Ford 460 history

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The history of the Ford engine spans almost 3 decades. My father used to have a 70s-era Lincoln Continental with this engine and let me tell you, it was a monster! First used in , this engine would see a massive change in This change would both alter and damage the ford history forever. It was at this time that the first gasoline crisis occurred. As a direct result, the horsepower of this formerly powerful engine would go from to a paltry range from to Technically, there were multiple cars used in the show, all made to look identical, but each carried the after the first season. The producers wanted a powerful motor that was up to the grueling task of constant chase scenes filmed for the show, and the was the one they chose. Unbelievably, some serious enthusiasts tweak this engine to put out more than 1, horsepower. Skip to content. When you buy something using the retail links in our posts, we may earn a small commission. Read more about our policy here. Facebook Twitter Pinterest Linkedin. Teaching word processing skills in the classroom. Clues for Harry Potter 7. It was a time when the oil crisis, government regulators, and insurance agencies drowned out the voices of racing teams. For Ford, the s it produced from â€"73 for its next generation of big-block power were visible victims of this rapid change in direction. These engines benefitted significantly from new casting procedures, which helped to drop weight compared to the outgoing Ford-Edsel big-blocks. Since its days as the king of flatheads, the Blue Oval had been studying its cross-town rivals over at GM and Chrysler; Ford began experimenting with advanced overhead cams and other exotic tricks in Indycar, and the new family of big-blocks looked like they would continue the innovative traditions of their forefathers. It was never meant to be, however. This new cubic-inch engine family, dubbed the Lima, served a wide array of luxury sedan pickups thanks to its brute force at low rpm. These more pedestrian uses for big-blocks were great for the high-performance divisions, too. It gave them an abundant source of big-displacement foundations upon which to build. With a 4. You could get a Cobra Jet, with or without a shaker hood scoop, in everything from the Cougar to the Ranchero , and it was the last big-block performance offered in a Ford car as the pressure from insurance agencies and government regulators began to end OEM involvement in motorsports. By , the Cobra Jet had fallen off the ordering sheets as Ford prepared to enter a decade of despair and neutered performance. Building upon wisdom that was honed through countless laps in the pursuit of speed, Ford threw its engineering might at the to give it one last hoorah in stock car racing, where the big-port Hemis were continually trouncing the field. Unleashed for the Boss was a mammoth big-block with canted valves, hemispherical combustion chambers, and enough port volume swallow an oil tanker. The result, the Mustang Boss , was a nose-heavy brute sold to dealers with the claims of a modest hp. The truth? And on that high water mark, we salute the Executives with Pfizer, Moderna say they're ramping up vaccine supplies. Load Error. Microsoft and partners may be compensated if you purchase something through recommended links in this article. Found the story interesting? Like us on Facebook to see similar stories. I'm already a fan, don't show this again. Send MSN Feedback. How can we improve? Please give an overall site rating:. Privacy Statement. Opens in a new window Opens an external site Opens an external site in a new window. What is it about American iron that is all about massive? Chrysler's original Street Hemi had valve covers that you could rent out as a dance floor. Pontiac's V-8 is a hefty chunk of iron and so are the Olds s. Massive 3-inch main bearings and hefty iron heads combined at one time in the smog era to put out a measly hp. Thank god those days are over. But in classic car crafter tradition, we see not those inept days past and look instead to the massive amount of power we could create out of all that iron. Here perhaps is one of the domestic world's overlooked power gold mines. Yes, it's heavy, and yes, it costs more to build than a small-block Chevy-but then you already knew that. Think of this as a line drawn in the sand. Are you man enough? We decided to do more than talk about Ford's big-block and actually build one ourselves. Well, actually Jim Grubbs Motorsports built it for us because we're inept at time management. The crew at JGM are true Ford fans, and so we found an enthusiastic partner to point us down the proper path to Blue Oval power. Think of this as looking at the horsepower world through Ford blue-tinted glasses. Very, heavy glasses. The Lima series engine is one of Ford's most enduring powerplants. Arriving on the scene in first as the in Lincolns and as the in other big Fords, this series engine survived until , a year run that is astounding given Ford's proclivity for change. This veteran engine can also be found in motor home, marine, and even stationary industrial applications and has been electronically fuel injected since We bought ours for a bit more from Memory Lane mainly as a complete engine including all the accessories because we were in a hurry and couldn't take the time to look for a less expensive version. Adopt one and take it home. The Ford gods will smile on you. The and its cousin are big-bore, short-stroke thumpers. The employs a 3. This makes increasing displacement on the easy enough. The rod length is 6. Most production blocks can tolerate over-bores to 0. If you're willing to search for a thick-wall casting, it's possible to go to 0. If

massive inches are your plan, there are several stroker crank options. You can offset-grind the stock 2. Or plug in any one of three Scat cast stroker cranks. The main journals are massive at 3. Be forewarned that these stroker cranks also generally require a sizeable investment in Mallory metal to balance properly, and that heavy metal will significantly drive up the total cost of a stroker swap. The stock iron heads are a tease. On the intake side, the oval-shaped intake offers an attractive cross-sectional area for solid torque and horsepower potential along with acceptable valve sizes of 2. But just like its small-block cousins, the exhaust ports are some of the most restrictive we've come across. Exhaust port flow is so poor that using a big cam will only kill power across the board. The long duration will hurt low-end torque, while the restricted exhaust ports will choke any chance of making power at the higher engine speeds. Choosing a decent iron production head is a quest to minimize the corks. All iron production heads from to were closed chamber and 76 cc's. These are becoming increasingly hard to find, and we won't even talk about the iron Cobra Jet and Boss aluminum castings-they might as well have been buried with King Tut. In , Ford went to an open 95 to cc chamber, which should be avoided as the worst of all the iron designs because it has no quench area and is therefore prone to detonation. You can open up the exhaust ports on a stock set of heads to improve horsepower potential. But also consider the time and money you will invest in new valves, guides, a valve job, screw-in studs, guideplates, and purchasing all those parts. If it's purely a budget approach, this is still roughly half the price of a set of new Edelbrock heads, for example. On the plus side, you are also going to trim at least 60 pounds off the nose of your car with the aluminum heads. The iron castings each weigh roughly 73 pounds complete while the alloy Edelbrocks come in around 42 pounds each. Besides the Edelbrock castings, there are other heads to choose from as well. Kaase moved the valves to unshroud flow and change angles, and this head is especially powerful with larger displacement engines like a with a big cam. For more details on these heads, log onto jonkaaseracingengines. The company offers both track and street versions that are also worth investigating and are priced competitively with the Edelbrock castings. For a low-rpm torque twister, the system works well. But for higher engine speeds where the horsepower lives, there are a couple of things that need addressing. Ford chose to lube the mains through the lifter galley, which means that the oil must pass through the lifters on its way to the mains and rods. This path is full of restrictions, which both reduces pressure and aerates the oil. Much like the Cleveland engines, the solution is to radically increase oil pressure to the tune of 70 psi. The higher pressure reduces foaming and ensures oil will make it all the way from the front-mounted oil pump back to the rear main. If oil starvation occurs, the rear main and rods will suffer the most. JGM also recommends a solid distributor-gear drive pin like an industrial rivet instead of the hollow roll pin, because the stock pin shears off trying to drive the higher pressures. This pressure also demands a race-style filter to prevent bursting. Of course, this also means being very careful when the engine is cold to limit pressure-induced filter explosions when the oil is more viscous. After dredging a complete out of a '73 Lincoln Continental, we dissected it and delivered the block, crank, and rods to JGM. To create a solid foundation, we decided on also investing in a good short-block with a set of Federal-Mogul forged Speed-Pro flat-top pistons in case we decided to squeeze a little nitrous in the future. These pistons also gave us a pump-gas-friendly compression ratio when paired with the 95cc-chamber Edelbrock heads. Grubbs then supplied a set of rebuilt truck rods using ARP bolts to add a measure of durability. JGM also bored and torque-plate honed the block and oversaw machining our crank down 0. JGM has built a healthy see the Project dyno chart with completely ported iron production heads, but Grubbs reports that unless you enjoy a challenge, the effort really doesn't pay off in terms of the investment versus the ultimate power gain. These heads are intended to use roller rockers, so we plugged in a set of Harland Sharp 1. This brought us to cam selection, and it just seemed a good idea to go with Edelbrock's entire Performer RPM package that uses a streetable flat-tappet hydraulic camshaft see Cam Specs sidebar. JGM then assembled the with its recommended oiling-system changes and bolted the engine to the dyno. This test was performed on Grubbs' own SuperFlow engine dyno, but the cell does not leave room for a complete exhaust system. We also decided to test both Edelbrock hydraulic cams. The Performer-Plus cam is designed for torque while the RPM cam offers more duration and lift for a major horsepower boost. The Performer cam made some awesome torque with lb-ft, but that same short cam timing only managed hp. This spurred the JGM crew to swap in the larger RPM cam to which the responded with a pump-gas-fed peak horsepower at a mere 5, rpm while shaking the floor with lb-ft of torque at 4, rpm. Even in a 4,pound car, this is good enough for low 12s to high 11s depending on the weather and altitude. This motor was incredibly easy to assemble and required no custom parts. Do it yourself in your garage. Bolt it in your favorite Ford and you've got a tire-roaster. The JGM crew also clued us in on a simple valvetrain adjustment on these engines. Rebuilding one of these Lima engines

usually involves removing the block and the heads. If using one of the tall-deck-height blocks, this could involve milling as much as 0. Retaining the fulcrum-rocker system with a shorter-deck-height or milled heads creates excessive lifter preload. Crane makes a kit PN with 0. This minor change accomplishes two things. It is generally worth improved idle quality and more importantly minimizes the amount the lifter can "pump up" at higher engine speeds. While this may appear insignificant, a minimal hydraulic-lifter preload is generally worth power at higher engine speeds. While researching this story, we found a forum on network Find the search button and type in series Ford and you'll get to ford. Its tech forum gives members a chance to ask questions and get answers on these engines and related big-block Ford information. Check it out. Close Ad. They're everywhere, making them a simple score for an easy hp from the Ford Jeff Smith writer Jim Grubbs photographer. What's Out There. Bores and Strokes. Networking At Its Best. Test 1 is using the Performer-Plus Edelbrock cam. Test 2 employed the longer-duration Performer RPM grind. The motor made awesome torque and respectable horsepower with the smaller cam, but it may be a bit too short for the 9. Compression down at 8. JGM wasn't satisfied with hp, so they tried a 1-inch open-plenum spacer and a set of 2-inch headers. Horsepower jumped to and torque improved everywhere from 3, rpm on up, peaking at lb-ft at 4, Run a 3. Cam Specs Adv. Duration 0. Generally, anything around 70 percent or higher is considered good. The exhaust-flow numbers were generated with a flow pipe. RPM TQ HP 4, 4, 4, 4, 4, 5, 5, 5, 5, 5, 6, 6, 6, Avg Share on Facebook Share on Twitter. This is our ci motor built by the JGM crew with 9. This test of The JGM ci Ford featured a Comp mechanical-roller cam and fully ported factory iron heads squeezing The Ford 7. The cubic-inch V8 and an enlarged version displacing cubic inches were first used in Thunderbirds and Lincolns. At first, the was exclusively a Lincoln engine, but when the was discontinued in the early s, the took its place in Thunderbirds, Ford and Mercury cars, and F-Series pickup trucks. When Ford's full-sized cars were downsized in , there was no longer a need for the V8, but it continued as an option in the F-Series trucks and E-Series vans into the s. The Ford cubic-inch, V8 engine has a cylinder bore of 4. The output for engines built before is horsepower at 4, rpm and pound-feet of torque at 2, rpm. The compression ratio is The output for the starting in is horsepower at 4, rpm and pound-feet of torque at 2, rpm. The compression ratio was lowered to 8. After the mids, carburetors were replaced with electronic fuel injection with an output of horsepower and pound-feet of torque. A cubic-inch engine block is 34 inches long, 32 inches wide and 30 inches high. The dry weight without gas and oil is approximately pounds. Ford main bearing caps need to be tightened to foot-pounds, while connecting rod bolts are tightened to 45 foot-pounds. Rocker arms are tightened to 20 foot-pounds, while the oil pump retaining bolt gets torqued to 25 foot-pounds. The cylinder head bolts need to be tightened to foot-pounds and the intake manifold bolts get tightened to 30 foot-pounds. The engine family can be identified by counting the number of bolts that hold down each valve cover. If you count seven bolts, then you have a or V8. All other Ford V8 engines have a different valve-cover bolt count. To differentiate a from a , check the orientation of the thermostat housing on the front of the engine block. If it is pointing upward, it is a Ford 7. Torque Specifications Ford main bearing caps need to be tightened to foot-pounds, while connecting rod bolts are tightened to 45 foot-pounds. Identification The engine family can be identified by counting the number of bolts that hold down each valve cover. The Ford and engines, introduced in , were massive, heavy and for their size surprisingly low on horsepower. The number refers to the cubic inches of displacement, which is the volume swept by all the pistons in the engine. This number is directly linked to the amount of horsepower the engine can provide, but many variables determine the horsepower of an engine, including efficiency, design, and fuel delivery method. Normally, more expensive, larger engines have more horsepower, but this is not always the case. As far as raw power goes, these two cousin engines are surprisingly divergent. The larger put out up to horsepower stock on the year of its introduction, while the only cranked on As the years wore on, both engines decreased in horsepower, coming down to about horsepower by Both engines were part of the Ford family, which was named for the 3. This means that both engines have roughly the same outer dimensions: the is 34 inches by 30 inches by 30 inches, and the is 34 inches by 27 inches by 30 inches. These massive engines certainly weighed plenty, however. The weighed in at pounds, while the was an incredible pounds, living up to its "big block" heritage. Obviously, the physical size of the engine displacement is reflected in the names of the engines. Though both engines began their lives in , the was discontinued in , while the lasted all the way until , seeing use exclusively in trucks. However, in , the underwent a massive change, dropping from a robust horsepower to a paltry horsepower. It was finally discontinued due to demands for a more efficient engine to respond to the newly environmentally aware consumers. This is where most of the difference between the engines is made up. The , with less displacement volume, had a

shorter stroke length of 3. The longer stroke produces more power and also allows for more and better high-performance modifications. Alexander Rudinski has been writing professionally since His work appears on the Nerve website, where he continues to work as a photographer and writer. Rudinski has a Bachelor of Science in communications, concentrating on documentary video, photography and professional writing. He graduated from the University of the Arts, Philadelphia. Production Run Though both engines began their lives in , the was discontinued in , while the lasted all the way until , seeing use exclusively in trucks. Stroke Length This is where most of the difference between the engines is made up. Off-the-shelf stroker kits are commonly available for the engine. This kit consisted of a 4. Any automotive enthusiast would agree that the quest for more power is the true addiction. From simple bolt-ons to hardcore internals such as different bore and stroke combinations tend to fuel our burning desire. Every enthusiast seems to have a passion for a particular brand of manufacturer. This engine was first produced in and 84 years later there are tons of aftermarket parts available for about any engine combination you can think of. Another engine of the Ford family that is still gaining steam is the series, most commonly known as the and Both blocks share the same bore of 4. The has a stroke of 3. Some say that the label of the series came from the crankshaft stroke of the because you could take a block and install crankshaft and pistons and have cubic inches. They both shared a lot of the same internals and there were different levels of performance offered by Ford with changes to the heads, intake, camshaft, and carburetor. The series engine was first introduced in and was produced until Almost 20 years after the end of production, with the help of the aftermarket, these engines are still making huge power today. As an automotive technician, I have had the opportunity to work on several series engines yet never really grasped its full power potential. Several months ago, I had an opportunity to build a drag racing engine and would like to share the experience. Just as with any other project, in order to make big power from a engine you need to start with a good block. This late-style engine is externally balanced the others prior to were internally balanced and uses a crankshaft with slightly smaller counterweights. The counterweights are smaller because the block has deeper cylinders of almost a quarter-inch toward the oil pan. Rumor has it that this was done so that the engine could be used in heavy-duty applications where deeper piston skirts could be used. Advertisement Because of the deeper cylinders, early block internals could be used into the later block, but some clearance tweaking may be needed to clear the counterweights of early style crankshafts. Since internally balanced assemblies are preferred for racing it is better to use an early style block such as the D0VE-A since it would have thicker main caps and may or may not be a four bolt main. But, if you are building a stroker engine the D9TE block may offer more rigidity with the deeper cylinders. One important thing to consider about the series engines is its oiling system. The and do not incorporate priority main oiling. Oil is pumped from the oil pan through the oil filter and into the front main galley of the block where the front main journal and front cam journal are pressurized. From there, oil enters the passenger side lifter valley then to the drivers side lifter valley and then branches down the rest of the camshaft journals and finally to the rest of the main journals. There have been some extensive modifications done to factory blocks to incorporate priority main oiling, but the block will still lack some of the other features and benefits offered from an aftermarket block. Aftermarket blocks are often overlooked because the price may not be as appealing as the prized junkyard block you may have found at a great deal. There are several options available to consider when purchasing an aftermarket block based on the application and future potential of the engine. There are entry level versions that have high nickel content casting, 4-bolt main caps 1 through 5, priority main oiling, and bore size up to 4. Racing blocks have a solid ladder valley tray, Siamese cylinder bores, billet steel bearing caps, and bores capable of 4. The great thing is that these blocks come with a number of options that are available when ordering such as bore size, variety of lifter bore sizes, main bearing size Cleveland main size available and cam bearing size. Advertisement Production cylinder heads for the series engines were cast iron. Each cylinder head casting number has its own level of performance based on its intended application. Here is a list of a few different casting numbers and the application to help guide your project if you choose to use factory cast heads. Even though the intake ports are huge, the intake to exhaust flow ratio is poor. Small porting modifications done on the exhaust side can often help tremendously. C8VE â€" Introduced the first year of the series engine. Combustion chambers were 75 to 77 ccs and valve sizes were 2. The exhaust ports need work as the port has poor flow. D0VE-C â€" Used in the beginning of the model year until the end of Similar to the earlier head casting but suffered from limited airflow and poor exhaust. Valve sizes are 2. These were a great alternative to Cobra Jet castings because they were so plentiful. They offered better exhaust flow and good power in street engines up to 6, rpm. Combustion chamber volumes vary between 71 to 75 ccs. Flows more air than the Police Interceptor cylinder

head and with some port work will make more power. Starting in the early s, Ford Performance introduced several different versions of aluminum cylinder heads for the series engines. Produced as strictly race heads requiring special pistons and intake. This cylinder head never gained any popularity. Step up from the A cylinder heads with capability of horsepower. Require special pistons with a minimal bore size of 4. The cylinder head will require porting with special cast intake, rocker arms, and headers. It is the same cylinder head as the cast iron D00E-R in aluminum form. Had an intake valve size of 2. The only difference was that they were produced with a 1-degree difference in valve angle from the A Because of this difference in valve angle as valve lifts reached above. The intake valve was reduced to 2. MSCJ â€" Produced from to present with 2. Most popular Ford Performance head with redesigned valve angles and locations to reduce cylinder wall shrouding and revised combustion chamber design for centrally located valves. In the aftermarket there are manufacturers of cylinder heads that use similarities of the Ford Performance cylinder heads with other enhancements or revisions. The part number will represent the style of cylinder he ad with these modifications such as the A, B, etc. Being intrigued by the performance potential and availability of aftermarket parts for a we decided to build a stroker version for street use. The basis of the engine build came from a customer who wanted something for a Ford F truck he was restoring in pro-street style. There was not per say a budget for the build, but the customer did want to achieve power along with reliability. Advertisement After looking for on-the-shelf parts we came up with a combination that was quite surprising. We knew our best option was to choose an aftermarket sportsman-style block with four bolt mains, priority main oiling, and a 4. This would be a. Aftermarket cylinder heads have relatively small combustion chambers usually in the mid to low 70s, so the piston would need a 35 cc dish. The bottom end would consist of a forged crankshaft with a 4. The cylinder heads we used had 72cc combustion chambers and with the bottom end combination the compression ended up at For the intake we choose a single plane with a Dominator flange because the customer wanted to use a cfm style carburetor. Other than checking all clearances and having a custom ground camshaft and a nice oil pan the engine was more than enough for this F on pump gasoline. The only custom piece on the entire build was the headers, which had to be fabricated to fit the truck chassis. As you can see from the dyno chart at left, a stroker engine has a lot of merit for performance use. The series engine was a sure win for those individuals who appreciate Ford performance. Magazine Current Issue Past Issues. Connect with us. Advertise Subscribe Contact Us. By Bob McDonald. Take for instance the Flathead Ford V8 engine. Because of the deeper cylinders, early block internals could be used into the later block, but some clearance tweaking may be needed to clear the counterweights of early style crankshafts. Production cylinder heads for the series engines were cast iron. After looking for on-the-shelf parts we came up with a combination that was quite surprising. In this article: Ford , stroker. Watch Engine Builder's latest discussions and explanations. Shop the latest Engine Builder merchandise. Stay up to date by signing up for the Engine Builder newsletter. By Shop Solutions. By Brendan Baker. By Kyle Thompson. Video Series View More Videos. Podcasts Listen To More Podcasts. Buyer's Guide Supplier Spotlight. Learn More. It was a whisper-quiet big-block with abundant low-end torque for large sedans, and it did its job well. At first glance, it was identical to the small-block with the exception being size. And it had cylinder heads a lot like the C small-block designed to flow huge quantities of air and fuel. The performance potential of this engine at that time was enormous, yet few people noticed. In the years since, both Ford Motor Company and the enthusiast have discovered the potential of the series big-block and embraced it like a lifelong friend. It performed very well in the Coke- bottle-bodied Torinos and Cyclones. Aside from rarity and size, the Boss wasn't much to brag about on the street. Mustangs and Torinos with the Cobra Jet turned in better performance numbers in stock trim. And because so few Boss s were produced, they never developed a mainstream following on Main Street. What gave the Cobra Jet its aggressive attitude were cylinder-head port size and a hot cam profile. CJ versions hp were fitted with a Rochester Quadrajet four-barrel carburetor spread-bore design atop a cast-iron intake manifold D0OE-C. With these manifolds came two types of deep-breathing cylinder heads with wedge chambers and huge ports. You'll want to be aware of the D0OE-R casting because it has 2. Port size is also enormous at 2. Where this casting varies is rocker-arm type. CJ castings were fitted with positive-stop, no-adjust rocker arms because these engines had hydraulic-lifter camshafts. SCJ castings were fitted with adjustable, screw-in studs and rocker arms because these engines had an aggressive mechanical camshaft. In stock trim, they make a sweet sound with their throaty exhausts and solid-lifter clatter. The series block was produced three basic ways: standard, Cobra Jet, and Boss So does the four-bolt main Cobra Jet block. You must remove the oil pan to determine which block you've found. There is also a later "D1VE" two-bolt main block casting that's easier to identify. The nice thing about this block is interchangeability. It

can be a or a depending on which crankshaft is used. What's more, it can be stroked to more than ci. Boss blocks were unique "C9AE-E" castings with screw-in freeze plugs and four-bolt main caps. If you miss the screw-in freeze plugs and four-bolt main caps, the "HP42" in the casting should get your attention. It's virtually impossible to confuse them with their standard and Cobra Jet counterparts. All cranks are marked 4U or 4UA. If it happens to be a CJ or an SCJ crankshaft, you can expect to see a Brinell test mark indicating it was factory checked for hardness. After , cranks were marked with a "3Y. The and use the same connecting rod. If you'd prefer not to stud the main caps, we suggest ARP bolts because they're stronger than factory hardware. Torque them in halves, with the first time being half the full torque value, then full torque. Then go back and check your work, twice. Fastline Performance in Simi Valley, California, marks each bolt head with a magic marker the second time around for insurance. Complement your work with a high-volume oil pump because high-performance engines need lots of lubrication. Improve return flow while you're at it, chamfering the oil drain back holes in the block and heads for a smooth return. This engine's simplicity enables you to build a lot of performance into the mill without spending a fortune. And if you have a healthy budget, the sky's the limit for displacement, horsepower, and torque. If you're building a budget series big-block, Ford has given you excellent standard castings and forgings to play with. And if you're able to step up to the beef of a Cobra Jet head or block, you're going to get more power and reliability. The Block We're going to assume you're on a budget with a standard vanilla or engine. Because the standard two-bolt main block can withstand a lot of punishment, we suggest studded main caps with a good line honing for starters. Both are affordable and money well spent. Power On Top When you have a completed short-block, thoughts naturally turn to camshaft, valvetrain, heads, and induction. These components will directly affect the engine's personality. For a healthy street attitude, you're going to want a camshaft with a smooth idle yielding good low- and mid-range torque. High-rpm torque isn't going to benefit you on the street. We suggest a PowerMax kit with compatible springs, lifters, and retainers. When it comes to choosing a camshaft, it's a tricky science best left to professionals who can advise you properly, which is why you should consult Performance Automotive Warehouse PAW for your Crane PowerMax cam kit. For street engines, it's wise to keep valve lift conservative in the. Selection boils down to duration, which is where these cams differ. Duration becomes progressively longer with each type. Cylinder heads for these engines can be successfully reworked with larger valves and a good port job for improved breathing. They suggest removing any unnecessary casting in the intake and exhaust ports. Because Ford heads struggle with unnecessary parasites primarily in the exhaust ports, you can improve airflow dramatically with a good port job. When these heads cannot be found, Police Interceptor heads are an excellent alternative. Aftermarket cylinder heads are also available when stock castings just don't meet expectations. These heads will increase power and reduce engine weight. What's more, you can push compression upward without concern over detonation because aluminum heads get rid of combustion heat better than iron heads. For the street, you need a dual-plane manifold such as the Weiand Stealth No. Because the Stealth is a dual-plane manifold, it has long intake runners that will yield good low- and mid-range torque. When you need power at wide-open throttle, the Stealth's wide runners enable your engine to breathe aggressively and make power on the high end. The Blue Thunder dual-plane manifold from Coast High Performance offers a cleaner look void of graphics with long, wide intake runners designed for the Blue Thunder head. Another option for the series buff is the variety of crate engines, long- and short-blocks available from Ford Racing Technology. You can order the MD remanufactured short-block and custom-tailor this engine to your own specifications. It offers a. If a stroker is more to your liking, the MB promises more torque thanks to TRW forged-aluminum pistons in a. The Cobra Jet ME engine package offers you a complete engine that's ready to install. We're talking a remanufactured. You can expect approximately hp at 6, rpm. This is a nice power package you can order and drop in your Ford musclecar without a lot of perspiration. When we left off last night in our Week To Wicked Mustang LX Sport project, we had just removed the stock engine and transmission and installed most of the Maximum Motorsports suspension. The first step is installing full-length Fox-body Mustang subframe connectors from Maximum Motorsports to our LX hatchback. Readers share the story and pictures of their muscle Mustangs and fast Fords. We apologize for this inconvenience and encourage you to visit How To. Photo Gallery View Photo Gallery. Connect With Us. Stay informed with our Newsletter Sign Up Now. Most Popular. View More Girls. See All News. Sponsored links. Related Articles. Mustang The FE Ford engine was released into production in The earliest applications included use in the short-lived Edsel program. The FE was not a replacement for the Y-block; it was a larger companion to an engine family sharing some design features. In , the Y-block was still considered a current design at only four years old. Starting out at ci, the FE quickly grew in displacement through its first five

years of production, with , , and ci variants followed by the now famous in By , the renowned and the short-lived had been released, and these completed the. This ci FE with It features polished high-riser heads and a Tunnel Wedge manifold with dual-quad carbs. This is about as nice as they come. You can easily build a hp stroker FE engine these days. Case in point, this hp ci is based on the FE and delivers a reliable hp under 6, rpm. No grinding or clearancing is required to assemble the Survival Motorsports stroker kits into an FE block. And as a result, a lot of high performance Ford FE engines history was written in a very short time. The and were dropped after , and the and continued as the only FE engines in passenger-car production from through The FE had been dropped from passenger-car use by , but the and versions remained extremely popular in pickup trucks through the model year. Throughout the year production run, the FE had seen use as a marine, commercial, and industrial engine as well. The high-performance factory engines were the ones that claimed all the glory, but the vast majority of engines were for more mundane applications. The most popular original FE vehicles were full-size family cars and pickup trucks, and these vehicles contain the engine blocks that are used for many high performance engine builds today. The beginnings of the FE performance program took place when Ford split the car lines during the late s, going from one basic platform to many as the market developed. The emergence of the bigger cars coincided with a gain in the popularity of racing. Nationals were held at Detroit Dragway in and , and auto executives were exposed to the rising popularity of the sport. At the same time, NASCAR began the transformation that would take it from being a local-circuit group to a national sport. Television was about to change the way cars were marketed, and motorsports was one of the beneficiaries. Ford responded to the market opportunity with high-performance iterations of the and then the My high-riser entry as campaigned at the Engine Masters Challenge. The engine features a Genesis block, a forged-steel crank that came out of a truck, and a set of Carillo 6. This engine made more than hp on octane pump gas in contest trim with a. The FE performance program started out as upgrades to the passenger-car engines, using strategies that had been employed by hot rodders for several years. Higher compression, multiple carburetors, and dual exhaust were initially enough to get attention. The first of these was the , blessed with a larger bore than the , solid-lifter cams, and optional multiple carbs. Within a couple years the , with a stilllarger bore, cross-bolted main caps, and better cylinder heads, replaced the When discussing professional racing and FE engines, the is going to be the focus of conversation. The was originally released in as a torque-oriented street engine. But in the late s, somebody at Ford finally realized that the low-production and high-strung was not reaching the masses. The response was to blend the readily available and bigger blocks with higherperformance parts, which included heads, cam, and intake. The Cobra Jet package was available from late until It delivered on all points and thus provided a reliable, strong, and still-competitive combination in NHRA class racing. The engine family was slated to replace the FE, but the factory programs surrounding the new engine were short lived, barely making it two years before performance development stopped. Many FE engines were installed in full-size cars, most of them s and s. But the racers got the cars. The powered Galaxie was a competitive package, but the Chrysler cadre had a distinct weight advantage with its smaller cars. The first response was to develop a lightweight factory drag-race version of the powered Galaxie. It included a high-riser version of the engine, along with a variety of weightreduction strategies, including changes to sheetmetal, interior parts, and even the frame. Always rare, and quite valuable today, the lightweights were only the opening act. This FE engine is dressed out for street use in a 7-liter Galaxie. The featured an externally balanced, cast-nodular-iron crankshaft. Because of longer stroke, hydraulic lifters, and reduced compression ratio, the was much more streetable than the Affordable FE engine blocks are a rarity these days. If you see one at a swap meet or on an online auction site, you need to check inside the water jackets as well as the casting numbers to confirm that it is indeed a Some unscrupulous sellers have overbored s and tried to pass them off as s. As the factory horsepower wars heated up, even the lightweight Galaxies were deemed too heavy to run with the mid-sized Dodges and Plymouths with their Hemi power. Ford partnered up with Dearborn Steel Tubing to produce the Fairlane Thunderbolt to regain the competitive edge. While it looked like a road-going Fairlane, the Thunderbolt was a genuine race car. Rear window cranks, windshield wiper, carpeting, radio, heater, sound deadener, and body insulation were all deleted to save weight. Most cars posted quarter-mile times between The next step was a factoryauthorized, dedicated drag-race car: the Fairlane Thunderbolt. It took the lighter-weight, mid-size, Fairlane sedan and installed the highriser engines into about a hundred of them. This included major front-end work to accommodate the large engine, lightweight seats, thin glass, aluminum and fiberglass components, and a race-only rear suspension. Ford did not install the in production Fairlanes until The production Fairlanes from and are both very rare and very competitive cars, with a solid racing history. But like the lightweight Galaxie that

preceded it, it never received the adulation reserved for the Thunderbolt. Something about the almost absurd combination of small car and huge engine makes anything else seem normal in comparison. The Cobra started out as the well-documented combination of a British sports car and a Ford small-block V-8 for road racing. The roadster competed with well-funded efforts from domestic and foreign racers, and the FE, a readily available race engine, satisfied the need for more power. What had already been an attractive sports car morphed into a beauty born of necessity, with broadened and flared fenders for larger tires, side exhausts, and a scooped hood. Brutal in both potential and execution, another automotive icon was born. Today, there are many, many more inspired iterations of the car available than were ever originally made. The was upgraded and altered every year as needed to remain competitive. But while NASCAR served as the engine technology source, the cars themselves were not inspiration for many production performance offerings. Street cars have the big tires on the rear, scoops on the hood, but no numbers on the doorsâ€"a tradition that still holds true today. Throughout the late s, professional drag-race programs evolved and the cars got further from a production basis. These cars and engines are certainly worthy of discussion, impressive by any measure, but beyond the scope for this book. The most famous of the FE-powered cars was never really sold to the public. Ford made a very public and concerted effort to win the 24 Hours of LeMans race in the middle s. Ford put enormous resources behind the effort because the company wanted to break the stranglehold that Ferrari had at LeMans and establish itself on the international racing stage. To start with, Ford used the small-block V-8s to power the GT40 sports racing cars. In subsequent years, the need for more power became apparent. In a situation similar to that of the Cobra, Ford opted for the well-developed FE as a power upgrade to the GT racing program. And the engine delivered; Ford GT40 cars finished in But perhaps the most memorable win came the following year, as legendary American drivers A. This should be the backdrop for comparable fame and popularity on the streets of America, but it never happened. What went wrong? As a dedicated Ford fan and a Detroit-area FE racer since the s, it hurts to say this but it needs to be said. What went wrong is that Ford put everything into the low-volume, high-dollar racing efforts and comparatively very little resources went toward the everyday cars that made up the greatest volume of production. The FE was factory installed or available in numerous car and truck platforms. The full-size Galaxie and sister models was the recipient of most FE production, from the early s right to the end. Most popular among enthusiasts are the â€" models. Ford intermediate cars, the Fairlane, Torino, and Mercury variants from through had the FE as a regular production option. Most were powered. A very few â€" models had a , and the CJ was available in Mustangs and Cougars were often FE equipped from through The and big-block models were nearly all equipped. In , there were a few s, but the CJ was the engine of choice. The hydraulic-lifter version of the was installed in a few Cougars in , but no Mustang has ever been documented, despite 30 years of rumors. Ford pickup trucks carried the FE as an available option through There are probably more FE engines in pickups than in any of the cars. The FE can be installed into any of the cars or trucks where it was an option. Any deserving small-block or 6-cylinder-powered candidate can be converted to FE power using factory replacement components. When new, a powered Galaxie of or earlier was a competitive car on the streets and local tracks. But by the s it was common knowledge that the average powered Chevelle was significantly faster than any car. A Mustang could hold its own, but the majority of FE owners simply lost enthusiasm because they were outgunned every Friday night. They moved on to other cars or other hobbies, and the FE-powered cars were left to sit or be used as basic transportation. Interest from the aftermarket never really took off, so the supply of new parts was not there, and the old factory parts were getting used up and worn out. By the s the FE engine was considered obsolete by all but a few die-hard enthusiasts and racers. No mainstream magazine coverage, no new aftermarket parts, and no real development existed outside of the private effort of a few NHRA Super Stock racers. But there was a difference: the cars. Stock and Super Stock racers running FE power continued to win with no factory support. As people started to repair, reproduce, and emulate those cars, the demand for FE parts began to build. Specialty suppliers, such as Dove, carried the FE torch through the slow years, catering to the dedicated racers and restorers. Demand started to build in the mid s when Edelbrock released a replacement FE aluminum cylinder head. Equally important, there were a lot of candidate engines available from the huge truck population, and there were also a lot of candidate cars to choose from. In , Scat released a caststroker crank for the FE, and Genesis concurrently released the cast-iron reproduction blocks. I built the very first big-inch FE engine that used both parts, topping the ci package with an electronic fuel injection EFI system. It became apparent that this was not a nostalgia piece when it made hp on the dyno with pump gas. Essentially, it was a modern engine with FE architecture. I finished eighth overall out of 50 entrants, and got another magazine article as a result. The Engine Masters Challenge entry was

a with a belt drive, flat-tappet cam, and a single Quick Fuel carb. It made well over hp on octane unleaded. This package consisted of a highly modified truck crank from Performance Crankshaft, a set of Scat 6. A Novi blower on a stroked FE delivers more than hp with roughly 10 pounds of boost. The system runs reliably on 93 octane without risk of detonation. The engine started out with the addition of cross-bolted mains to a factory block, along with custom pistons and a 4. It is topped off with some mildly ported Edelbrock heads and an owner-fabricated blower system. The fuel-injection conversion uses a modified intake with bungs for the injectors, which are welded into place. In addition, a F. This is the most exotic FE engine that Ford built in any sort of numbers. It features a forged-steel crank, forged-steel connecting rods with capscrew fasteners, hemispherical domed pistons, and many other trick parts. The heads flowed an incredible amount of air, featured huge intake runners, and had D-shaped exhaust ports. The FE designation stands for Ford Edsel. This series of engine was first released in and continued in large-volume production until This medium-riser engine has dualquad carbs. It features original exhaust manifolds and trim. Ford offered two iterations of the blockâ€"side oiler and top oiler. In , Ford released the side-oiler block, which routed oil to the main bearings and then to the cam and valvetrain. The top-oiler version sent oil to the cam and valvetrain first and then down to the main bearings. This fuel-injected ci stroker makes more than hp and is equipped with polished heads and intake for showcar use. Starting off with a basic block, we added a Survival 4. Heads were lightly modified Edelbrock pieces, and the cam is a fairly aggressive. Comp Cams F. This is a grueling event covering more than 1, miles and five drag strips over a five-day period. The best overall-average ET wins, and the Mach took home the class win. This is without question the best time in the year history of the FE to be building one for the street. If you liked this article you will LOVE the full book. Click the button below and we will send you an exclusive deal on this book. Here are the 7 largest V8 engines by family that Ford ever built. Designed primarily as a light truck engine, the Boss internal naming only is a CID 6. The engine develops hp and lb-ft of torque. The 6. The deck height was raised significantly to accommodate the increased displacement, but the long rod length was excellent for producing that Ford and its customers sought. The was only ever a passenger car engine with no sporting aspirations â€" it was available only with a two-barrel carburetor and a cast-iron exhaust manifold. It came into being as the block was expensive to manufacture as the cylinder walls were so thin. As a solution, Ford utilized a narrower 4. Not intended for hot rodding, the engine was developed to provide a smooth delivery of power. In mid-year the was replaced by the newer series V8. The Ford engine family the name coming from the 3. The engines were in production between and However, Ford created a crate motor from the block that displaced CID and developed hp straight out of the box. The Super Duty was available in displacements of , and cubic inches. The produced hp and lb-ft of torque. Never intended for use in an automobile they were most commonly found in medium and heavy duty trucks of the time. There was a Marine version called the Seamaster that featured twin turbochargers. Originally designed as a V12 for aircraft applications, the Ford GAA V8 was created by loping off two cylinders on each bank and still utilizing the same 60 degree V angle. The factory-rated output was hp rpm. I have been wrecking cars for as long as I've been driving them, but I keep coming back for more. Two wheels or four, I'm all in. I founded GearHeads. I look forward to watching AutoWise grow as part of the AllGear group. Skip to content. But what is it that makes the side-oiler more exciting than other Ford V8s? These engines took the place of the outgoing Y-block engine which only ran for a few years after replacing the flathead V8. Launched in , the engine actually measured The thin-wall block was cast with a high-nickel alloy and featured a thicker deck to withstand higher compression ratios. A shorter 3. Several improvements were made to ensure the engine could endure sustained high rpm above 5, abuse. Up top, most s used solid lifters instead of hydraulic lifters for improved horsepower figures at high rpm. Steel cranks were also used because they were a little stronger than their cast counterparts. For added durability under heavy loads, the main bearing webs were reinforced and main bearing caps were cross-bolted. For that, Ford needed to reprioritize engine oiling. In the standard engine, now dubbed the top-oiler or center-oiler, oil was pumped to a passage under the camshaft and up to the valve train before oiling the crank. To keep the crankshaft happier at the top of the rev range, Ford added a special oil passage along the left side of the block to direct oil to the crank first, and then the cam and valve train. This new oil passage from th

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e side of the block resulted in its new moniker, the side-oiler. So just how good was this new side-oiler ? The answer: almost too good. With a gnarly Foyt drove to victory in the 24 Hours of

Le Mans. In turn, Shelby ended up replacing some s with the correct if a customer complained. Cast-iron heads with hemispherical combustion chambers and overhead camshafts opened larger stainless steel valves. The two camshafts were connected by a 6-foot-long timing chain. The new heads had a far greater volumetric efficiency at higher rpm than the standard side-oiler, which translated to big horsepower. With a single four-barrel carb, the engine made hp, but two four-barrel carbs, engines were rated a staggering hp at 7, rpm. Gone were the days of optional plus horsepower engines and 10 and compression ratios. But true-blue oval fans will always honor the big iron FE engines of the s and the adrenaline-inducing rumble of these huge-displacement behemoths. Classified Ads. By Ford FE. DIY Coyote X.