER COBRA JET 140 MM MAF TUNER KIT

M-9600-SCJ*

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5.4L MUSTANG GT WET SUMP ALUMINUM CYLINDER BLOCK

M-6010-GTWS*

5.4L CYLINDER BLOCK ALUMINUM

M-6010-M54A*

2010 SCJ 140 MM MAF – 500 HP SCJ ENGINE

M-9600-SCJ*

2010 AIR INLET TUBE 435 HP CJ W/TVS SC

M-9B659-CJ*

2010 SCJ AIR INLET TUBE 500 HP SCJ

M-9R504-SCJ*

CJ SUPERCHARGER INTERCOOLER KIT

M-8080-CJ10*

2008 COBRA JET COLD AIR KIT

M-9603-CJ*

4.6L 3-VALVE ENGINES AND ACCESSORIES

DUAL BORE 62 MM THROTTLE BODY ELECTRONIC

M-9926-3V*

DUAL BORE 62 MM THROTTLE BODY MECHANICAL

M-9926-3VM*

INTAKE MANIFOLD

M-9424-463V*

CAMSHAFT SET

M-6550-3V*

4.6L SHORT BLOCK

M-6009-463V*

HEAD GASKET KIT W/HEAD BOLTS

M-6067-3V46*

VALVE COVERS BLUE

M-6582-3VB*

VALVE COVERS BLACK

M-6582-3VBLK*

CYLINDER HEAD LH

M-6050-N3VPA*

CYLINDER HEAD RH

M-6049-N3VPA*

ENGINE INSTALLATION KIT W/ECM AND WIRING

M-6017-463V*

SUPER COBRA JET 140 MM MAF TUNER KIT

M-9600-SCJ*

COBRA JET VALVE COVERS

M-6582-LECJ1*

2010 CJ SUPERCHARGER

M-6066-MSVT72*

COBRA JET VALVE COVERS

M-6582-LECJ1

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ENGINE BLOCK IRON BIG BORE BARE

M-6010-BOSS50*

ENGINE BLOCK IRON BARE

M-6010-D46*

SCJ 140 MM MAF TUNER KIT

M-9600-SCJ*

CJ VALVE COVERS

M-6582-LECJ1*

**352 COBRA JET ENGINE FORD
RACING PARTS****INTAKE MANIFOLD 352**

M-9424-CJ82*

352 THROTTLE BRACKET

M-9728-CJ82*

UPPER RADIATOR PIPE KIT

M-8075-CJ82*

INTAKE MANIFOLD 8.2

M-9424-CJ82*

BOSS 302 BLOCK

M-6010-B302BB*

**428 COBRA JET ENGINE FORD
RACING PARTS****INTAKE MANIFOLD 428**

M-9424-CJ95*

428 THROTTLE BRACKET

M-9728-CJ95*

UPPER RADIATOR PIPE KIT

M-8075-CJ95*

BOSS 351 BLOCK

M-6010-BOSS351BB*

**352/428 COBRA JET ENGINE
COMMON PARTS****MOTOR MOUNT KIT**

M-6038-CJPR*

LOWER RADIATOR PIPE KIT

M-8286-CJPR*

RADIATOR KIT WITH FAN

M-8005-CJ*

4V 1.75" MECHANICAL THROTTLE BODY

M-9926-4V175*

VALVE COVERS

M-6582-LECJ1*

COWL INDUCTION TRAY

M-9603-CJPR*

Z304D CYLINDER HEAD

M-6049-Z304D*

MAIN STUD KIT

M-6345-302MS*

FUEL PUMP ECCENTRIC

M-6287-B302*

OIL FILTERS

CM-6731-FL1A*

WATER PUMP

M-8501-G351*

REAR MAIN OIL SEAL

M-6701-B302*

OIL PAN GASKET

M-6710-A50*

HEAD BOLT KIT

M-6065-BOSS*

TIMING CHAIN COVER

M-6059-D351*

TIMING CHAIN SET

M-6268-B302*

STEEL THRUST PLATE

M-6269-A351*

CRANK DAMPER SFI

M-6316-D302*

OIL PUMP SHAFT

M-6605-B302*

FUEL PUMP PLATE

M-9351-A302*

CAM BEARINGS

M-6261-J351*

SPARK PLUG WIRES

M-12259-M301*

FUEL INJECTORS

M-9593-M39*

TIMING CHAIN COVER

M-6059-D351*

**62 MM THROTTLE BODY WITH
MECHANICAL LINKAGE**

M-9926-3VM*

2010 CJ SUPERCHARGER

M-6066-MSVT72*

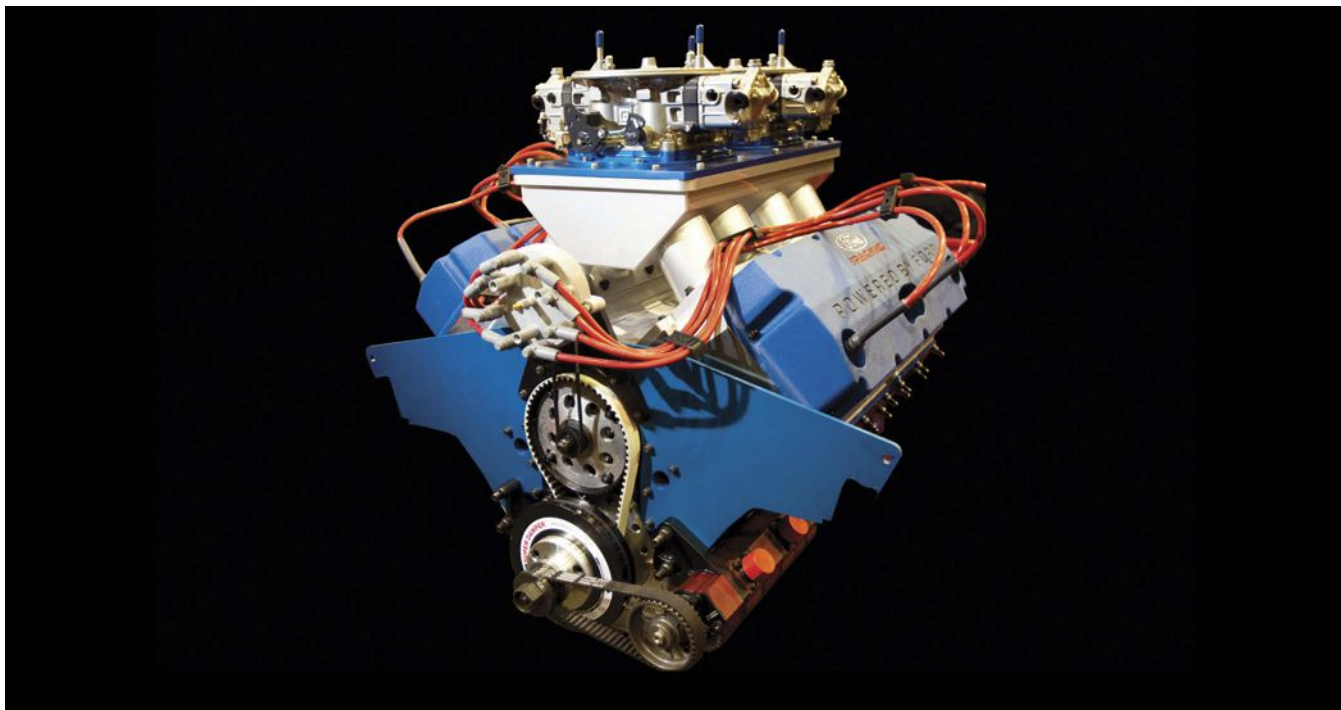
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**62 MM THROTTLE BODY WITH
MECHANICAL LINKAGE**

M-9926-3VM*

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Following in a rich history of Pro Stock success, Ford has returned to form with all new parts for NHRA®'s ultra-competitive Pro Stock class. Already proven in NHRA® Pro Stock competition, Ford has developed two engine configurations with either mirror-image or sequential port configuration. This hardware of the Pro's is available to all sportsman racers and has been in the winner's circle with Comp Eliminator racer Clint Neff's altered and endured big boost levels from turbo Pro Mod racer Steve Matusek.

PRO STOCK ENGINE PARTS FROM FORD RACING:

PRO STOCK ENGINE BLOCK – MIRROR IMAGE HEAD

M-6010-JC50*

PRO STOCK ENGINE BLOCK – SEQUENTIAL HEAD

M-6010-JC51*

PRO STOCK CYLINDER HEAD STUD KIT – MIRROR IMAGE

M-6014-JC50

PRO STOCK CYLINDER HEAD STUD KIT – SEQUENTIAL

M-6014-JC51*

CAM PLUG PRO STOCK BLOCK

M-6266-JC50

PRO STOCK HEAD – MIRROR IMAGE CHAMBERS

M-6049-JC50*

PRO STOCK HEAD – SEQUENTIAL CHAMBERS

M-6049-JC51*

PRO STOCK HEAD GASKET – MIRROR IMAGE

M-6051-JC50*

PRO STOCK CYLINDER HEAD GASKET – MIRROR IMAGE

M-6051-JC501*

PRO STOCK HEAD GASKET – SEQUENTIAL

M-6051-JC51*

PRO STOCK CAMSHAFT SPOOL – MIRROR HEAD

M-6250-JC50S0S*

PRO STOCK CAMSHAFT SPOOL – SEQUENTIAL BLOCK

M-6250-JC51NS*

PRO STOCK BLOCK RETAINER – MAIN CRANKSHAFT SEAL KIT

M-6318-JC50

PRO STOCK ROCKER COVER – MIRROR IMAGE HEAD

M-6582-JC50*

PRO STOCK ROCKER COVER – SEQUENTIAL HEAD

M-6582-JC51*

PRO STOCK ADAPTOR – OIL INLET TO BLOCK

M-6881-JC50*

Racer to Order **KBD-34700 Pro Stock Timing Set – Cam Drive** direct from Jesel Valvetrain Innovations, Phone: (732) 901-1800

Racer to Order **T13668 Seal-Crankshaft-Front** and **T13562 Seal-Crankshaft-Rear** direct from Tri-Tec Seal, Inc., Phone: (810) 655-3900



PRO STOCK BODY PARTS FROM FORD RACING:

2010 MUSTANG PRO STOCK BODY CARBON FIBER

M-7002010-PSA

2010 MUSTANG PRO STOCK BODY FIBERGLASS

M-7002010-PSB

2010 PRO STOCK DOOR HANDLES

M-26600-PSA

2010 MUSTANG HEADLAMP KIT

M-13008-PSA

2010 MUSTANG TAILLAMP KIT

M-13404-PSA

PRO STOCK CARBON FIBER AND LIGHT-WEIGHT FIBERGLASS BODIES ARE AVAILABLE THROUGH:
ROUSH COMPOSITES: 734-779-7385





Photo by Capaldi Racing

MUSTANG FR500S RACE CAR

Ford Racing is proud to include the Mustang FR500S in its race car line-up competing in the SCCA World Challenge GTS class and NASA American Iron Series.

The Mustang FR500S features the following:

- Factory-built and painted body shell with all sound deadening and seam sealer deleted
- 4.6L 3-valve, fuel-injected V8
- Ford Racing/Brembo® 4-piston 14" front brakes with race pads front and rear; race ABS calibration

ENGINE

- 4.6L 3-valve, fuel-injected V8

STEERING

- Ford Racing rack and pinion
- Ford Hydraulic

FUEL SYSTEM

- Fuel Pumps: Ford Mustang GT stock
- Pressure Regulator: Ford Mustang GT stock

WHEELS

- 2008 Shelby GT500
- Size – Front: 18" x 10"
- Size – Rear: 18" x 10"

DRIVELINE

- Shelby GT500 stock 6-speed manual transmission
- Upgraded clutch assembly
- Ford Racing short throw shifter

BRAKES

- Front: Brembo® 4-piston 14"
- Rear: Ford stock
- Master Cylinder: 2008 Shelby GT500 stock
- ABS: Ford Racing

REAR SUSPENSION

- Adjustable coil-over dampers
- Panhard Rod

FRONT SUSPENSION

- 2-way adjustable dampers with coil springs
- Adjustable anti-roll bar

ANCILLARIES

- Ford Racing high-capacity racing radiator
- Ford Racing Performance Parts exhaust system
- Ford Racing (2008 Bullitt-based) 84 mm cold air intake

COCKPIT

- Ford Racing race seat
- Ford Racing 6-point safety harness
- Center-mount console switches
- AIM MXL data acquisition system

FR500S SERVICE PARTS

FR500S MAIN BODY HARNESS

M-14A005-500S

WHEEL NUTS (5 PACK)

M-1012-G

2005-2010 MUSTANG V6/GT/SVT FR500S HUB KIT WITH ARP® STUDS

M-1104-A

MUSTANG FR500S FRONT WHEEL STUDS

M-1107-A

FR500S REAR WHEEL STUDS

M-1107-B

MUSTANG FR500S ROTOR KIT 48 VANE

M-1125-D

MUSTANG FR500S FRONT ROTOR HAT KIT

M-1125-E

MUSTANG FR500C AND FR500S BRAKE ROTOR HARDWARE KIT

M-1125-F

8.8" AXLE BEARING AND SEAL KIT

M-1225-B1

BRAKE SPINDLE DUCT

M-2004-B

FR500S BRAKE HOSE KIT

M-2078-A

MUSTANG FR500C REAR DISC BRAKE RACE PAD

M-2200-R

MUSTANG FR500S BRAKE KIT

M-2300-J

FR500 BREMBO® BRAKE CALIPER KIT

M-2320-D

FR500S ABS BRAKE MODULE

M-2353-A

FR500S DEAD PEDAL

M-2454-A

2005-2010 MUSTANG GT FRONT LOWER CONTROL ARM UPGRADE KIT

M-3075-E

MUSTANG FR500S HIGH-TEMP TIE ROD END

M-3130-R3

MUSTANG FR500C STEERING RACK

M-3200-R

FR500S HIGH-TEMP TIE ROD END SEALS

M-3332-A

FR500S POWER STEERING COOLER KIT

M-3746-A

2005-2010 MUSTANG GT/SVT AXLE GIRDLE

M-4033-G2

MUSTANG FR500S DIFFERENTIAL

M-4204-T31H

8.8" RING GEAR AND PINION SETS

M-4209-F373N*

2007-2010 MUSTANG SVT 8.8" RING AND PINION INSTALLATION KIT

M-4210-B1

2005-2010 MUSTANG GT COUPE FRONT LOWER A-ARM BRACE UPGRADE KIT

M-5025-A

FR500S FRONT SPRING

M-5310-A

2005-2010 MUSTANG GT AND 2007-2009 MUSTANG SVT DRIVESHAFT LOOP KIT

M-5478-S197B

2007-2009 MUSTANG SVT WHEEL

M-1007-S1895*

4.6L 3V RH HIGH-FLOW CNC CYLINDER HEAD

M-6049-463VP3*

4.6L 3V LH HIGH-FLOW CNC CYLINDER HEAD

M-6050-463VP3*

2005-2010 MUSTANG GT 4.6L 3V HOT ROD CAMSHAFTS

M-6550-3V*

4.6L 3V PERFORMANCE INTAKE MANIFOLD

M-9424-463V*

62 MM 3V MUSTANG THROTTLE BODY

M-9926-3V*

3V 4.6L HEAD CHANGING KIT

M-6067-3V46*

ROAD-RACE OIL PAN

M-6675-R50

FR500S REAR SPRING

M-5560-A

18 MM REAR SWAY BAR KIT

M-5772-S18

CASE OF FORD RACING HIGH-PERFORMANCE OIL FILTERS

M-6731-FL820

2007-2009 MUSTANG SVT BLACK SHIFT KNOB AND STICK

M-7213-J

FR500S 11" 26-SPLINE CLUTCH DISC

M-7550-B*

2005-2009 MUSTANG GT DE-GAS BOTTLE

M-8080-A

RADIATOR CAP WITH "FORD RACING" LOGO

M-8100-A

FR500S RADIATOR AIR DEFLECTOR KIT

M-8310-A

4.6L 3V LONG TUBE HEADERS

M-9430-MC*

2005-2009 MUSTANG GT/V6 COLD AIR KIT DISPOSABLE HIGH-FLOW AIR FILTER REPLACEMENT

M-9601-B

FR500S TOW HOOK LOOP KIT

M-17954-A

FR500S CASTER/CAMBER PLATE

M-18183-B

FR500S REAR UPPER SHOCK MOUNT

M-18197-A

A/C ELIMINATOR KITS

M-19216-D46

FR500S STRUT TOWER BRACE

M-20201-MC

MUSTANG REAR QUARTER-WINDOW KIT

M-6342006-MC

2005-2010 MUSTANG GT HIGH LIFT HOT ROD CAM SET

M-6550-3V*

2007-2009 MUSTANG SVT SHORT THROW SHIFTER

M-7210-B



MUSTANG FR500C RACE CAR

A turn-key ready-to-run steed for Grand Am Cup GS class!

The Mustang FR500C features the following:

- Seam-welded, pre-paint, production body, Grand Am spec roll cage, attachment points and enclosures specifically for racing
- Ford Racing 5.0L "Cammer R50" engine—the heart of this purpose-built machine mated to our unique Tremec® T-56 racing transmission
- Ford Racing brake and suspension upgrades
- Add driver...and look for victory lane!

ENGINE

- Type: 5.0L "Cammer R50"

STEERING

- Steering Rack: Ford Racing rack and pinion
- Power Steering: Ford Hydraulic

FUEL SYSTEM

- Fuel Cell: ATL custom dual dry break – 20 gallon
- Fuel Pumps: Walbro® 255 L/hr
- Pressure Regulator: Ford – stock

WHEELS

- Size – Front: 18" x 10"
- Size – Rear: 18" x 10"

DIMENSIONS

- Wheelbase: 107.1"
- Front Track: 62.8"
- Rear Track: 63.0"
- Dry Weight: 3200 lbs

DRIVELINE

- T-56 6-speed transmission
- Trac-Tech C-Locker
- Supercharged Cobra Clutch Kit

BRAKES

- Front: Brembo® 4-piston
- Rear: Ford – stock
- Master Cylinder: Ford Racing
- ABS: Ford Racing

CHASSIS

- Type: Uni-body full seam welded with integrated safety cage
- Structural Performance: Over 20,000 lb-ft/degree (torsional)
- Construction: Ford – modified stock steel

REAR SUSPENSION

- Dynamic® Suspensions – coil-over dampers
- 3-way adjustable – high/low-speed compression rebound
- Ride height adjustable
- 3-link with panhard bar
- Urethane bushings

FRONT SUSPENSION

- Dynamic® Suspensions – inverted struts
- 3-way adjustable – high/low-speed compression rebound
- Ride height adjustable coil over
- Urethane bushings
- Adjustable anti-roll bar

ANCILLARIES

- C&R® aluminum radiator with integrated oil cooler
- Ford Racing Performance Parts exhaust system
- Ford Racing Performance Parts high-flow intake system
- SPARCO® cable-activated extinguisher

COCKPIT

- SPARCO® racing seat
- SPARCO® 320 mm steering wheel – quick release
- SPARCO® 6-point safety harness
- Center-mount console switches
- AIM digital dash system – data logging and display

M-7003-T56R OR M-7003-BOSSR1 TRANSMISSIONS

- These are the only transmissions approved for Grand Am Cup racing in a FR500C Mustang. This transmission was developed by Ford Racing and Tremec® Transmission for use in the Ford Racing Mustang FR500C race car
- M-7003-T56R 6-speed transmission with low helix 4615 steel alloy gears, one-piece counter shaft, heavy-duty pads, slip yoke configuration
- Production 2005-2009 throwout bearing maintains hydraulic clutch actuation

MUSTANG FR500C SERVICE PARTS

MUSTANG FR500C FRONT WHEEL

M-1007-F1810*

MUSTANG FR500C REAR WHEEL

M-1007-F1810A*

MUSTANG FR500C ROTOR HAT

M-1124-R*

MUSTANG FR500C AND FR500S BRAKE ROTOR HARDWARE KIT

M-1125-F

MUSTANG FR500C AND FR500S 72-VANE BRAKE ROTOR UPGRADE KIT

M-1125-G

MUSTANG FR500C FRONT BRAKE PADS

M-2001-R

MUSTANG FR500C BRAKE DUCT KIT

M-2005-A

MUSTANG FR500C BRAKE BOOSTER

M-2005-R*

MUSTANG FR500C FRONT BRAKE CALIPER BRACKET

M-2134-R

MUSTANG FR500C REAR DISC BRAKE RACE PAD

M-2200-R

MUSTANG FR500C FRONT BRAKE KIT

M-2300-A*

FR500C CASTER ADJUSTER

M-3052-R1

MUSTANG FR500C FRONT LOWER CONTROL ARMS

M-3075-R

MUSTANG FR500C TIE ROD END

M-3130-R2

MUSTANG FR500C STEERING RACK

M-3200-R

FR500S HIGH-TEMP TIE ROD END SEALS

M-3332-A

2005-2010 MUSTANG GT/SVT

AXLE GIRDLE

M-4033-G2

2005-2011 MUSTANG ADJUSTABLE PANHARD BAR

M-4264-A

HD ALUMINUM DRIVESHAFT ASSEMBLY

M-4602-J

FR500C BUSHING KIT, FRONT

M-5638-B

MUSTANG ROAD RACE REAR LOWER CONTROL ARM BUSHINGS

M-5638-A



MUSTANG FR500C REAR UPPER CONTROL ARM BUSHINGS

M-5638-R

FR500C REAR LOWER CONTROL ARM KIT

M-5649-R1

18 MM REAR SWAY BAR KIT

M-5772-S18

FR500C RH CYLINDER HEAD

M-6049-DAC*

FR500C LH CYLINDER HEAD

M-6050-DAC*

4.6L MANUAL FLYWHEEL BOLTS

M-6379-B

11" PRESSURE PLATE BOLT AND DOWEL KIT

M-6397-A46

TREMEC® MUSTANG FR500C T-56 TRANSMISSION

M-7003-T56R*

T-56 BLACK LEATHER SHIFT KNOB

M-7213-B

MUSTANG FR500C FUEL CELL

M-9002-R

MUSTANG FR500C ENGINE CONTROL UNIT

M-12650-BR50*

FR500C DASH HARNESS

M-14290-T50C

FR500C REAR BODY HARNESS

M-14405-T50B

FR500C FRONT BODY HARNESS

M-14414-T50B

FR500C BATTERY HARNESS

M-14500-R50

MUSTANG FR500C CAMBER ADJUSTER KIT

M-18183-R

BOSS 302R/BOSS 302S

MUSTANG BOSS 302R

M-FR500-BOSSR1

Forty years ago, the original Mustang BOSS 302 became a road racing legend. The car's triumphs included Parnelli Jones' SCCA Trans-Am championship in 1970, driving a BOSS 302 prepared by Bud Moore Engineering. Now, the new BOSS 302R from Ford Racing is adding another illustrious chapter to the legend.

Production of no more than 50 BOSS 302Rs is planned. While they are serialized, these cars are definitely not street legal – they are proper, full-fledged race cars, ready to race in several classes of Grand-Am, SCCA and NASA road racing. The base BOSS 302R is equipped with a 5.0L, four-valve, V8 engine, a six-speed manual transmission, racing dampers and springs, a Brembo® brake package, plus a roll cage, racing seat, safety harness and data acquisition system. Be a part of BOSS history. See your local Ford dealer to order your own BOSS 302R.

POWERTRAIN

- Ford Racing 5.0L V8, four valves/cyl.
- Ford Racing TTC close ratio 6-speed transmission
- 3.55:1, 8.8" Torsen® T2R limited-slip differential
- Ford Racing clutch

CHASSIS

- Seam-welded Ford steel unibody, integrated safety cage
- Structural performance: over 20,000 lb-ft/degree (torsional)

FRONT SUSPENSION

- Ride-height-adjustable KONI inverted coil-over struts, compression and rebound adjustable dampers
- Adjustable caster/camber plate
- Urethane bushings

- Adjustable anti-roll bar

REAR SUSPENSION

- Multimatic 3 link with panhard bar
- KONI coil-over dampers; ride-height, compression and rebound adjustable
- Urethane bushings

STEERING

- Electric power-assist with unique Ford Racing calibration

BRAKES

- Front: Brembo®, 4-piston calipers
- Rear: Ford, stock
- ABS: Ford, recalibrated production



WHEELS

- BBS 18" x 10", front and rear

FUEL SYSTEM

- ATL 22-gallon, custom dual-dry-break fuel cell
- Walbro® 255 L/H fuel pumps
- SK fuel pressure regulator

ANCILLARIES

- Aluminum PWR radiator with separate oil cooler
- Ford Racing electrical harness
- Ford Racing exhaust system

- SPA cable-activated extinguisher
- Recaro position-adjustable racing seat
- SPARCO® quick-release steering wheel
- Sabelt 6-point safety harness, HANS®-compatible
- Center-mount console switches
- AIM digital dash system – data logging and display

MUSTANG BOSS 302S

M-FR500-BOSS302S

The legend began with the original Mustang BOSS 302 in 1969, and now the new Mustang BOSS 302S joins this celebrated family. Designed for road racing sprint events in classes including, but not limited to, SCCA World Challenge GTS* and NASA's American Iron, the Mustang BOSS 302S is a turn-key race car, serialized and factory-built strictly for racing. This car is not street legal. Equipment includes the same high-output, 5.0L BOSS V8 that powers the Mustang BOSS 302R (designed for endurance racing), as well as Brembo® brakes, adjustable rear wing in carbon fiber, an FIA-spec integrated roll cage, Recaro racing seat, data acquisition system, fire-suppression system and much more. The Mustang BOSS 302S is available from any Ford dealer. Please visit www.fordracingparts.com for more details.

POWERTRAIN

- 5.0L, 4-valve BOSSR V8 with Ford Racing serialized intake badge
- Engine oil cooler
- BOSS 302 fuel system
- Upgraded cooling system
- FR1 mufflers
- 6-speed transmission with stock BOSS 302 clutch/flywheel
- Torsen® limited-slip differential, 3.73:1 final-drive ratio

CHASSIS

- Ford steel unibody with FIA-spec, 6-point integrated roll cage

FRONT SUSPENSION

- Coil-over struts
- Front lower control arms with Delrin® bushing kit
- FR adjustable front stabilizer bar
- Camber Plates

REAR SUSPENSION

- Coil-over shocks
- Tubular lower control arms with spherical bearings
- FR stabilizer bar

STEERING

- Electric power-assist with unique Ford Racing calibration

BRAKES

- Brembo® front system with 4-piston calipers
- 2-piece, 14" front rotors
- 12" rear rotors
- PFC racing pads
- Carbon fiber brake duct kit
- Stainless steel brake lines
- FR brake booster assembly
- Unique FR ABS calibration

ELECTRICAL

- Lightened FR wiring harness
- AMB transponder
- Switch plate – start/ignition, aux switches



INTERIOR

- AIM data acquisition system with GPS
- Recaro HANS® Pro Racer seat
- Fire system with 2 nozzles
- Quick-release racing steering wheel
- Window net
- Safety system triangle nets
- 6-point racing harness
- Master cutoff switch

EXTERIOR

- FR front splitter
- Carbon-fiber adjustable rear wing
- Unique carbon fiber hood with air extractors and pins
- 19" x 9" front wheels
- 19" x 10" rear wheels
- Available in Competition Orange or Performance White
- BOSS 302S graphics package
- Front and rear tow hooks

BOSS 302R/302S SERVICE PARTS

Electrical		Boss S	Boss R
M-14290-M302A	Harness FWD Lamp		X
M-14291-M302A	Harness Rear ABS		X
M-14290-M302B	Harness Fwd Lamp	X	
M-14291-M302B	Harness Rear ABS	X	
M-14A005-M302A	Body Harness for Road Race Cars	X	X
M-14A006-M302A	Controls Pack Harness for Mustang Road Race Car	X	X
M-14A068-B	Controls Pack PDB	X	X
M-14B060-M302R	Battery Harness For Mustang BOSS R		X
M-14B060-M302A	Battery Harness For Mustang Road Race Car	X	
Brakes			
M-2005-R	Race Booster	X	X
M-2200-R	Rear Brake Pad Kit	X	X
M-1125-H	BOSS 302R/S Front Brake Rotor Hat	X	X
M-1125-J	BOSS 302R/S 48-Vein Front Brake Rotor Ring	X	X
M-1125-G	BOSS 302R/S 72-Vein Front Brake Rotor Ring	X	X
M-2353-B	Racing Calibrated ABS Module With Bracket	X	X
Body			
M-17954-A	Tow Hook Loop Kit	X	X
M-5025-MBR	Trans Cooler Air Scoop	X	
M-7213-J	2007-2008 SVT Black Shift Knob and Handle	X	
M-16601-S	BOSS 302S World Challenge Splitter Kit	X	
Chassis			
M-18183-R	Camber Plates, Dynamic® Suspension	X	
M-18183-B	Camber Plate, KONI and AST		X
M-18197-A	Rear Shock Mount Kit	X	X
M-5490-A	2005-2012 Mustang Anti-roll Bars	X	
M-4264-A	2005-2012 Mustang Panhard Bar – Adjustable	X	X
M-3200-EPAS	Racing Calibrated Electric Steering Rack	X	X
M-1007-R1810	Wheel, BOSS R1 18" x 10"	X	X
M-3052-R1	Caster Adjuster	X	X
M-5638-C	Mustang BOSS 302S Front Bushing Kit	X	
M-5650-A	2005-2012 Mustang Lower Control Arm Relocation Bracket	X	
M-5649-S	Mustang Rear Lower Control Arm Kit, WC	X	
Powertrain			
M-5230-MGTCA1	2011 Mustang GT/SVT Muffler Kit	X	
M-5230-S	Muffler Kit		X
M-6007-M50BR	5.0L BOSS High-output Engine	X	X
M-6881-M50	Remote Filter Adapter	X	
M-7512-A	Hose, Hyd Clutch 2005-2012 Mustang	X	X
M-4204-T31H	Torsen® T2R Differential	X	X
M-4209-88373	8.8" Ring and Pinion 3.73	X	X
M-4210-B2	Ring and Pinion Install Kit	X	X
M-7003-BOSSR1	Transmission Close Ratio		X
M-4602-S	One-piece Driveshaft		X
M-5649-R1	Mustang Rear Lower Control Arm Kit, Grand Am		X
M-9601-MGT	Air Filter	X	X
Cooling			
M-8005-MGT	Radiator 2005-2010 Mustang GT – High Capacity	X	X

DESIGNED AND ENGINEERED AS A STREET-LEGAL RACE CAR

DISCOVER THE TRUE BOSS 302

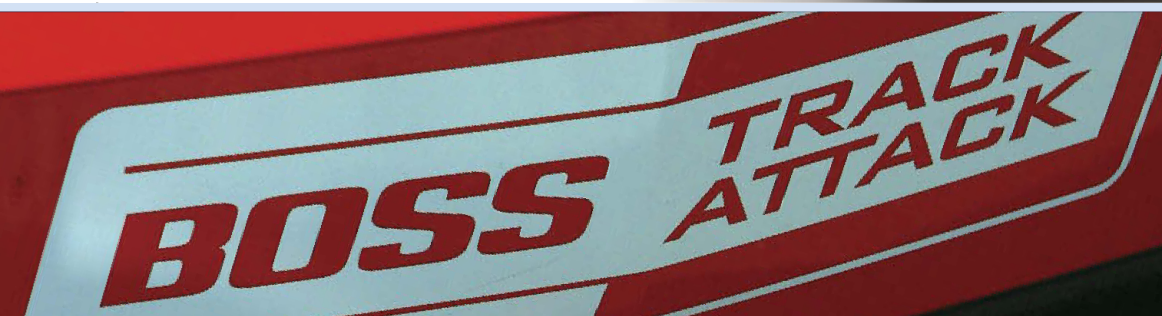


Racing is its reason for being – just like the legendary original. It evolved from race cars – Ford Racing's Boss 302R and 302S. There's only one way to discover the 2012 Boss 302's true performance potential...

BOSS 302 TRACK ATTACK

It's a vital part of the Boss 302 owner experience – unleashed for a day on the track at Miller Motorsport Park.

Learn more at www.bosstrackattack.com/



www.fordracing.com





Ford Racing has worked with the SCCA and legalized the 2005-2012 Mustang for two SCCA classes.

SSB is reserved for 2005-2009 Mustang V6 models with the 5-speed manual transmission. T-2 is reserved for the 2011-2012 Mustang GT equipped with 5.0L V8 and 6-speed manual transmission.

SSB

Start with a 2005-2009 Mustang with a V6 engine and 5-speed manual transmission.

Recommended Ford Racing components and modifications:

2005-2012 MUSTANG COUPE DYNAMIC® STRUT/SHOCK KIT

M-18000-A

2005-2012 MUSTANG V6 COUPE 1.250" LOWERING SPRINGS

M-5300-N

2005-2012 MUSTANG V6 COUPE ANTI-ROLL BAR KIT

M-5490-C

2005-2012 MUSTANG V6 STRUT TOWER BRACE

M-20201-F

7.5" TRACTION-LOK LIMITED SLIP DIFFERENTIAL

M-4204-C75

For the latest in SCCA Mustang SSB legal components and modifications, visit www.scca.com.

T-2

Start with a 2011-2012 Mustang GT equipped with 5.0L V8 and 6 speed manual transmission, preferably equipped with optional Brembo® brake package.

The following parts are allowed:

GT/CS FRONT FASCIA

BR3Z-17626-AA

GT/CS REAR FASCIA

AR3Z-17F828-AA

FORD ACCESSORIES SPOILER

AR3Z-6344210-CA

14" BREMBO® BRAKE KIT

M-2300-S* (if not equipped)

2010-2012 MUSTANG BRAKE DUCT KIT

M-2004-MB

8.8" ALUMINUM AXLE COVER

M-4033-K

SPRING KIT

M-5300-A

2005-2012 MUSTANG GT STRUT TOWER BRACE

M-20201-S197

2005-2012 MUSTANG GT COUPE ANTI-ROLL BAR KIT

M-5490-A

JOUNCE BUMPER KIT

M-5570-A

2005-2012 MUSTANG ADJUSTABLE PANHARD BAR

M-4264-A

REAR LOWER CONTROL ARM

M-5649-R1

REAR UPPER SHOCK MOUNT

M-18197-A

2012 5.0L BOSS 302R ROAD RACE OIL PAN

M-6675-M50BR*

2005-2010 MUSTANG V6/GT/SVT FR500S HUB KIT WITH ARP® STUDS

M-1104-A

TORSEN® T2R DIFFERENTIAL

M-4204-T31H

3.31 8.8" RING GEAR AND PINION SET

M-4209-88331 (if not equipped)

HI-CAPACITY ALUMINUM RACING RADIATOR

M-8005-MGT*

BBS MUSTANG LIGHT-WEIGHT 1-PIECE RACING WHEEL

M-1007-R1810

MUSTANG BOSS 302 MANUAL TRANS COOLER AIR SCOOP

M-5025-MBR

TOW HOOK LOOP KIT

M-17954-A (two required)

MUSTANG DRIVESHAFT LOOP KIT

M-5478-S197B

HIGH-FLOW AIR FILTER

M-9601-MGT

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SPORTSMAN CIRCLE TRACK RACING

Ford Racing offers factory-engineered parts for asphalt and dirt Sportsman Circle Track Racers.

PARTS TO BUILD YOUR OWN

Designed and engineered to professional racing series standards



Race Blocks

- BOSS 302 and BOSS 351
 - From 302 to 468 cubic inches
 - Cast iron and aluminum
 - Big block A460
- See pages 90-93.**



Steve Legendre – BOSS 302 Block - PASS Late Model Series

Heads and Intakes

- NASCAR Late Model Series® N351 Sportsman head
- NASCAR® Modified C3 head
- D3 high-port head and intake for unlimited classes
- A460 for big block modifieds

See pages 99-104.



COMPLETE SEALED RACING ENGINES

Ford Racing Sealed Engines are built to professional racing series standards and deliver reliable lasting performance. These aren't built from repackaged production parts—but real racing parts like forged crank, rods and pistons with full-floating piston pins. Based on premium race blocks, these engines deliver reliable and consistent performance lap after lap.



Jamie Iverson – S374D – ASAMW – Late Model Series Winner



M-6007-S347JR*

- 350 hp
- 400 lb-ft torque
- BOSS 302 block
- "X" aluminum head
- Competes with GMPP "603"



M-6007-D347SR*

- 415 hp
- 400 lb-ft torque
- BOSS 302 block
- "Z" aluminum head
- Competes with GMPP "604"



M-6007-S374W

- 540 hp
- 470 lb-ft torque
- BOSS 351 block
- CNC ported "Z" aluminum head
- The cost-effective alternative to a built engine for asphalt and dirt



M-6007-S374D

- 590 hp
- 495 lb-ft torque
- BOSS 351 race block
- CNC ported "Z" aluminum head
- For Super Late Model Racing

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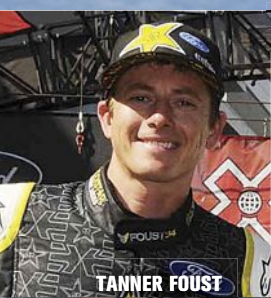
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FORD FIESTA DOMINATES

On dirt, pavement and flying through the air, Ford Fiesta is taking the world of RallyCross by storm. Fiesta swept the RallyCross podium at X Games 17 led by Brian Deegan's Gold medal performance while Tanner Foust dominated the 2011 Global RallyCross Championship winning both the drivers and manufacturers titles for Ford.



BRIAN DEEGAN



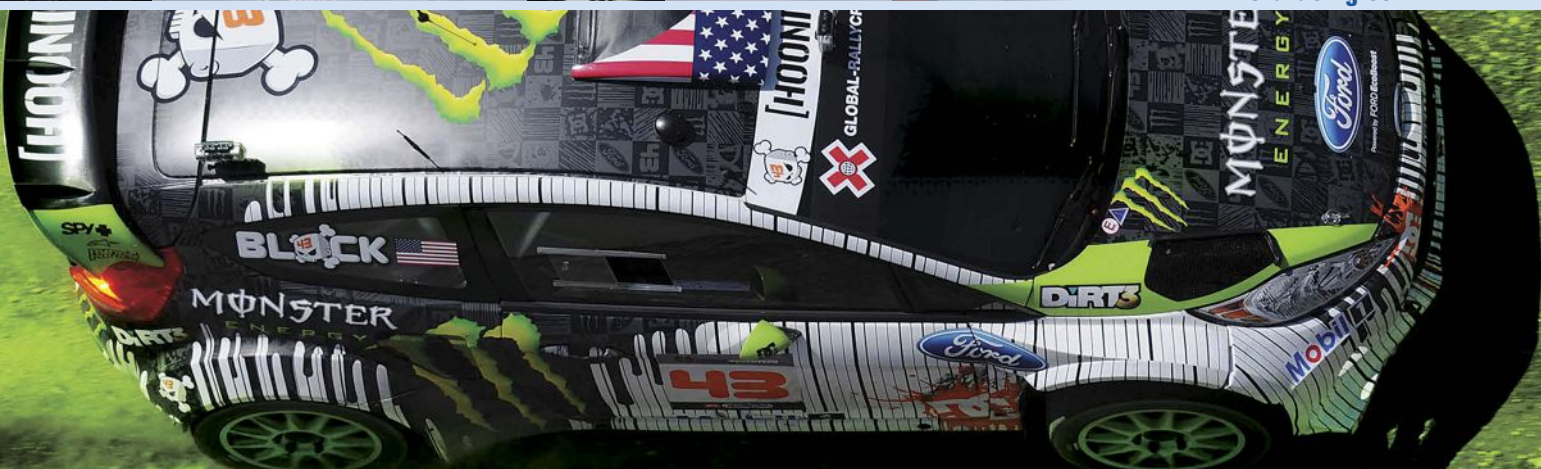
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EQUIPPED TO GO WHEN THE GOING GETS TOUGH

Christopher Duplessis / Karl Atkinson, 2011
Ford Fiesta R2, New England Forest Rally 2WD winner

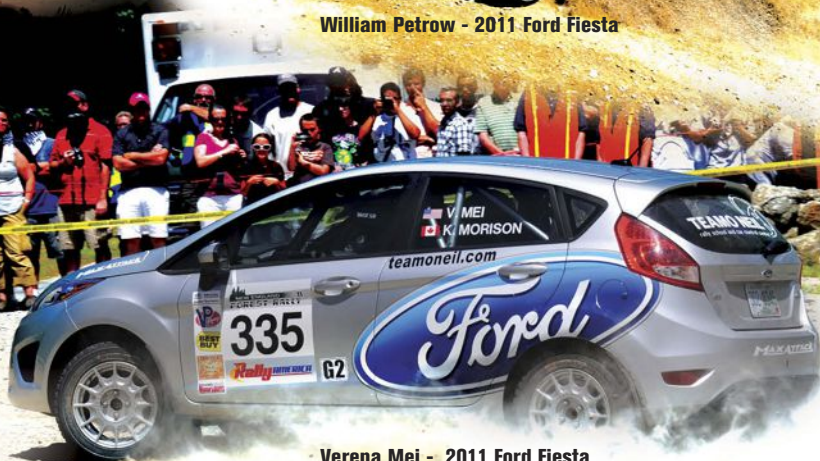
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William Petrow - 2011 Ford Fiesta

A PRO PACKAGE FOR PRIVATEERS

Ford Fiesta R2 Kit -- Ford Racing offers a competition-ready package letting enthusiasts turn their five-door Fiesta into a Fiesta R2 that's ready to compete on the roads of RallyCar's Rally America National Championship. The package is available for order through Team O'Neil Motorsports, a division of Team O'Neil Rally School in New Hampshire.



Verena Mei - 2011 Ford Fiesta



PART #: M-FR1ESTA-R2



www.fordracing.com



Dillon VanWay/
Jake Blattner -
2011 Sno*Drift Rally
2WD Winner

FIESTA B-SPEC



With the popularity of "B"-sized small cars on the street, the Ford Fiesta continues to gain interest in the enthusiast and auto racing community. Ford Racing is currently developing a B-Spec upgrade kit that will allow the Fiesta to compete in SCCA's B-Spec class, NASA and Grand AM Series. At the center of the kit is an affordable coil-over suspension kit. This kit, when combined with sticky tires, makes the little Fiesta a well-balanced track competitor.

FIESTA B-SPEC PARTS

FIESTA AC DELETE KIT

M-19216-FSB

2011-2012 FIESTA SCCA B-SPEC SUSPENSION KIT

M-FR3-FASB

FRPP TOW HOOK

M-17954-A

FIESTA REAR SPOILER

8A6Z-5844210-AA (available through Ford dealers only)

FIESTA BODY KIT

VAA6Z-5820049-A (available through Ford dealers only)

FRPP EXHAUST KIT

FRPP/K&N AIR FILTER

FIESTA B-SPEC ABS MODULE

FRPP STAINLESS BRAIDED BRAKE HOSES

FRPP STEERING WHEEL AND QUICK RELEASE HUB



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FOCUS ST-R



2012 FORD FOCUS ST-R M-FR200-STR

The Focus ST-R is a dramatic example of Ford's global approach to product development. This race vehicle, powered by the sophisticated 2.0L EcoBoost I-4 engine, is the result of a collaborative effort between Ford and Ford race teams from around the world who have experience building and racing Focus – successfully! The result of this teamwork is a competitive global racing platform that can be tailored for regional competition, based on local rules. The ST-R is intended for racing classes with production-based specifications, such as Grand-Am, World Challenge, Canadian Touring Car as well as the 24-hour Nürburgring race.

Throughout 2011, Ford Racing, in collaboration with Multimatic Motorsports, will design and engineer a complete – and competitive – Focus ST-R race car that will be available for purchase by those planning to compete with a Focus in professional and amateur road racing classes. When introduced, the Focus ST-R customer car will be the latest in the family of turn-key race cars from Ford Racing (Mustang FR500C, Mustang FR500S, Mustang Cobra Jet, BOSS 302R, BOSS 302S).

Powertrain

- 2.0L EcoBoost I-4
- Air-to-air intercooler
- Ford Racing radiator
- Ford Racing oil cooler
- Ford Racing Motorsport engine harness
- 6-speed manual transmission with Ford Racing limited-slip differential

Chassis

- AST performance coil-over adjustable dampers
- Ford Racing adjustable anti-roll bars
- Ford Racing brakes with 2-piece rotors and race friction material
- Carbon brake cooling ducts

Wheels and Tires

- 17" x 8" BBS alloy wheel
- 215/45/17 race tires

Interior

- FIA roll cage
- Recaro racing seat
- AIM MXL Pista data acquisition system
- Ford Racing fire suppression system
- Ford Racing 6-point safety harness
- Ford Racing driver safety nets



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EB = ENGINE BUILDER

IN = INSTALLATION

WH = WHOLESALE

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G-FORCE SOUTH

CLEONA, PA 17042
717-202-8360

KEYSTONE AUTOMOTIVE OPERATIONS, INC.

EXETER, PA 18643
570-655-4514

MCNEW

DILLSBURG, PA 17019
717-432-9503

SPRINGFIELD FORD, INC.

SPRINGFIELD, PA 19064
610-544-0700
LS, EB, IN, WH

RHODE ISLAND

RACERS EQUIPMENT WAREHOUSE

WARWICK, RI 02886
800-556-2864
LS, MO, EB, WH

TASCA AUTOMOTIVE GROUP

CRANSTON, RI 02920
401-681-1300

TENNESSEE

H.P. SALES, INC./HOT ROD BARN

KNOXVILLE, TN 37917
865-688-6031

RANDY'S RING & PINION

FRANKLIN, TN 37067
800-347-1188
LS, MO, IN, WH

TENNESSEE SPEED SPORT

GOODLETTSVILLE, TN 37072
615-851-4070
LS, WH

TEXAS

AER MFG., INCORPORATED

CARROLLTON, TX 75006
972-418-6499/417-317

DALLAS MUSTANG PARTS

DALLAS, TX 75238
800-MUSTANG
LS, MO, EB, IN, WH

LATEMODEL RESTORATION SUPPLY INC.

HEWITT, TX 76643
254-296-6500
LS, MO, WH

LONE STAR PERFORMANCE

ADDISON, TX 75001
214-630-5006
LS, MO, EB, IN, WH

MAC HAIK FORD LINCOLN MERCURY

GEORGETOWN, TX 78626
512-930-3673
LS, IN, WH

MAC HAIK FORD, LTD.

HOUSTON, TX 77024
713-932-5050
LS, MO, EB, IN, WH

NORTHSIDE FORD

SAN ANTONIO, TX 78216
800-542-9912
LS, IN, WH

SCOGGIN-DICKEY PARTS CENTER

LUBBOCK, TX 79424
800-456-0211
LS, MO, EB, WH

SOUTHWEST FORD, INC.

WEATHERFORD, TX 76086
800-256-7933
LS, MO, WH

TOMMIE VAUGHN MOTORS

HOUSTON, TX 77007
713-869-4755
LS, MO, WH

UTAH

LARRY H. MILLER FORD LINCOLN MERCURY - SANDY

SANDY, UT 84070
801-563-4060
LS, WH

WESTLAND FORD

OGDEN, UT 84401
801-394-5824
LS, MO, IN, WH

DEALER LIST

VERMONT

RPM RACING ENGINES

GEORGIA, VT 05478

802-524-7406

LS, EB, IN

VIRGINIA

B & W MACHINE & TOOL

SALEM, VA 24153

540-387-3854

LS, MO, EB

COWLES FORD

WOODBIDGE, VA 22193

703-986-5671

LS, IN, WH

KOONS STERLING FORD

STERLING, VA 20164

800-966-7078

LS, MO, IN, WH

POMOCO LINCOLN-MERCURY OF NEWPORT NEWS

NEWPORT NEWS, VA 23602

888-833-4949

LS, WH

PURVIS FORD, INC.

FREDERICKSBURG, VA 22408

540-898-3000

LS, WH

TED BRITT FORD SALES

FAIRFAX, VA 22030

703-591-8484

LS, MO, IN, WH

WASHINGTON

BICKFORD FORD

SNOHOMISH, WA 98290

800-527-1101

LS, IN, WH

FORD POWERTRAIN APPLICATIONS

PUYALLUP, WA 98371

253-848-9503

LS, MO, EB

RANDY'S RING & PINION

EVERETT, WA 98204

800-347-1188

LS, MO, IN, WH

WISCONSIN

GORDIE BOUCHER FORD

MENOMONEE FALLS, WI 53051

262-250-9838

LS, MO, IN, WH

PEGASUS AUTO RACING SUPPLIES

NEW BERLIN, WI 53146

800-688-6946

LS, MO, WH

PUERTO RICO

FAJARDO FORD

ROAD #3 KM 41.8, FAJARDO

00738-7005

787-355-5555

LS, IN

CANADA

Central Region

CAMPBELL FORD SALES, LTD.

OTTAWA, ON K1Z 0A3

613-725-3611

LS, MO, IN, WH

DIXIE FORD SALES

MISSISSAUGA, ON L4W 1E6

905-629-1711

LS, IN, WH

KANATA FORD SALES

KANATA, ON K2K 1X4

613-591-7775

LS, IN, WH

KARBELT SPEED & CUSTOM

AJAX, ON L1S 4N8

905-619-6660

WH

R.C.O. ENTERPRISES, INC.

AYLMER, ON N5H 2S1

519-393-6665

MO, WH

SEAN HYLAND MOTORSPORT

WOODSTOCK, ON N4V 1B7

519-421-2291

LS, MO, EB, IN

SUMMIT FORD SALES, LTD.

REXDALE, ON M9V 2C1

416-741-5581

LS, MO, IN, WH

Eastern Region

FORMULE FORD, INC.

GRANBY, QC J2J 0M2

450-777-1777

LS, MO, IN, WH

Pacific Region

BROWN BROS. FORD SALES

VANCOUVER, BC V5X 2S6

604-324-7504

LS, IN, WH

MOPAC AUTO SUPPLY, LTD.

LANGLEY, BC V2Y 3C2

604-881-4900

LS, MO, EB, IN, WH

Western Region

MOPAC AUTO SUPPLY, LTD.

EDMONTON, AB T5S 1M4

780-486-6900

LS, MO, EB, IN, WH

MOPAC AUTO SUPPLY, LTD.

CALGARY, AB T2M 0H2

403-277-0101

LS, MO, EB, IN, WH

DIX PERFORMANCE NORTH, LTD.

EDMONTON, AB T5S 1J7

780-462-5153

WH

METRO FORD SALES, LTD.

CALGARY, AB T2P 3K9

800-661-1210

LS, MO, EB, IN, WH

FREEDOM FORD SALES

EDMONTON, AB T6C 4H8

780-462-7575

AUSTRALIA

EAGLE AUTO SPARES

DANDENONG, VICT 3175

011-61-3-8710-3000

LS, MO, WH

METRO FORD PARTS DISTRIBUTION CENTRE

BRISBANE, QLD 4009

011-61-7-3000-7166

LS, MO, WH

RACEPARTS AUSTRALIA

STAPYLTON, QLD 4129

011-61-7-3807-6870

LS, MO, EB, WH

NEW ZEALAND

STA PARTS (SEGEDIN TRUCK & AUTO PARTS, LTD.)

AIRPORT OAKS, AUCK

011-649-256-1120

LS, MO, WH

EUROPEAN COUNTRIES

A2Z PERFORMANCE PARTS

HOLTEN, NETHERLANDS 7451 PJ

31 (0) 548-362-323

LS, EB, IN

POWER TORQUE ENGINEERING, LTD.

BINLEY, COVENTRY CV3 2RQ

0046-02476-635757

MO, WH

REAL STEEL

COWLEY, MIDD UB8 2JP

44-1895-440505

LS, MO, EB, WH

US-PARTS/FINN-AM OY

HELSINKI, FINLAND SF00880

358-9-251-31999



PERFORMANCE CRATE ENGINE LIMITED WARRANTY

Ford Racing warrants for 12 months or 12,000 miles/20,000 kilometers, whichever occurs first subsequent to the original retail purchase, that it will repair or replace, at its option, any Ford Racing engine part that, after inspection, is found to have failed due to a defect in factory-supplied material or workmanship. Ford Racing may use new or remanufactured parts for replacement.

Covered engine parts include the engine block and cylinder heads, all internally lubricated parts of the engine, including pistons, piston rings, piston pins, crankshaft and main bearings, connecting rods and rod bearings, camshaft and camshaft bearings, timing chain, timing chain gears, intake and exhaust valves, valve springs, oil pump, push rods, rocker arms, valve lash adjusters, hydraulic or mechanical lifters and valve stem seals, to the extent that the original engine contains the referenced warranted part. Parts that require normal manufacturers recommended replacement intervals are not covered under this warranty.

In the Province of Quebec, none of the limitations and exclusions below will exclude or restrict the warranty provided for in Sections 37 and 38 of the Quebec Consumer Protection Act. This warranty does not preclude the operation of any other provincial statute, which in certain circumstances may not allow some of the limitations and exclusions described in this warranty.

To the extent allowed by law, loss of time, inconvenience, loss of the use of the vehicle, commercial loss and incidental and consequential damages are not covered. There is no other express or implied warranty on these Ford Racing performance engines including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose.

This engine warranty does not cover:

- Parts which are replaced as part of normal maintenance.
- Installation or removal costs.
- Damage due to improper installation, negligence, alteration or accident, including use related to racing or competition, marine or motorcycle applications or for other non-vehicle usage.
- Damage due to addition of power adders such as superchargers, turbochargers or nitrous oxide.
- Engines where the vehicle odometer has been disconnected or the mileage has been altered.
- Damage caused by lack of proper maintenance, failure to follow maintenance schedule intervals or failure to use or maintain proper type and levels of fluids, fuel, oil and lubricants.
- Towing, shipping, rental vehicles, loss of time, inconvenience, loss of use or other economic loss to the extent allowed by law, except in the Province of Quebec where reasonable costs of towing and shipping are covered.
- Ford Racing Performance Parts engines installed in vehicles registered and/or normally operated outside the United States or Canada.
- Proof of proper maintenance is the owner's responsibility.
- Keep all receipts and be prepared to make them available if questions arise about maintenance.

To obtain warranty repair or replacement, please contact the Ford Performance Call Center at (800) 367-3788, fwrnty@ford.com or PO Box 490, Dearborn, MI 48121.





SELECT PERFORMANCE PARTS

LIMITED WARRANTY

Ford Motor Company, The American Road, Dearborn, MI 48025, provides a Limited Warranty on select Ford Racing performance parts as described herein. This warranty is valid for the original retail purchaser of the vehicle and is transferable to subsequent owners.

Warranted Parts

Performance Packs and Components are warranted for factory-supplied material or workmanship, when installed on a Ford vehicle by an authorized Ford Dealer or Shelby Automotive, Inc., beginning upon dealer installation and registration of the part(s) with Ford Racing for the balance of 3 years or 36,000 miles/60,000 kilometers, whichever occurs first, from the start date of the manufacturer's New Vehicle Limited Warranty. This Limited Warranty replaces the existing manufacturer's New Vehicle Limited Warranty for engine, driveline and suspension parts, when the warranted Ford Racing Part is identified as the causal part of a warrantable concern. ***Installation of these select Ford Racing parts by an authorized dealer does not nullify the New Vehicle Limited Warranty.*** All engine, driveline and suspension warranty issues not related to installation of Ford Racing parts remain subject to existing manufacturer's New Vehicle Limited Warranty.

Mustang V6

Power Upgrade Packs: M-2007-FR1V6 (2005-2009), M-FR1-MV6 (2010)

Cold Air Kits: M-9603-V605 (2005-2009), M-9603-MV6 (2010)

Shifters: M-7210-MV6 (2005-2009), M-7210-MV6A (2010)

Handling Packs: M-2007-FR3V6 (2005-2010), M-FR3-MV6A (2011-2012)

Exhausts/X-Pipes: M-5230-V6 (2005-2009), M-5230-MV62 (2010), M-5251-MV6A (2011-2012), M-5230-MV6CA (2011-2012), M-5230-MV6LA (2011-2012)

Mustang GT

Power Upgrade Packs: M-FR1-MGT1 (2005-2009), M-FR1-MGTA (2010), M-FR1-MGTB (2011)

Cold Air Kits: M-9603-GTB (2005-2009), M-9603-MGT (2010), M-9603-MGTB (2011-2012)

Shifters: M-7210-MGT (2005-2009), M-7210-MGTA (2010)

Handling Packs: M-FR3-MGTA (2005-2012), M-FR3-MGTAA (2005-2012), M-FR3-MCGTA (2011)

Exhausts/X-Pipes: M-5230-S (2005-2009), M-5230-5GT (2005-2009), M-5230-GTB (2005-2009), M-5230-MGTL (2010), M-5230-MGTC (2010), M-5230-SA (2010), M-5230-MGTLA (2011-2012), M-5230-MGTCA (2011-2012), M-5230-MGTCA1 (2011-2012), M-5251-R (2005-2010), M-5251-MGTA (2011)

Mustang GT500

Power Upgrade Pack: M-2007-FR1SVT (2007-2009)

Cold Air Kit: M-9603-SVT07 (2007-2009)

Shifter: M-7210-B (2007-2009)

Handling Packs: M-2007-FR3SVT (2009), M-FR3-MSVT (2010), M-FR3-MSVTA (2011-2012)

Exhausts/X-Pipes: M-5230-S (2007-2009), M-5230-SVT1 (2007-2009), M-5230-SGT (2007-2009), M-5230-MSVTC (2010), M-5230-MSVTL (2010), M-5230-MSVTCA (2011-2012), M-5230-MSVTLA (2011-2012)



Fiesta

Shifter: M-7210-FA (2011-2012)

Handling Packs: M-FR3-FA (2011-2012),
M-FR3-FASB (2011-2012)

Exhaust: M-5230-FAC (2011-2012)

Focus

Shifter: M-7210-FO (2012)

Handling Pack: M-FR3-FO (2012)

Exhaust: M-5230-FOH (2012)

Superchargers

Superchargers are warranted for factory-supplied material or workmanship, when installed by an authorized Ford Dealer or Shelby Automotive, Inc., beginning upon dealer installation and registration of the part(s) with Ford Racing and ends at either **12 months or 12,000 miles/20,000 kilometers**, whichever occurs first. Installation must occur prior to the vehicle reaching either 24 months or 24,000 miles/40,000 kilometers, whichever occurs first, from the beginning of the manufacturer's New Vehicle Limited Warranty. This Limited Warranty replaces the existing manufacturer's New Vehicle Limited Warranty for engine, driveline and suspension parts when a concern is triggered by a warranted Ford Racing Super Pack. All engine, driveline and suspension warranty issues not related to installation of Ford Racing Super Pack remain subject to existing manufacturer's New Vehicle Limited Warranty.

The Ford Racing Limited Warranty covers the following select superchargers:

Mustang GT

2005-2006 MY: M-6066-M463V (400 HP), M-6066-M463P (400 HP)

2007 MY: M-6066-M463V7 (400 HP), M-6066-M463P7 (400 HP)

2008-2009 MY: M-6066-M463V8 (400 HP), M-6066-M463P8 (400 HP)

2010 MY: M-6066-MGT400C (400 HP), M-6066-MGT400PC (400 HP)

2011-2012 MY: M-6066-MGT525D (525 HP), M-6066-MGT525PD (525 HP)

Mustang GT500

2007-2009 MY: M-6066-SGT (605 HP)

2010 MY: M-6066-MSVTA (660 HP)



SPECIAL WARRANTY RESTRICTIONS

Premium Fuel Requirement: Customers who purchase power upgrade packs or superchargers are required to use 91-octane or higher fuels at all times. Any failures associated with the non-use of premium 91-octane fuel will be ineligible for warranty repair.

FR3 Performance Pack Note: Performance handling packs are designed for "Track Day" ride and handling. Such performance standards suggest the vehicle ride will be more indicative of race performance vehicles. Vehicle conditions including, but not limited to, squeaks, rattles and harsh ride are not subject to warrantable repair. The performance handling pack requires the use of original equipment size wheels only. This performance handling application should be expected to accelerate tire wear. Premature tire degradation is not subject to warranty consideration. The front end alignment must be checked and adjusted as necessary after installation. Contact the Ford Performance Call Center at (800) 367-3788 or fwrnty@ford.com for front end alignment information.

Supercharger Application: Superchargers are covered by this Limited Warranty only when dealer installed on the engine for which they were designed.

- 400 hp superchargers are designed to be installed on Mustang GT 4.6L engines.
- 525 hp superchargers are designed to be installed on Mustang GT 5.0L engines and Shelby GT350 5.0L engines.
- 605 hp and 660 hp superchargers are designed to be installed on Shelby GT500 5.4L engines.

Ford Racing total aggregated liability per qualified vehicle under this Limited Warranty is \$8,000: Each covered component has its own aggregate value, which when combined shall not exceed \$8,000 in total parts repairs, except in the Province of Quebec, where the cost of parts and labor are covered. The maximum liability for failed parts by component category under this Limited Warranty is as follows: engine assembly parts \$5,000, transmission assembly \$1,500, and rear axle assembly \$1,500. Under this Limited Warranty, Ford Racing retains the right to replace any failed components with remanufactured parts for the life of the warranty.

Warranty Registration: This limited warranty requires that parts must be purchased from an authorized Ford Racing Dealer and installed by a Ford Dealer, or Shelby Automotive, Inc. Proof of purchase may be required for submission of warranty claims. Registration for this warranty must be submitted by a Ford Dealer, or Shelby Automotive, Inc. through the Ford Performance Call Center (800) 367-3788 or fwrnty@ford.com with Dealer P&A Code, the vehicle identification number (VIN), part installation repair order and date, Ford Racing part number, and owner information.



Limitations to Ford Racing Performance Parts Warranty

The following limitations apply to the products covered by this Limited Warranty:

- The purchase invoice(s) may be required for submission of warranty claims.
- Where a warranted Ford Racing part is replaced under this Limited Warranty, the replacement Ford Racing part is warranted only for the time remaining in the original Limited Warranty.
- This warranty does not cover parts with:
 - Damage or corrosion due to accidents, misuse, negligence, lack of proper maintenance or failure to follow maintenance schedule intervals. Proof of proper maintenance is the owner's responsibility. Keep all receipts and be prepared to make them available if questions arise about maintenance.
 - Damage or surface corrosion from the environment such as acid rain, airborne fallout (chemicals, tree sap), stones, salt road hazards, wind storm, lightning, floods and other natural disasters.
 - Normal wear, tear or deterioration such as discoloration, fading or blurring.
 - Damage as a result of misuse of a vehicle, such as driving over curbs, overloading, racing or using the vehicle as a stationary power source.
 - Damage due to improper installation, alteration, including calibration, use related to racing or competition, marine or motorcycle applications or other non-vehicle usage.

This warranty does not cover:

- Non-Ford Racing parts or Genuine Ford replacement parts or accessories which Ford Dealers may sell or install on your Ford vehicle.
- Parts replaced or labor charges incurred as part of normal vehicle maintenance.
- Engine damage associated with use of less than 91-octane fuels.
- Replacement parts or accessories installed on a Ford vehicle in which the odometer has been altered or on which the actual mileage cannot be readily determined.
- Replacement parts or accessories used in applications for which they are not designed.
- Towing, shipping, rental vehicles, loss of time, inconvenience, loss of use or other economic loss to the extent allowed by law, except in the Province of Quebec where reasonable costs of towing and shipping are covered.
- Parts installed in vehicles registered and/or normally operated outside the United States or Canada.
- Should Ford Racing modify any currently released parts which apply to this warranty program, Ford Racing is not obligated to update any previously manufactured parts.
- In the Province of Quebec, none of the limitations and exclusions above exclude or restrict the warranty provided for in sections 37 and 38 of the Quebec Consumer Protection Act.

NOTE: Federal and many state and provincial laws prohibit the removal, modification or rendering inoperative of any part that effects emissions or safety on motor vehicles used on public streets or highways. Ford Racing customers are responsible for complying with applicable federal, state, provincial and local environmental laws, including but not limited to, with respect to vehicle emissions. It is the responsibility of the customer to determine if their modified vehicle complies with applicable laws.

THIS LIMITED WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE AND PROVINCE TO PROVINCE. THIS LIMITED WARRANTY IS THE ONLY EXPRESS WARRANTY APPLICABLE TO THESE PARTS. FORD RACING AND FORD MOTOR COMPANY ARE NOT RESPONSIBLE FOR ANY TIME FOR WHICH YOU MAY LOSE THE USE OF YOUR VEHICLE, ANY INCONVENIENCE YOU MIGHT BE CAUSED, THE LOSS OF YOUR TRANSPORTATION OR ANY PART THEREOF, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES YOU MAY HAVE. YOU MAY HAVE SOME IMPLIED WARRANTIES UNDER STATE OR PROVINCIAL LAW, FOR EXAMPLE, THE IMPLIED WARRANTY OF MERCHANTABILITY OR THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

Questions or concerns relating to this warranty policy may be answered by contacting the Ford Performance Call Center at (800) 367-3788 or fwrnty@ford.com.





CONSUMER DISCLAIMER NOTICE

All Ford Racing Parts are aftermarket parts. Ford Racing Parts are not Genuine Ford Parts. Therefore, they may not be used in any application that requires the use of Genuine Ford Parts. The use of Ford Racing parts and components may impact the performance characteristics of other systems of the vehicle. When operating properly, Ford Racing performance crate engines, performance parts and components have the potential to adversely impact other systems of the vehicle. Except as set forth herein, such damage is the sole responsibility of the consumer and is not covered by this Limited Warranty.

Consumers are solely and completely responsible for evaluating their vehicle to ensure that the vehicle, and each part of that vehicle, is appropriate for this Ford Racing engine, part or component. It is the consumer's sole responsibility to have the performance enhancement parts properly installed on their vehicle along with any modifications necessary for the proper performance of the vehicle. Vehicle damage caused by a consumer's failure to modify the vehicle properly for use of one or more Ford Racing parts and components is not covered by this Limited Warranty and is the sole responsibility of the consumer. This Limited Warranty and/or the New Vehicle Limited Warranty on your vehicle may be voided, either in whole or in part, where the vehicle has been damaged due to a consumer's failure to modify the vehicle properly as necessary for use of Ford Racing parts and components.

Most Ford Racing parts are not sold with a warranty. Ford Racing parts are sold "as is", "with all faults", "as they stand" and without any express warranty whatsoever, unless otherwise expressly designated herein. To the fullest extent allowed by the state and federal law, Ford Motor Company expressly disclaims the implied warranties of merchantability and of fitness for a particular purpose, even if a particular purpose is mentioned herein. Ford also expressly disclaims all liability for direct, indirect, special, incidental or consequential damages, including but not limited to, damage or loss of

property or equipment, loss of profits or revenue, cost of purchase or replacement of goods, or claims of customers of the purchaser that result from the use of any and all parts or vehicles contained in this catalog. In no event shall the liability of Ford Motor Company, whether in tort, contract or otherwise, exceed the cost of the part or vehicle. However, you may have legal rights which vary from state to state.

Should any parts contained within this catalog prove defective following their purchase, the buyer and not the manufacturer, distributor or retailer, shall assume the entire cost of all necessary servicing and/or repair. The entire risk as to the performance of such parts or vehicles is with the buyer.

No vehicle in this catalog or offering is street legal or certified under federal motor vehicle safety standards and regulations. Vehicles that are not street legal or certified under federal motor vehicle safety standards and regulations are neither intended nor certified for use on public roads. Many of the parts in this catalog are not designed or tested for crashworthiness or to meet the safety needs of the motoring public. Instead, these parts are designed and intended for race vehicles on race tracks with engineers supervising the installation and use of the race parts to ensure that the safety needs of the race driver are met. The racing parts could conceivably be combined in an infinite combination, and the use of some parts on some vehicles could adversely affect the performance of the vehicle or other race parts.

To the extent that a part contained within this catalog comes with a warranty from the original manufacturer, not Ford Racing or Ford Motor Company, the buyer should contact the original manufacturer for any and all warranty repair or replacement. To determine which parts come with a warranty from the original manufacturer, not Ford Racing, please contact the Ford Racing Performance Call Center at (800) 367-3788, fwrnty@ford.com or:

FORD RACING PERFORMANCE PARTS
P.O. BOX 490
DEARBORN, MI 48121



GENERAL INFORMATION AND TECHNICAL ASSISTANCE

Ford Racing Performance Parts are available through Ford and Lincoln dealers and selected independent automotive specialty/performance outlets.

Ford Motor Company reserves the right to change, without notice or obligation, its products, prices, specifications and materials.

GENERAL INQUIRIES AND TECHNICAL QUESTIONS ON PRODUCTS SHOULD BE ADDRESSED TO:

Ford Racing Performance Parts
P.O. Box 490
Dearborn, MI 48121

**For official
Ford Motor Company
Shop Manuals
and wiring
diagrams, call
Helm Publications
at 1-800-782-4356.**

TECHNICAL ASSISTANCE TECHLINE

Telephone (800) FORD788

International (313) 621-0771

(FOR FORD RACING PARTS ONLY)

When you need fast, reliable, up-to-date information about Ford Racing Performance Parts equipment, call the Ford Racing Techline. You'll reach staff with a huge database of specifications and automotive know-how. The staff includes long-time racers and performance experts with many years of hands-on Ford experience and the database includes everything from the Ford Racing Performance Parts parts catalog to an extensive library of high-performance reference materials. You can call the Techline with questions about Ford Racing Performance Parts at (800) FORD788, international (313) 621-0771. If you need more in-depth information, write to Ford Racing Performance Parts.

For correct assistance, be sure to include the following information:

- Name and address
- Day and evening phone number
- Year/make/model of vehicle
- Original factory engine CID, transmission type and axle ratio
- Proposed modification changes

If you cannot find Ford Racing Performance Parts parts locally, call the Techline for purchase assistance.

See our website at

www.fordracingparts.com

NEW for 2012

Product information, dealer list and more!



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