

Second Strike

The Newsletter for the Superformance Owners Group

November 15, 1999

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FORD V8 ENGINES HEART AND SOUL OF COBRA HIGH PERFORMANCE

The Ford Engine Families

There are those, and I include myself, who would argue that the engine is the heart and soul of any car, transcending even a beautiful shape in defining the merit of the car. This is certainly true in the case of the admittedly strikingly handsome Cobra, which burst onto the world stage only after Carroll Shelby gave the 10 year old AC Ace a V8 heart transplant.

This will be a series of articles, looking first at the evolution of the Ford families of V8 engines. In future articles, we will look in more detail at the specific families that have found their way into our Cobras - the 351W, FE and 460.

In this article, I will attempt to put Ford's sometimes bewildering array of engines in perspective. We will begin with the grand daddy of all hot rod engines- the Ford flathead, then work our way through the small blocks, then the big blocks.

Bear in mind that Ford for the most part builds passenger car engines, not performance engines. They need a range of engines from small to large in about 50 cubic inch increments to power passenger cars from small to large and slow to fast. Most people are interested in small to large. It is only the lunatic fringe, like you and me, that are interested in slow to fast.

The Ford Flathead V8

From the birth of the Model T in 1903 until the passing of the Model A in 1931, Fords were powered (under powered actually) by flathead 4 cylinder engines producing at most 40 horsepower.

Chevrolet was eating Ford's lunch with their overhead valve inline six. In 1932, Henry Ford introduced the first Ford V8, producing 65 horsepower from 221 cubic inches in its initial incarnation. Overnight, performance that had heretofore only been available to the wealthy with their V-16 Cadillacs and twin-cam 32 valve supercharged Duesenburgs was available to the masses. The democratization of automobile

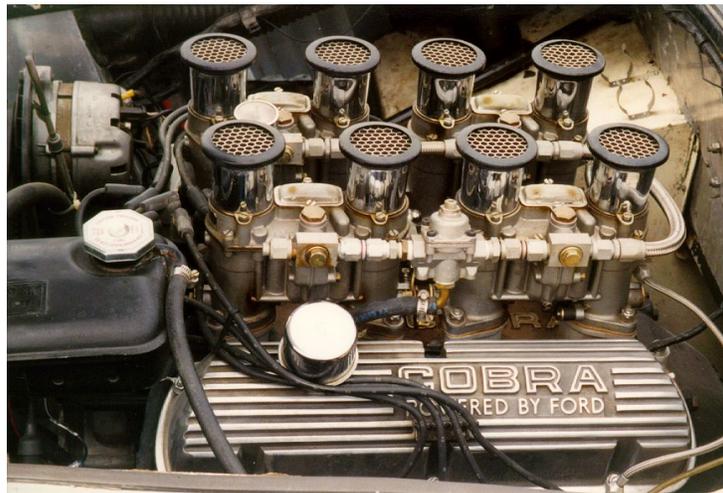
performance was underway.

The Ford V8 cars were highly favored by bank robbers of the Depression era for their ready availability (you don't think they actually bought them do you?), brisk get away performance, and the fact that the 45 caliber slugs from police Tommy Guns would not penetrate the sheet metal, providing a ready made

armored car. Bonnie and Clyde bit the bullet, so to speak, only when the police caught on and sneaked in a weapon with armor piercing capability.

The Ford flathead became the darling of the hop up industry and powered many a street rod, drag machine, and lakester. One Zora Arkus Duntov, father of the Corvette, got started in the performance business making a set of Ardu (Ar - Dun, get it?) overhead valve after market heads for the Ford flathead V8.

Automobile production was suspended during World War II as Detroit turned out trucks, jeeps, tanks, and planes. The demand for higher performance airplane engines gave rise to the greatest period of piston engine research and development in history.



Ford 289 with four two throat Webers. The engine that Carroll Shelby used to "Kick Ferrari's ass!"

The Rolls-Royce Merlin, an overhead cam 48-valve V-12, replaced the Allison engine in the North American Aviation P-51 Mustang and the war turned for the Allies. With this heart transplant, the P-51 could outfight the German ME-109 and FW-190. And more importantly, it was the first fighter with the range to fly to Berlin and back. The bombers no longer had to fly naked into the teeth of the Luftwaffe. Within six months, the Luftwaffe was gone, shot out of the sky. The Third Reich lay open to the allied air armadas that then brought the German war machine to its knees.

Perhaps more than any other machine of its era, the sleek, lean, potent, V-engined Mustang came to symbolize speed and power and beauty. If you saw "Saving Private Ryan", then you remember the scene at the end when they have done all they can do and the tanks are on the bridge anyhow. They are about to die when a P-51 thunders out of the blue and knocks out the tank. Remember how elated you felt? Imagining how those who were there felt. To the foot soldier and the bomber crew alike, the sound of a thundering big bore, slow turning V engine was the sound of salvation. They would never forget it. And they would want to hear it again.

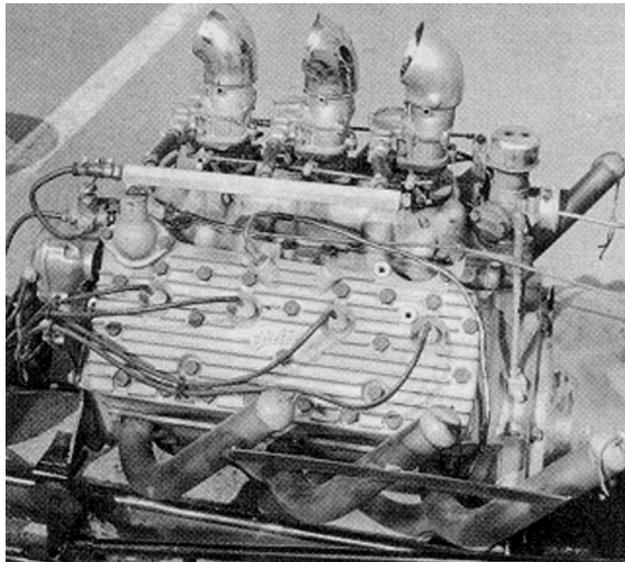
Millions of soldiers, sailors, and pilots came home and brought with them their love for the machinery that had helped them win the war. They wanted more than just transportation from their cars. There were no overhead valve V8's in American cars in 1945, but that was about to change. The engine technology born of war's necessity carried over to automobiles. The big bore, short stroke, overhead valve (OHV) V8 was about to become the definitive American automobile engine.

Cadillac and Oldsmobile led the way in 1949. Chrysler and Imperial upped the ante with their first generation Hemi's in 1951. Even Studebaker announced a nice little OHV V8 in 1951. Lincoln took their new OHV V8 to the Pan American Road Race in 1952 and came home with 1st, 2nd, and 3rd. DeSoto announced their Hemi in 1952 followed by

Dodge in 1953. Buick replaced their powerful four barrel (really) OHV straight eight with a more powerful 322 CID (cubic inch displacement) four barrel V8 in 1953. By 1955 all sixteen American automobile makes had an OHV V8 as their premiere engine.

The inline engine and the flat head engine were suddenly as dead as yesterday's mackerel.

Ford replaced the flathead V8 at the end of 1953 after a 22 year run. The last Ford flathead produced 110 horsepower from 239 cubic inches. The king of the stock Ford flatheads was the 1953 Mercury producing 125 horsepower from 255 cubic inches.



The grand daddy of Ford performance V8's - a maxed out Ford flathead ready to do battle in the quarter mile.

In a moment of insanity during college (which one, you ask), I traded my much loved 322 Buick powered '34 Ford 5-window coupe for a '40 Ford Deluxe Coupe. The '40 had a seriously reworked '48 Merc (all flathead rods had '48 Merc's, didn't you know) - bored and stroked, 3/4 race cam, Edelbrock finned aluminum heads, and two Stromberg 97 two barrels. Nosed and decked. Eight (why always eight?) coats of hand rubbed black lacquer. '39 Ford teardrop blue dot taillights. Rolled and

pleated naugahyde interior. '39 Ford floor shift tranny with Lincoln-Zephyr close ratio gears. The ultimate flathead street rod. Beautiful, and fast looking to be sure. Such an engine should pump out over 200 horses. Maybe, but they were little horses.

With this lament, flatheads will pass from our story.

The Ford Y-Block V8

Ford joined the ranks of the overhead valve V8 cars in 1954 with the introduction of their new Y-Block V8, so named because the block skirt extended below the crankshaft and formed a Y in cross section.

The first Ford Y-Block produced 130 horsepower from 239 cubic inches. This modest improvement over the flathead it replaced did not catch the world by storm. The performance era did not actually start for Ford until 1955 when it announced the "Thunderbird V8", a 292 CID version of the

Y-Block with a Holley four-barrel and 198 horsepower. By 1957 it had grown to 312 cubic inches and 285 horsepower with two four barrel carburetors. With the optional "NASCAR" supercharger, it was rated at 340 horsepower.

The Y-Block was short lived as Ford's premiere engine. It was heavy (don't ask Y), it was limited in displacement, and it did not develop a performance following in the after market. Perhaps it was the rather odd practice of placing the intake ports one over the top of the other in the head, rather than the usual side by side arrangement. In the final analysis, it was Ford's need for more cubic inches to power cars that were gaining weight like a baby whale. The Y-Block was not offered as a performance engine after 1957, though it lived on for five more years in 292 CID two barrel form as the entry level V8 until the 289 killed it for good in 1963.

A short lived engine to be sure. It did make the phrase "Powered by Thunderbird" a hallmark of Ford advertising. A number of Y-Blocks live on in lovingly restored '55-'57 Thunderbirds. An even larger number are probably at the other end of the floats that boaters tie their boats to. They were, after all, nothing if not heavy.

Since this is the last we will hear of the Y-Block, I have to relate a Y-Block story. The year is 1956. My friend Allen Canady has (read: his mother has) a 1956 Ford 4-door sedan with the potent two four barrel engine. My car (read: my mother's car), a surprisingly capable 1955 Buick Century, holds the neighborhood rubber laying record at 337 feet, 10 inches.

Allen is preparing a demonstration of his car's capabilities. He revs it wide open in neutral and snatches the Ford-O-Matic into low. The engine continues to scream, revs dropping nary a wit, and

the car doesn't even flinch. Everyone immediately assumes the two heretofore cooperative drive train parts have parted company. Then we see it, the large column of smoke emerging from the right rear wheel well. The tire is spinning to beat all hell. Smoke engulfs the rear of the car. The car begins to inch forward slowly, revealing a shallow but noticeable trench in the asphalt. After about five feet of trenching work, the rear tire explodes, worn all the way through the cords to the inner tube. Allen has

"Rubber Laying Demo of the Week" hands down. He switched to the spare and drove home where he explained to his mother that he burst the tire when he locked the brakes to miss a small dog. She expressed her amazement that he was able distribute the wear so evenly around the tire. And only one tire at that. Moms are pretty smart.

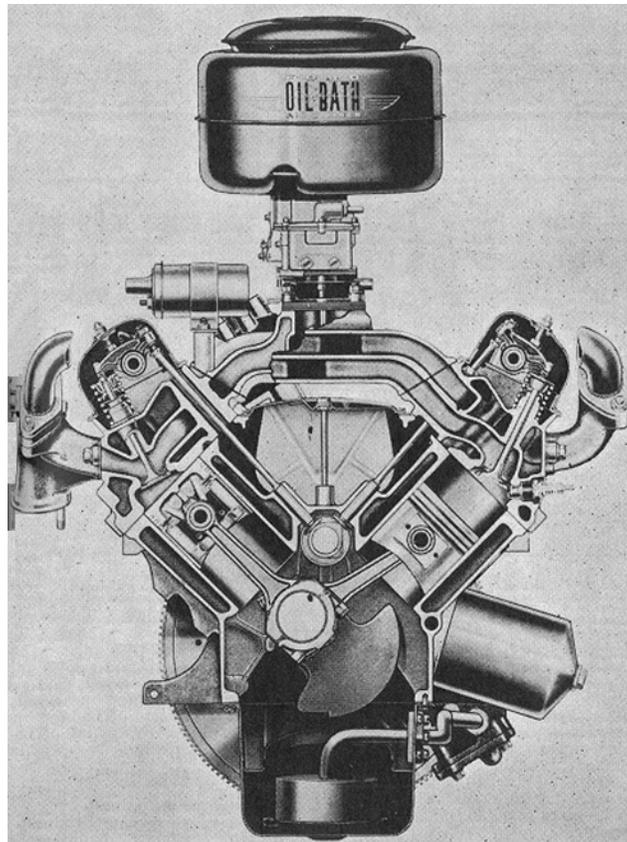
The Ford 90° V (Windsor) Family

In 1958, Ford introduced the FE as its big block offering while the Y-Block filled in as the small block. An OK combination for full sized cars, but the Y-Block was too big and heavy to power the intermediate and compact cars were becoming very popular in the early 1960's.

In 1962 Ford introduced

the radical 90° V family which would become the premiere Cobra engine. Yes, cubic inch fans, you read that right.

The 90° V engine began life in 1962 with 145 horsepower from 221 cubic inches. The name is a bit odd since all Ford V8 at that time were 90° V8's. Perhaps it was because the block was a true V that stopped at the crankshaft centerline. It was a compact design with large bore and short stroke. It employed the new precision thin wall casting technique. These design features resulted in an engine that was substantially smaller and a little under 200 pounds lighter than the FE engine in all cast iron form.



Cutaway of Y-Block shows deep block skirt that gives the engine its name. Observe the over and under intake ports on the right side. Does that oil bath outflow K&N?

The 90° V engine departed from the heretofore standard Ford practice of shaft mounted rocker arms. The lightweight pedestal mounted individual rocker arms and large bore, short stroke design promised big power at high rpms.

When Carroll Shelby was looking around for an engine for his sports car, he first approached Chevrolet who turned him down because they were doing just fine with their Corvette thank you. Ever make a decision you wish you could take back?

He then approached Ford. The Y-Block and FE were both too large and too heavy for the AC Ace chassis. However, the new light, compact, powerful 90° V engine was a natural for the existing AC engine bay. It was shorter and only about 15 pounds heavier than the 2 liter Bristol six. In fact, it was lighter than the 2.6 liter Ford inline six that replaced the Bristol. It was, as they say, a marriage made in heaven.

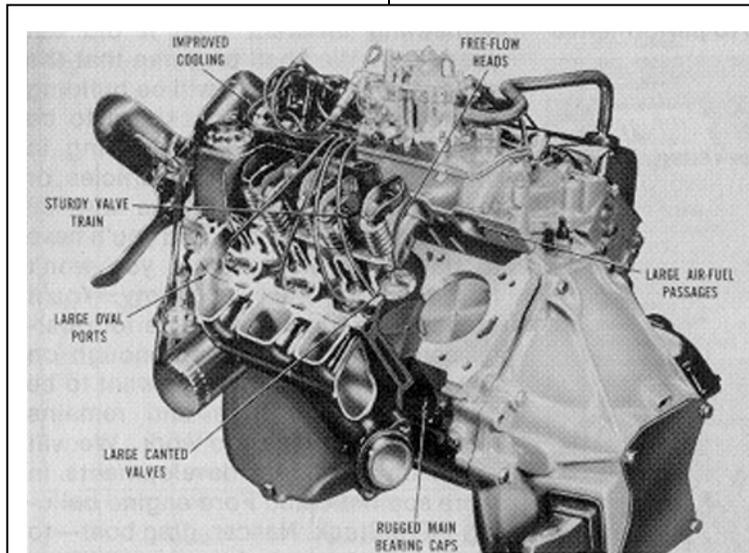
The original plan was to use the 221, already 100 cubic inches larger than the Bristol engine. However, with a bore increase from 3.50 to 3.80, the 260 was out before it was time to stick the first engine in the car. A Dean Moon massaged 260 producing 260 horsepower powered the very first Cobra. It was quickly put into the hands of the motorcar press. In a September 1962 Road & Track road test, the prototype 260 Cobra ripped through the quarter mile at 112 mph and set the press on their ear and the world on notice. This car would be a contender.

The marriage of an American engine with a British chassis to produce a world beater is eerie in its similarity to the equally successful marriage of a British engine with an American airframe just 20 years earlier. How ironic that the American engine came from a Mustang and the British engine went into a Mustang.

The first seventy five Cobras had the 260 engine.

The bore quickly went from 3.80 inches (260 CID) to 4.00 inches (289 CID) while the stroke remained at a short 2.87 inches. Ford announced the 271 horsepower High Performance (HiPo) version and it became the standard Cobra engine for the balance of the small block run. The 289 powered Cobra roadsters and Daytona Coupes were responsible for the bulk of the Cobra competition victories, all of the Le Mans victories and the World Championship in 1965.

However, I digress. The Cobra (and GT-40) successes will be covered in more depth in an upcoming separate article on the 90° V family.



The 351C was the culmination of a decade of high performance engine design. This Ford publicity photo shows the canted valve head design. Emerging fuel economy and emissions standards lead to its early demise.

The 90° V, with its light weight and compact size, was a natural for the new Mustang, announced in 1964. It was in the Mustang that it found its popular performance following. The 1965 Mustang GT convertible with the HiPo 289 is considered by many to be the most desirable Mustang of all time.

The 90° V was stroked to 3.00 inches in 1968 to become the 302.

In 1969, Ford announced the Boss 302 Mustang targeted at winning the Trans Am cup. The Boss 302 engine had four bolt mains and the new cylinder head design introduced with the 385 engines. These radical, canted valve cylinder heads with cavernous ports were only offered in '69 and '70 on the 302. Too big for the street with only 302 cubic inches.

In 1974, Ford announced the Pinto based Mustang II with no V8 option. A decade would pass before the 302 would return in a performance role.

Ford returned to its senses in 1984 with the first four barrel Mustang in a decade. The 5.0 - "Five Oh" - Mustang, with its performance roots reaching back to the HiPo Mustang, small block Cobra, and the GT-40 of the 60's, became "The Street Machine" for the 80's and the 90's.

The other member of the 90° V family is the 351W or Windsor engine, so named because it was cast in the Windsor, Ontario, foundry. This distinguished it from the 351 Cleveland, part of the Cleveland family that was cast in the Cleveland, Ohio, foundry. This distinction gives the 90° V family its more commonly known nickname, the “Windsor” family.

The 351W was introduced in 1969 to fill the gap between the 302 and the smallest FE, the 390. The 351W is actually a 352, having exactly the same bore and stroke as the FE 352. Perhaps Ford called it a 351 to avoid confusion. In vain, as it turned out, when the 351C was announced. Ford offered a 290 horsepower high compression four barrel version of the 351W. It was superseded as Ford’s mid sized performance engine after only one year by the 351C. It would live on as a lowly two barrel engine for fifteen years until tapped for performance duty in fuel injected form as the potent engine for the SVT Lightning truck and the SVT Cobra R of the 1990’s.

The renaissance of the 302 has been a boon for the 351W as a performance engine. Blessed with a robust bottom end, the 351W only needed breathing

capacity to become a true performance engine. Good lungs have come in spades as a result of the popularity of the 5.0 Mustang with which the 351W shares heads and cams. Modern head and cam design make it possible for a well built but streetable 351W to run with the racing 427’s of yesteryear.

I had an Ivy Green metallic 1965 Mustang GT convertible with the 225 HP 289 and a 4-speed. In a moment of taking family responsibility much too seriously, I sold it to buy a Pinto “Woody” station wagon. May I get run over by a FE powered dump truck if I ever get that serious again. The Pinto was replaced by a 1979 302 Mustang with many secret moods that kicked major Corvette butt in SCCA Solo II BSP. My current Mustang is a 1986 “Five Oh” GT convertible.

The 335 (Cleveland) Family

NASCAR replaced World War II as the driving force in piston engine development. As we will see when

we get to big blocks, Detroit thought nothing of developing new engines for NASCAR, then looking for a car to put them in to meet NASCAR’s production status requirements. Engines developed for NASCAR were used in other forms of racing to be sure, but NASCAR was the driving force.

When NASCAR announced that maximum displacement would be dropped to 358 CID, Ford developed another new engine to meet that requirement. The 351C, nicknamed Cleveland, was introduced in 1970. It was the heart of the ‘71 and ‘72 Boss 351 Mustangs.

It was a new design, sharing no parts with the barely one year old 351W.

The 351C block was smaller than the 351W (9.2 inch deck height vs. 9.5) with the four bolt main bearings and smaller main journals for the sustained high rpm’s of NASCAR. The 351C used the large port, canted valve heads from the Boss 302 on the new 351 CID block.

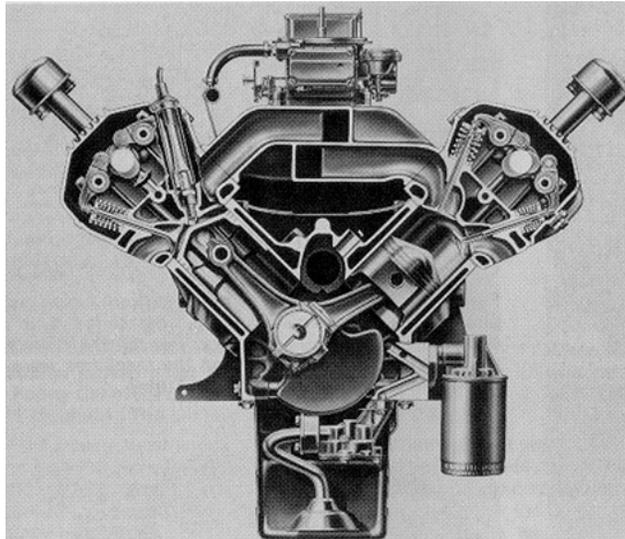
The right engine at the wrong time. Buyer interest (as least Detroit’s opinion of buyer interest) was moving from performance to economy. As a performance engine, the

351C lasted only four years, 70 to 73. As a NASCAR engine, the 351C has remained Ford’s mainstay to this day.

By virtue of their common ancestor, the Boss 302, the 351W and 351C did share bore spacing, head bolt location, and valve sequencing (EIEIEIEI). As a consequence, the heads are interchangeable with minor modifications to cooling passages.

An entire wing of the Ford hop up industry devoted itself to the transplanting of 351C heads onto the readily available and inexpensive 351W block. Over the years, the Ford SVO 351 competition blocks and heads have blended the best of the 351C and 351W into what is now a “Clevor” offering. Along with the popularity of the Mustang 5.0, this has been an important part in the resurgence of the 351W as a performance engine.

The hot 351C had two rather pedestrian siblings. The 351M and 400M two barrel engines lived on as



Ford’s all-time horsepower champion - the 616 HP Single Overhead Cam 427 Side Oiler.

better suited to the low compression, low performance era that began at the end of the 1973 model year. The 400M is worthy of note as a source for stroker crankshafts for the 351W.

There is one original Cobra with a Cleveland engine. Carroll Shelby himself has a 351C powered Cobra with an automatic transmission.

The Ford FE Family

Having followed the small blocks up through the 1970's, let us back pedal to 1958 and pick up the big blocks. The Y-Block was replaced by the FE as Ford's performance V8 in 1958.

The FE, so named because it was introduced to power both the Ford and the new for 1958 Edsel, shared the basic Y block design with its predecessor, but was a larger block with significant growth capacity.

The FE was announced in two displacements, the entry level 332 CID two barrel engine producing 240 horsepower, and the performance oriented 352 CID four barrel engine producing 300 horsepower. Quite a jump from the 110 horsepower flathead of just five years earlier.

In 1960, Ford introduced the Starliner, a very sleek semi-fastback 2-door hardtop, powered by a very potent 360 horsepower version of the FE 352. The trade press borrowed one off of the Young Ford showroom floor here in Charlotte, took it to Charlotte Motor Speedway, and clocked 150 mph. It set off a shock wave throughout the automotive world. Just 10 years before, in 1950, a car that would "do the ton" (100 mph) was a fast car. And now anyone with the price of a Starliner could outrun a Ferrari, a fast Ferrari at that.

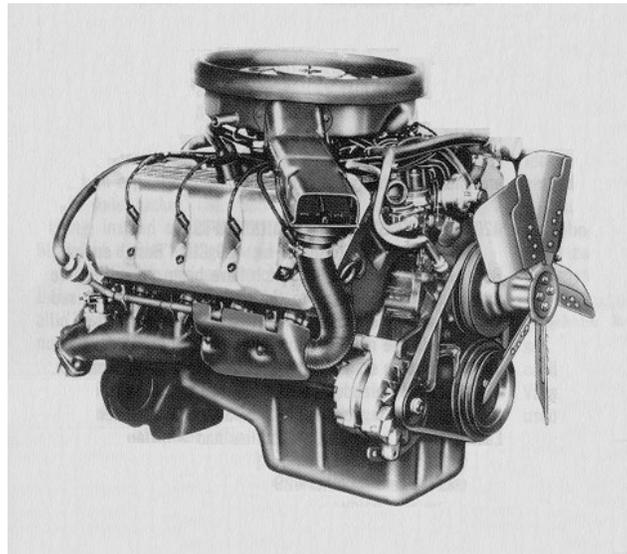
In that same 10 year period, our military completed the transition from piston engined fighters like the P-51 Mustang and F4U Corsair to the Mach 2.2 F-104 Starfighter and F-4 Phantom. It was the *Golden Age of Speed*. No wonder cars took on the vertical tails of their supersonic soul brothers.

The FE was Ford's premiere performance engine

from the late 50's through the late 60's.

Although the FE had grown to 406 CID and 405 horsepower by 1962 when Shelby was hatching the Cobra, it was too large and too heavy for the existing AC Ace chassis. The FE was seriously considered only when it became obvious in 1964 that more displacement would be needed to counter the coming big block Corvette.

The most famous incarnation of the FE was the 427 Side Oiler built for NASCAR. When Ford and Shelby went looking for an engine to power the big block Cobras and GT-40's, the Side Oiler got the call.



The Boss 429 Hemi was Ford's answer to Chrysler's legendary 426 Hemi.

The Cobra chassis had to be redesigned, strengthened, and enlarged to handle the FE's power, size, and weight. The body had to be widened to handle the larger engine and the wider tires needed to handle the additional torque. The decision was made, and history confirms that it was a good one, to make the new 427 body resemble the existing 289 one.

A 427 Cobra roadster with a 427 Side Oiler and a pair of four barrel Holleys busted the clocks at 118 mph in the quarter in a November

1965 Car and Driver road test. This Car and Driver road test cemented the Cobra legend started by the Road & Track 260 road test a couple of years earlier.

In 1966, Ford introduced the 428 with less bore, more stroke, and hydraulic lifters. It was a more tractable engine and far less expensive than the NASCAR bred 427 Side Oiler. It was also down on power - 345 vs. 425 for the 427. While the exact number is uncertain, it is generally believed that the majority of 427 Cobras actually had 428 engines in them.

Road tests subsequent to the legendary Car and Driver test typically give a quarter mile trap speed in the neighborhood of 106 mph. Quick, but not 118 mph. Perhaps it was the 428 substitution.

Since Ford's primary focus for the 427 was NASCAR, the FE continued to be developed after the Cobra went out of production. In 1965 Ford

announced the ultimate 427, the rare but potent 427 SOHC or single overhead cam. It was rated at 616 horsepower at 7000 rpm and was intended to whip the new Chrysler 426 Hemi on the NASCAR ovals. NASCAR balked and it became primarily a drag racing engine. It was only available as parts over the counter at Holman-Moody here in Charlotte. The cost was \$2,500. A surprising number of people made the purchase. I bet you wish you had bought a couple. I wish I had.

Ford introduced the 385 family as the next generation of big block in 1968. The 385 family and the FE family co-existed as performance options for the Mustang from 1969 to 1971. The FE was dropped as a passenger car engine at the end of 1971 after a 14 year run. The 390 continued until 1976 in the F-100 truck.

A full article will be devoted to the famous FE engine family in an upcoming issue of Second Strike. Bill Parham, Mr. FE himself, has agreed to write it. If you know Bill, you know to prepare yourself for UPS delivery of that newsletter.

The 385 Family

The FE engine was more than competitive with the 348 CID and 409 CID dump truck engine that Chevrolet was passing off as a performance engine. However, when Chevrolet introduced, then withdrew, then re-announced the Mark IV Mystery Engine, the handwriting was on the wall.

Everyone's target was the legendary second generation Chrysler 426 Hemi, which produced big power with its opposed valves and large, straight ports. But the Hemi head was wide, heavy, and expensive to build. The opposed valves required a complex and heavy valve train. The new Chevrolet heads got some of the airflow advantage of the Hemi by moving the valves closer to their respective ports, then tilting them to better align the valve heads with the port flow. The resulting head was not as wide or as heavy as a Hemi and the valve train was lighter and simpler. Because of the canted valve design, the heads were nicknamed "porcupine" and "semi-hemi".

The FE, with its shaft mounted rockers, inline valves, and restrictive ports, was not going to be competitive.

In 1968, Ford introduced the 385 engine family. It used the same thin wall casting technique introduced with the 90° V family. It had more bore and stroke capacity than the FE, and was only about a hundred pounds heavier.

It used the canted valve, large port head design first seen on the Chevrolet Mark IV engine. This design subsequently found it way to the Boss 302 and from there to the Boss 351 engines.

The 385 was introduced in two displacements, 429 CID and 460 CID. The 429 met the displacement

limit for NASCAR and was the basis for the high performance versions of Ford's intermediate and pony car offerings. It had a huge 4.36 inch bore and relatively short 3.59 inch stroke. It replaced the 427 as the NASCAR engine of choice for the Ford teams.

In 1969, Ford introduced a 429 Hemi to compete directly with the dominating Chrysler 426 Hemi. With aluminum heads and magnesium rocker arm covers, it was a good bit



The DOHC Modular V8 in the SVT Mustang is one of the finest V8's ever produced. The physical resemblance to the Boss 429 has to be intentional.

lighter than the standard 429, which had iron heads. To get the requisite number on the street so that NASCAR would certify it as a production engine, Ford stuffed this monster engine in the 1969 Mustang and the Boss 429 was born. Around 1,000 were produced in 1969 and 1970. On specifications alone, the Boss 429 is a serious contender for the title of greatest Ford performance car of all time.

Ford used the canted valve heads for 429 Cobra Jet and Super Cobra Jet, high performance options for 1970 and 1971.

The 429 was no long required as a separate engine when NASCAR lowered the displacement limit to 358 CID. The 429 was dropped and the 460 continued alone. The 460 was the "big car" engine. It has the same 4.36 inch bore and a still relatively short 3.85 inch stroke.

The 460 has a strong following as the Ford big block competition engine. Although not an original Cobra engine, the 460 is a popular choice for Superformance Cobras. The 460 will be featured in an upcoming Second Strike article.

The Modular Family

Large bore engines such as the 302, 351, and 460 are doomed by tightening emission standards. They too are passing, replaced by the Modular engine family.

It is so named because its modular design allows it to meet widely differing requirements by varying the stroke and number of cylinders to meet displacement requirements from a small four to a large V10. Only the 4.6 V8, 5.4 V8 and 6.8 V10 are currently in production. Typically the engines are fitted with SOHC (single overhead cam) heads with two inline valves per cylinder.

The SVT version of the 4.6 V8 is one of Ford's very best performance engines ever. It is fitted with aluminum DOHC (dual overhead cam) heads with four valves per cylinder, a deep skirt aluminum block with six bolt cross bolted mains, a forged steel crankshaft, and sinter-forged steel connecting rods.

The Modular 4.6 V8 in both SOHC and DOHC forms has replaced the 302 in the Mustang. The 1999 DOHC SVT Mustang with independent rear suspension is surely a top contender for the best Mustang ever.

The Modular 6.8 V10 is replacing the 460 in truck applications.

Which brings us up to today and the end of this tale. We will pick the trail up again next time with more on the original Cobra engine, the 90° V, followed by the FE and 385 families in future issues.

Ford V8 Engines - Weight and Size Comparison

| Engine | CID | Width | Length | Height | Weight (1) | Weight (2) | Bore | Stroke | Bore spacing | Deck Height |
|-----------------------|-------|--------|--------|--------|------------|------------|-------|--------|--------------|-------------|
| 90° V Family | | | | | | | | | | |
| 260 | 260.4 | 24 | 29 | 27.5 | 460 | 410 | 3.800 | 2.870 | 4.380 | 8.206 |
| 289 | 288.5 | 24 | 29 | 27.5 | 460 | 410 | 4.000 | 2.870 | 4.380 | 8.206 |
| 302 | 301.6 | 24 | 29 | 27.5 | 460 | 410 | 4.000 | 3.000 | 4.380 | 8.206 |
| 302 Boss | 301.6 | 24.5 | 29 | 28.5 | 500 | 444 | 4.000 | 3.000 | 4.380 | 8.206 |
| 351W | 351.9 | 25 | 29 | 29 | 525 | 475 | 4.000 | 3.500 | 4.380 | 9.503 |
| 335 Family | | | | | | | | | | |
| 351C | 351.9 | 25.5 | 29 | 29 | 550 | 494 | 4.000 | 3.500 | 4.380 | 9.206 |
| 351M | 351.9 | 26 | 29 | 29 | 575 | 519 | 4.000 | 3.500 | 4.380 | 10.297 |
| 400M | 402.1 | 26 | 29 | 29 | 575 | 519 | 4.000 | 4.000 | 4.380 | 10.297 |
| FE Family | | | | | | | | | | |
| 352 | 351.9 | 27 | 32 | 29 | 625 | 581 | 4.000 | 3.500 | 4.630 | 10.170 |
| 390 | 390.4 | 27 | 32 | 29 | 625 | 581 | 4.052 | 3.784 | 4.630 | 10.170 |
| 427 | 425.8 | 27 | 32 | 29 | 625 | 581 | 4.232 | 3.784 | 4.630 | 10.170 |
| 427 SOHC | 425.8 | 32 | 34 | 30 | 680 | 604 | 4.232 | 3.784 | 4.630 | 10.170 |
| 428 | 427.4 | 27 | 32 | 29 | 625 | 581 | 4.132 | 3.984 | 4.630 | 10.170 |
| 385 Family | | | | | | | | | | |
| 429 | 428.8 | 27 | 34 | 29 | 720 | 634 | 4.360 | 3.590 | 4.900 | 10.300 |
| 429 Boss | 428.8 | 30 | 34 | 30 | 635 | 635 | 4.360 | 3.590 | 4.900 | 10.300 |
| 460 | 459.8 | 27 | 34 | 29 | 720 | 634 | 4.360 | 3.850 | 4.900 | 10.322 |
| Modular Family | | | | | | | | | | |
| 4.6 SOHC | 280.9 | 28.625 | 28 | 26 | 529 | 529 | 3.552 | 3.543 | 3.937 | 8.937 |
| 4.6 DOHC | 280.9 | 30 | 28 | 29.875 | 535 | 535 | 3.552 | 3.543 | 3.937 | 8.937 |

Dimensions and weights (1) are from the 1987 Ford SVO catalog except as follows: The Modular engine dimensions are from the 1997 Ford SVO catalog and the weights were provided by the Ford SVO hotline. All weights and dimensions are typical and include accessories, air cleaner, oil filter, water pump, fan, exhaust manifolds, but not the bell housing. Serpentine belt systems would be somewhat shorter. The weights and dimensions will vary somewhat depending on the installation.

(1) Weights are believed to be for cast iron block and heads and aluminum intake manifolds except as follows. The 429 Boss has aluminum heads. The 4.6 SOHC has aluminum heads. The 4.6 DOHC has aluminum block and heads.

(2) Weight for aluminum heads. Weights in *italics* are estimated based on the difference in weight of the heads in cast iron and aluminum.

Ford V8 Engines in the Golden Age of Speed

| Family | CID | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | Until |
|---------------------|-----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------|
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| Windsor | 260 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 289 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 302 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1998 |
| | Boss 302 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 351W | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1996 |
| 385 | 429 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Boss 429 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 460 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1996 |
| 335 | 351C | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cleveland | 351M | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1985 |
| | 400M | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1981 |
| Cobra | 260 & 289 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 427 & 428 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Golden Age of Speed | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

The Golden Age of Speed began for Ford in 1955 with the “Thunderbird V8” and ended with the reaction to emissions and fuel economy standards in 1974. The Cobra was squarely positioned in the middle of this period.

References

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|---|---|

with his bookstore on wheels, so you may have run into him. He has an outstanding collection of titles on all makes of performance cars. I couldn't find the Friedman book at either Amazon or Barnes & Noble.com and he had it on the shelf. If you have a book in mind, send him an e-mail or call.

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RUN AND GUN DRIVER'S ED - ADVANCED

Charlotte (Lowes) Motor Speedway
June 5th 1999

The outstanding success of Dennis Olthoff and Doug Reed in the One Lap of America interrupted our ongoing Run and Gun story. The first practice event, which was reported in *Second Strike*, Volume 2, Number 2, was a skid pad and autocross event in the parking lot of Charlotte Motor Speedway.

For our next event, the Olthoffs turned up the burners. We were inside the track this time on the infield oval circuit.

We invited a local Mustang group to run with us to spread the camaraderie (and the track rental). The cars were divided into seven groups of more or less six cars.

Group 1

| | |
|---------------|-------|
| Bill Garrett | SP134 |
| Bob Jordan | SP181 |
| Jerry Mullins | SP210 |
| Carl Grover | SP233 |
| David Sugg | SP239 |
| Kenny Brown | SP285 |

Group 2

| | |
|----------------|-------|
| Carlton Broome | SP125 |
| Dick Abbott | SP195 |
| Tony Spence | SP197 |
| Mike Stenhouse | SP218 |
| Larry Miller | SP299 |
| Jerry Witt | SP410 |

Group 3

| | |
|----------------|------------------------|
| David McRae | SP151 |
| Rod Waltermann | SP227 |
| Rick Pearce | SP313 |
| Jimmy Smith | SP382 |
| Billy O'Briant | SP453 |
| Kerry Heagle | Blue Cobra from Brazil |

Group 4

| | |
|----------------|---------------------|
| Dennis Olthoff | SP116 (One Lap car) |
| Lee Brock | SP427 |
| Sammy Bailey | SP427 (Lee Brock) |
| Kurt Sells | Factory 5 Cobra |
| Jim Bridges | Mustang |
| Andy Watts | Mustang |

Group 5

| | |
|------------------|---------------------|
| Bruce Weber | SP187 |
| Barry Gupton | SP281 |
| Michael Caveness | SP311 |
| Don Kirby | SP434 (Cindy Kirby) |
| Woody Woodruff | SP465 |
| Jim Coleman | Midstates Cobra |

Group 6

| | |
|------------------|---------|
| Bobby Strunk | Mustang |
| David Snow | Mustang |
| Ed Jarvis | Mustang |
| Greg Anderson | Mustang |
| Mark Tcherkezian | Mustang |
| Russ Howell | Mustang |
| Wade Brown | Mustang |

Group 7

| | |
|------------------|---------------------|
| Lisa Waltermann | SP227 |
| Annette Langdon | SP233 (Carl Grover) |
| Kirk Otey | SP171 (Olthoff car) |
| Barry Gupton III | SP281 |
| Cindy Kirby | SP434 |
| Orvis Andrews | Mustang |
| Tom Price | Mustang |



Bob Jordan in SP181 sneaking up on David Sugg in SP239 and Bill Garrett in SP134 in Turn 4 in the hotly contested Group 1.

A few (unnamed) members of Group 1 suggested that the participants were grouped according to skill (speed) and Group 1 was of course the pros.

A few (also unnamed) members of Group 2

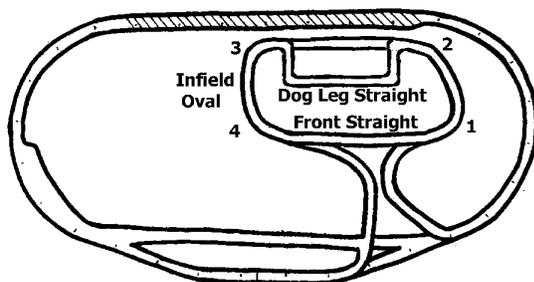
suggested that Group 1 was the guys most likely to cause damage to themselves or others and were gathered together for everyone else's protection. Group 2, while every bit as fast, was more likely to finish and therefore was the true "fast" group.

Others (also unnamed) suggested that the Mustangs were grouped together to avoid embarrassment. Just whose embarrassment was uncertain. A couple of the Mustangs were some kind of hot.

Yet others (yes, unnamed) suggested that Lisa, Annette, and Cindy were grouped together to avoid embarrassing the hot dogs in Group 1.

No one suspected for a moment that the selection was in any way random.

Enough politics. The road course in its entirety includes most of the banked oval and an infield section. The course we used is the infield section of the road course. Since the infield section loops back around, it is a clockwise circuit when taken by itself. The course is roughly oval with a dog leg in the back straight to keep it interesting. We ran the course from the start in turn 3 to the dogleg, turn 2, turn 1, front straight, turn 4, and back to turn 3. This infield oval layout is a little under 0.7 miles around.



From the starting line, it is a short sprint to the dog leg. A hard right into the dog leg, a short sprint and a hard left. This left is a great place to practice tail out cornering techniques. The dog leg straight is a short one tenth of a mile, but the Cobra can reach way into third before breaking hard for the left then stab throttle, stab brake, hard right to get back to the oval just as it breaks right for turn 2. Turn 2 is an uphill right hand sweeper with a good bit of tightening in turn 1 before heading down the front straight.

The front straight is a trip! Full throttle third gear acceleration into a dip then an off camber rise over a hump that lifts the car enough to get the rear wheels spinning at 90mph and back into a dip that hides turn 4. It takes some guts to keep the pedal to the metal, but 100+ mph is attainable. Who can look at the speedometer with the turn 4 guard rail looming ahead? Jump on the binders and bring it down to 60

for Turn 4.

Turn 4 is constant speed. Turn 3 blends with the turn into the dogleg, forming a long decreasing radius turn. It requires trailing throttle and braking and downshifting while tightening the turn. Great heel and toe practice. Just the ticket to cause a Cobra to swap ends. And a lot of people did. Including me.

Spins happen. The secret, as always, is to complete the spin headed in the right direction without stalling or hitting anything. Practice this maneuver. It is important.



Somewhere in that cloud of dust and smoke is Dennis Olthoff in SP116 in Turn 3 demonstrating the spin recovery techniques that have made him a legend in his own time. Photo by Kerry Heagle.

We only had six or seven cars on the track at a time and they were released at regular intervals so the spins were solo events executed without harm.

After we got our bearings, some of us took our spouses for a few laps. Pat (my wife) was brave enough to try so I gave her the best ride I could. On the fourth lap, she told me that it was time to stop. Actually, she said, "If you don't stop right now, I am going to throw up in your car!" I knew what she meant. I think she did well. A Cobra is capable of tremendous acceleration, braking, and cornering forces - like the best carnival ride ever. If she were driving and I were the passenger, I would have thrown up after three laps.

Several people ran at random. Bob Olthoff put in some laps in the "race car" (SP245) and the One Lap car (SP116). Martin Deese drove a Florida Highway Patrol Mustang in the afternoon sessions. Mark Ray drove what must be the ultimate sleeper - a Ford Crown Vic with the SVO blower on the 4.6 SOHC engine. Mark organized the Mustang crowd. He is

the proprietor of *Mark Ray Motorsports* and has put a number of very hot Windsor powered vehicles on the road and the track. Barry Gupton turned everybody in his family loose in his car. Jimmy Witty joined in the camaraderie, but stayed off the track. Fred Daly did an outstanding job as Clerk of the Course as did James Farris as flagman. Many thanks gentlemen! James' son Corey drove his yellow Mustang.

It was a long day. We got in about eight hours of track time divided among seven groups. I got in over a hundred miles of track time, which is a bunch.

As much fun as the racing was, the banter and antics in the pits were just as good. The folks who drive these Superformance Cobras are as much fun as the cars themselves.

SAAC-24

Michigan Speedway
June 25th - 27th 1999

Story and Photos by Ross Weaver (SP236)

It was a typical summer day in Michigan, except that the air was soon to erupt in an orchestra of sight and sound. That orchestra was the SAAC-24, held at Michigan Speedway.

As we arrived on Friday morning, driving through the tunnel that runs underneath the track, my adrenaline started to build. You could hear the thundering NASCARS running on the oval. For a fee of \$340, you could get behind the wheel of a NASCAR and run the track. The session included classroom, chalk talk, practice lapping, and two 4-lap runs. What a great way to start the weekend. I made the mistake of not signing up for this event, but I will not let that happen again.

After going through registration, I headed over to my assigned garage and started to inspect my car before taking it over to the tech inspection. This is very important, because #1, it is required, #2, your life depends on it. After passing inspection, we headed back to the hotel for the dinner program.

Carroll Shelby was in attendance, as was Bernie Ktrezschmar, one of the mechanics from the original Shelby American factory. Both relived some of the humorous stories from the past. You could tell from the way that these two were carrying on, that building these cars was truly a passionate endeavor. Herlita Natividad, director of the Carroll Shelby

Children's Foundation, also spoke of the work the foundation has done this past year and their goals for the future. They would like under-privileged children in need of an organ transplant to have the same care as those more fortunate.

Saturday, another perfect sunny blue sky day. The day I've been looking forward to since I signed up in January has finally come. This is my first outing on a track. The chance to see what these cars can do. My friend Kim Schachinger arrived early to get his car (SP447) tech'ed for the track. Kim, who has been a quadriplegic for 15 years, has not let that get in the way of having fun.

Kim's car was built as a hybrid. It is basically a 427 S/C, with a glove box, an ashtray, and under the car exhaust. He also has hand controls and an automatic transmission. Kim was just as anxious as I was to get out on the track.

There were five run groups for the day, A-E. E being the novice group, and each group increasing in skill level up to A. Kim and I were in Group E. We lined our cars up in the hot pit area until the previous group came in. Then we were given the go a head. We were told to take the first couple of laps at a leisurely pace until we felt comfortable. Each time as we ran through course, we gradually became more at ease. I was impressed by the way these cars handle the turns.

After going through four 15-min. sessions, it was now my wife's turn at the wheel for the ladies session. She had been anticipating her moment as long as I had mine. We both agreed that we would definitely have to do this again.

The eye candy for an autophile was overwhelming. The Cobras, real and replica's, Shelby Mustangs, Pantaras, Tigers, GT-40's, what a sight. Speaking of GT-40's, Bill Ostrower brought his original. Bill is a Superformance dealer from Freeport, New York. He just finished the three-year restoration, and this was the shake down cruise. What a magnificent car.

Sunday, rain, more rain. That doesn't stop the diehards from running the track. The popular vote car show was held, to a lesser number of cars than normal for obvious reasons, but there was plenty to see. Ron Rosen of Superformance was there with his display. With no end in sight of the rain letting up, members started to pack it in for the weekend. Even with the rain, this being my first SAAC convention, I had a great time and met some really nice people. I look forward to next year's convention, which being the 25th anniversary should be something special.



CSX2000 - The original Cobra powered by the Dean Moon massaged 260. This is the car that set the automotive press on their ear.



Mary Seaman (a.k.a. the future Mrs. Schachinger) assists Kim in prep'ing the 460 powered SP477 for a go at it. Rumor has it that the car is nicknamed "Mary's Rock". What does that mean?



Ross Weaver and his 460 powered SP236 ready to assault Michigan Speedway.



Kay Weaver! Prepare to meet your Des-tiny!



Carroll Shelby was on hand to sign just about anything.



Bill Ostrower's magnificent GT-40

Ed: Many thanks to Ross Weaver for the article and four (!) rolls of film from SAAC-24. Ross is from Michigan and has been getting events organized for Superformance owners in the Midwest. If you live near him, give him a call.

*Ross and Kay Weaver
8280 Hearthstone Court
Commerce, MI 48382
Phone: 1-248-366-8104.*

RUN AND GUN 1999 AND TRACK EVENT SAFETY

Gateway International Speedway
St. Louis
July 18th - 22nd 1999

There is always more than one story to an event. For Run and Gun 1999, there is the story of the competition, the cars, and the trophies. This story will have to wait until next time.

For me, and for the Superformance folks who attended, the story of Run and Gun 1999 will be the story of Larry Miller. Larry's story reminds us that Cobras are powerful machines and should only be pushed to their rather incredible limits only with due precaution.

It was a practice session. The pace should have been an easier one. But people make mistakes. As Larry approached the banked turn at high speed, another slower car cut him off. He spun first tail out to the left, then around tail out to the right, slightly backwards, with the right rear fender leading the slide around the banked turn. It appears that the banking held his car in this position. The right rear tire, leading the slide, tucked under, wore through the sidewall, and exploded. The rim caught the pavement and the car flipped one and a half times, landing upside down. It continued to slide around the banked turn with the weight of the car carried on the roll bar and the right front fender. It came to rest with the right rear fender (with the gas cap) pointed uphill, to the outside of the turn.

At this point, everything was OK. The roll bar had done its job well. Larry was uninjured. The car had held up remarkably well. The only significant damage was the loss of the windshield and the right front fender where the abrasion of the track surface had worn through the top of the fender. With the removal of the windshield pieces and a spell of deep breathing, both car and driver could have continued in competition.

Except... When the right rear rim snagged the pavement, the car rolled over the right rear fender. In doing so, the latch for the Monza style gas cap hit the pavement and broke off. As the car slid, the fuel poured out onto the track and was ignited by sparks from the roll bar. When the car came to rest, the gas cap was uphill from the cockpit of the car. The burning fuel ran under the car. The engine continued to run and the carburetor, now inverted and the float valves wide open, dumped gas into the

engine compartment which was promptly ignited by the main fire.

Larry was momentarily trapped, then pulled himself to safety. He suffered second and third degree burns on his arms and legs. He was left in his driving suit for 45 minutes on the way to the hospital and suffered chemical burns from the gasoline soaked into the suit. He was transferred to the burn unit at St. John's Mercy Center in St. Louis where he had a number of skin grafts. He was in the hospital in St. Louis for about four weeks. When the grafts had sufficiently healed, he was able to return to Charlotte where he continues to recuperate. He expects to recover completely from the burns and return to duty with the Charlotte Police Department in December.

Larry will also have a new Cobra by then. As this is written SP619 is "on the water" to the Olthoffs' shop. It is Royal Blue with White Willment stripes, of course. His drivetrain, a 351W stroked to 427 CID and the ubiquitous Tremec, has been extracted from SP299 and awaits its new home.

During the time that Larry was in St. John's, he and his wife Kathy received over 300 cards and letters, several birthday presents, and uncoupled phone calls of encouragement. Larry and I were out touring in SP218 one fine autumn day. He told me, as both he and Kathy have several times, how much all the cards and letters meant to them in crisis far from home. Many were from you folks, so I pass the thanks on to you.

The car itself, SP299, suffered surprisingly little damage in the crash itself. This says a lot about the inherent strength of the car. But the fire was another story. The paint was badly burned where the fire was hottest and the interior was gutted. Jerry Mullins (SP210) has purchased the car and will convert it into a competition car.

So both driver and car will recover and be on the road again. But there are lessons to be learned. I will continue to run track events. They are tremendously fun. But there are things that I will do differently.

Rule Number One: I Am Responsible for My Safety. Safety is ultimately the responsibility of the driver, not the organizers who make the rules or the tech inspection crews who check the cars.

Rule Number Two: Healthy Respect. Cobras are among the most powerful cars ever put on a race track. They demand the respect of those who drive them. This respect is manifest in preparation of the car and use of safety equipment consistent with the car's potential. I have been running banked ovals at

140 mph is shirt sleeves and a 20 year old helmet. Not too bright.

The Car. Next to the driver's brain, the most important piece of safety equipment is the integrity of the car itself. I believe that the Superformance Cobra is inherently sound as a performance car. The frame, the body, and the roll bar have proven themselves to be structurally sound and capable of protecting the driver in serious crashes.

Roll Bar. I am adding a second roll bar for the passenger's side. Others have elected to use a full width roll bar. The difficulty with dual roll bars is in aligning the second roll bar so that it visually matches the first. Bob Olthoff has agreed to help me install it. We will work on technique and report the project in a future Bits & Pieces. The right hand roll bar with grommets is \$125 black, \$365 chromed. The installation is additional.

Fuel Cell. I am looking into a fuel cell. Unlike the original and many replicas, Superformance has a frame loop surrounding the fuel tank for protection. This is good. Nevertheless, a fuel cell is the best insurance against fire. The fuel cell has a check valve that prevents gas coming back out the filler neck. The foam in the fuel cell has to be replaced every two or three years, so there is ongoing maintenance to consider.

As an alternative or in addition, I will be installing the gas cap adapter developed by Kenny Brown (SP285). See Bits & Pieces, this issue. The fuel cell is a dealer installed option at \$1,050. The gas cap adapter will probably be in the \$75 to \$100 range.

Helmet. My helmet is too old to protect my head. Dumb. I am getting the best helmet I can find. A quality Snell approved helmet is \$300 to \$400.

Five Point Harness. I have added the shoulder belts and anti-submarine belt to both sides. This is a dealer installed option at \$175 for driver, \$350 for both sides.

Fire Extinguisher. I will install a fire extinguisher before I get on the track again. Not a cosmetic one, a real one with enough capacity to do some good. Figure \$150.

Fire Suit. I will get a fire suit and flame retardant underwear. The rule of thumb is 3 seconds a layer, so a two layer suit and a layer of underwear is worth about 10 seconds of protection.

A full fire suit includes the suit itself (\$300 to \$600), Nomex underwear (\$150 to \$200), a Nomex head sock (\$35), a pair of Nomex foot socks (\$15), a pair of Nomex lined driving gloves (\$70 to \$90), and

driving shoes (\$100 to \$200). Figure \$700 to \$1,200 depending on number of layers and styling.

Electrical Shutoff Switch. An electrical cut off switch shuts down the engine and the fuel pump and removes electrical shorts as a source of fire. If I can't find a gravity activated automatic switch, I will use a manual one. If anybody knows of an automatic switch, let me know. The optional dealer installed manual electrical cut-off switch is \$50.

Carburetor Fire Containment. Boats have this stuff as standard equipment. If I can find something that can be successfully fitted to our cars, I will report on it in a future Bits & Pieces.

Tires. Larry was running a hybrid tire - street construction and DOT approved, but racing tread compound. His were Hoosier Autocrossers, but there are others.

I ran Hoosier Autocrossers for a season or two in SCCA Solo II, so I am familiar with them. I ran them at 40 psi in the front to keep them off the sidewalls. In five years, I only saw one car flip. A Honda with stock suspension and hybrid tires rolled over on the sidewall far enough to hook a rim in the pavement and flip.

Hybrid tires may be OK for autocross where the spins are short and dynamic. I don't think that hybrid tires are OK for high speed events, particularly banked oval events. High speed means long slides and a banked oval tends to hold the car in position as it slides. A sticky tire with soft sidewalls will roll over on the sidewall. If it stays there long enough, the sidewall will wear through, the tire blows, the rim hooks, and over the car goes.

In general, true street tires don't have enough grip to get all the way over on the sidewall and true racing tires are too stiff to roll over.

If hybrid tires are allowed to compete with true street tires, then I have to run them if I want to have a chance of winning. This forces me to make a choice between safety and performance. No one should be asked to make this choice. In this light, I would encourage organizers to not allow hybrid tires in events that use banked ovals. But I have to remember Rule Number One - safety is my responsibility. I have choices and I have to make the right choice.

In a broader light, I would encourage organizers to consider having two classes.

(1) A pure street class with true street tires, roll bars, safety belts, and helmets, and courses appropriate to this level of tires and safety equipment. Flat turns

only. Top speed will be limited naturally by course layout in the space available.

(2) A pure race class with driver's choice tires, upgraded roll bars, five point harnesses, helmets, fire suits, fuel cells, electrical shut off switches, and other appropriate safety equipment. Any course. Any speed.

What this recommendation means to me is that I would not be able to compete in the fastest classes unless I invest \$2,000 to \$3,500 in safety equipment. And an additional \$3,000 or so for racing rims and tires if I chose that route. Not a happy prospect, but a realistic one. Speed costs money. More speed costs more money. Safety is priceless.

READERS RADICAL RIDES



Nick di Bruno's SP120 as seen at the Fall AutoFair 1999 at Charlotte (Lowes) Motor Speedway.

Nick's car is yellow with a checkered flag painted on the hood. Radical! The engine is a 514 CID 460 stroker driving through a C-6 automatic. If that wasn't enough, Nick as added nitrous oxide. This snake pumps out 850 horsepower on the bottle.

The automatic upshift and downshift have been removed and all shifts are manual. The car is so light relative to the power and displacement that an automatic shift breaks traction regardless of the throttle setting.

I have turned down the opportunity to ride in this machine. I think my car is fast and I want to keep it that way. Those who have say that the acceleration is awesome. Thanks, Nick, for reminding us that there are mountains left to climb.

AUTOCROSS

Triad Sports Car Club Championship Autocross #6
Dixie Classic Fairgrounds, Winston-Salem, NC
August 15th 1999

Jerry Mullins (SP210), Rod Waltermann (SP227), Billy O'Briant (SP453), Richard Abbott (SP195), and David McRae (SP151) brought their Superformance Cobras to Winston-Salem on this fine Sunday afternoon to test their skills at autocross. Joining them were Dennis Olthoff and Fred Daly from Olthoff Racing. In all, 172 cars and drivers participated in 24 classes.

After the dust and tire smoke settled, Jerry Mullins running in E Modified had a class win and the overall second fastest time of the day. Congratulations on a fine driving job, Jerry.

DEALER NEWS

Bob Olthoff Racing

Bob Olthoff Racing has just moved into their new home about a mile toward Mooresville from their old headquarters. Their new address is:

Bob Olthoff Racing, Inc.
9850 Mooresville Road Highway 150
Mt. Ulla, NC 28125
704-647-9924



In the process of moving, "the boys" discovered that the end mill had a 3 horsepower motor on it. So they immediately started putting wheels and numbers on it so they could race it. Jerry Mullins, Bob Olthoff, Bob Jordan, Dennis Olthoff, and Jim Smith are shown here attaching the axles. When Baby Olthoff found out what they were up to, she put the stops to it pronto. Back to work boys.

Hillbank Motor Corp.

There is a new Superformance dealer for Southern California.

Hilltop Motor Corp.
375 Bristol Street
Suite 30
Costa Mesa, CA 92626
714-918-3242
LanceHMC@earthlink.net

One of the real pleasures of owning a Superformance Cobra here has been being part of an active owner's organization with group events. I have talked with the proprietor, Lance Stander, on the phone. He has expressed a commitment to providing a high level of owner support, including support for **Second Strike**. Hopefully Lance can serve as a focal point for getting us better organized in California.

| |
|----------------|
| LICENSE PLATES |
|----------------|

Cobras and vanity license plates just seem to go together. After 41 years of driving, I finally ordered my first one.



If you have a vanity plate, send it in. Send a photo if you have one, or just the text if you don't. I will run every one sent it.

| |
|-----------------|
| BITS AND PIECES |
|-----------------|

Flat Tires - Spares and Alternatives

My Superformance doesn't have a spare tire. If it had one, it would have to be a full sized rear tire. Running different sized tires on the rear axle will smoke the clutches in the positraction rear end.

A full sized rear tire would take up most of the trunk. Pat and I go on trips and we carry stuff in the trunk. Clothes, toothbrushes, folding chairs - that sort of stuff.

I have had three flat tires. All caused by a busted wooden crate in the road. I have been lucky so far. All three times the tire went flat in my garage. Two went flat when I was in the hospital. For a while, I thought Pat let the air out so that I would stay in bed

and recuperate. I was starting to feel really loved. Then I found the nail holes.

I may have other flats and I may not always be so lucky. So I need to be prepared.

Solution #1. The best spare tire solution is a cell phone and an AAA card. No kidding. Let the pros do it. A word of caution. Carry your own lead hammer to remove the knock-offs. By the time the pros have knocked the ears off with their lead hammer substitute, whatever it may be, a lead hammer will seem cheap.

Solution #2. Every auto parts store in the USA sells "Puncture Seal Instant Tire Repair" or something like it. It is an aerosol can with a valve stem adapter that you screw onto the valve stem and release the contents into the flat tire. This seals the leak and pumps up the tire at the same time. BMW includes this solution in place of a spare tire with the BMW Z3 M Roadster. This would have fixed all three of my flats if I had used it. Simple and easy. But it does not work for cuts and it does not work for sidewall punctures.

Solution #3. To fix my flats, I used a "Tubeless Tire Repair Kit" that I carry. It has a T-handle reamer to rough up the hole, a T-handle inserting needle to stick the plug in the hole, a selection of plugs, and adhesive. This is the hard way. I took the tire off, soaped it to find the leak, reamed the hole, and then inserted the plug. They make these tools without T-handles, but if I ever managed to stick one in a tire, I know I would never get it out again. I used my portable compressor to blow the tire back up again. It plugs into the cigarette lighter. It takes about 30 minutes to blow the tire up. Hey, it beats blowing it up by mouth.

I don't think this would work on the side of the road. I used a jack, which I do not carry, to jack up the car. It would not be hard to fix the hole with the tire on the car, but it would be hard to find the hole in the first place. This also does not work with cuts and sidewall punctures.

Roadside Emergency Kit

I keep my tire repair goodies in my roadside emergency bag, shown following. The contents are experiential - I carry what experience shows me I may need. It contains, clockwise from the upper left:

- Tubeless tire repair kit.
- Electrical box with fuses, bulbs, and flasher. The cotton balls goes on top to prevent rattling.
- Lead hammer.
- Fan belts.

- Puncture seal instant tire repair.
- Cigarette lighter socket with alligator clips.
- Straps
- Carry bag, 15" long by 8" high by 5" deep.
- Compressor. It is a diminutive 5.25" high by 6.25" long by 3.25" thick and weighs about two pounds.

Everything fits in a carry bag. I strap the bag to the roll bar upright in my trunk so it doesn't fly around and bust something.



Roadside Repair Kit

Removing a Stuck Knock Off

As I found out, it is certainly possible to lead hammer a knock on so tight that it is near impossible to remove.

The first tip is: Remove the knock off with the lead hammer. Put it back on with a rubber hammer.

If your knock off won't budge, first try hitting each of the three wings in succession. Rotating the impact will help free a stuck knock off.

If that doesn't work, using an ice bath to shrink the knock off slightly may do the trick.

1. Make up some ice water in a pitcher. As much ice as you can get in the pitcher. The colder the better.
2. Wrap the knock off tightly with a terry cloth rag.
3. Soak the terry rag with ice water.
4. Wait a minute. Soak it again.
5. Wait a minute.
6. Now give it your best shot with the lead hammer. Rotate the impact if necessary.

The ice water shrinks the knock off. This pulls the beveled face every so slightly away from the rim and allows it to be removed. It also shrinks the knock off in the treaded area, but this is not a problem since the

threads have adequate clearance.

Cigarette Lighter Substitute

A number of devices, such as air compressors, require a cigarette lighter socket to plug into.

Wait, you say. Most Cobras don't have a cigarette lighter. True, and mine doesn't either.

I made an adapter out of a cigarette lighter extension cord, which has a plug on one end and a socket on the other. I cut the cord and put alligator clips on the socket end.

I clip the hot wire to the hot side of the starter solenoid and the ground to the engine. Works just fine.

Naturally, to make such a handy device, you have to know which is the "hot" wire on the extension cord. One method, now in scientific dispute, requires a car with a cigarette lighter. Lick one hand and grasp a grounded object. Lick a finger on the other hand and insert it into the cigarette lighter socket. Alternately touching the side of the socket and the contact at the rear will clearly demonstrate which is hot. **Do not try this at home! This is for experienced professionals wearing safety equipment on a closed course!**

I personally used my trusty volt-ohm meter to determine that the contact at the bottom is hot and the socket wall is the ground. So the red clip goes on the wire to the contact and the black clip goes on the wire to the socket wall.

OK, so you want to know why the other method is in scientific dispute. It seems that involuntary muscular contractions on the part of the ~~victim~~ test subject made it difficult to obtain reliable data. And for some reason, ~~victims~~ test subjects with experience would not repeat the test.

Bumpers vs. Quick Jack Points

When I purchased my car, it had the standard quick jack points. I soon realized that I was driving my Cobra a lot more than I had expected. I was going places and parking places I had never planned on. Not to mention that I put the nose of my Cobra into the rear bumper of a Neon at a stoplight. My fault. No damage to either car. But worrisome.

I got tired of worrying about it and ordered full bumpers, which I installed myself.

The quick jack points and attaching hardware weigh about 16 pounds. The bumper set and attaching hardware weigh about 19 pounds. So clearly there is no performance penalty in this conversion. It is purely protection and aesthetics.

From a protection perspective, the bumpers are really lightweight. They are not going to pass a major crunch test with a 5,000-pound SUV. I am only expecting parking lot and traffic light minor bump protection.

From an aesthetic point of view, it is a wash to me. I really like the way the car looks either way. Pat likes it better with the bumpers.

The full bumpers are \$780 as a dealer installed option, less if you install them yourself. Unless you are good with tools, patient, and have some time, let the dealer do it. The back bumper is easy. The front bumper requires patience to align properly. If you want to do it yourself, I have instructions. I'll send you a copy.

Five Point Seat Belts for Competition

In the mid-1980's I ran SCCA Solo II in my 1979 Mustang. The constant max g-force turns in autocross really pitch the driver around inside the car. One Sunday afternoon on a tight right-left entrance into a slalom, I snapped my back. White hot pain! I finished the run with a time good enough to win, but I couldn't get out of the car to collect my trophy.

Dr. Jerry Petty, no relation to Richard, but neurosurgeon for NASCAR, gave me a choice - no more autocross or autocross in a wheel chair. A cut and sew and two months in bed later, I decided to give up autocross. This was 15 years ago.

Which brings me to my reason for five point belts. The more firmly I am held in the seat, the less likely I am to be thrown around and injured. The five point belts add two shoulder belts and an anti-submarine belt to the standard Superformance lap belts. The shoulder belts are attached to a frame member just behind the rear bulkhead. They come over the shoulder and when tight really limit lateral movement, which is what I wanted. The anti-submarine belt attaches to the seat mount crossmember under the floor and comes up between the legs. The purpose is to keep the wearer from sliding under the lap belt in a head on collision. Just as important for me, the anti-submarine belt allows me to wear the shoulder belts tight without pulling the lap belt up. So I need the anti-submarine belt just as much as the shoulder belts to hold me securely in the seat.

This combination has worked well for me. I have run a number of track events with no back pain.

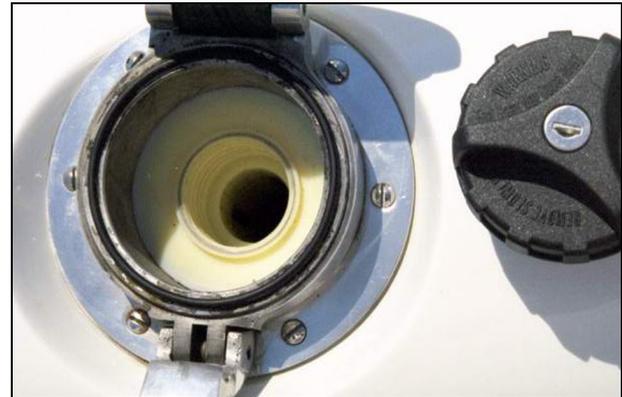
By the way, this is the reason that I will only run on street tires. For me, the added g-forces of racing tires are asking for back problems.

If you have a later model of Superformance Cobra, your car may have been set up for shoulder belts at the factory. There is a slot in the fiberglass rear bulkhead to provide access the frame crossmember. The slot is behind the carpet. For the driver's side press on the carpet about three inches from left edge of the bulkhead and about two inches down from the top. If the slot is there, you should be able to feel it through the carpet. Slit the carpet, stick the shoulder belt attachment tank through the slot, and bolt the tang to the crossmember.

Locking Gas Cap Adapter

The LeMans or Monza style gas cap fitted to the 427 S/C Cobra is a quick release cap with a funnel shaped fuel neck to provide for rapid fueling in a pit stop.

It is not really secure for street use and it doesn't seal very well, as anyone who has autocrossed a Cobra can tell you. The streak down the right rear fender says, "I've been racing today."



Locking gas cap adapter installed on SP171.

Larry's crash at Run and gun has spurred development of a safer, more street worthy modification.

Kenny Brown (SP285) has developed a snap-in insert that uses the standard Ford locking (or non-locking) gas cap. It is simple to install. Just push it down into the filler neck until the locking tabs snap into place. Screw on the gas cap and you are done. The Le Mans gas cap continues to function as always and covers the locking gas completely.

The cost is expected to be in the \$75 to \$100 range. Locking and non-locking gas caps are available separately at any Ford dealer. Contact the Olthoffs at 704-647-9924 if you are interested.

The Red Hot Hood Mystery Solved

If I hadn't seen this with my own eyes, I would have thought that it was a joke. It is most common at car

shows because folks have their hoods up, but can happen anywhere you raise your hood.

If you have a chromed air cleaner and you have the hood up during the day, the reflection from the air cleaner can focus on the underside of the hood and burn the hood. The sun moves, of course, so safe one minute is not necessarily safe the next.

Maintenance Parts List

Attached to the back of this newsletter is a maintenance parts list. It is formatted with larger type so that you can reduce it to 65% on your copier, trim it to 5.25" by 8.5", and stick it in the back of your factory owner's manual.

Hardtop Available

The factory hardtop is now available. For new cars, it is a \$2,200 option fitted to the car and painted to match.

For existing cars, it is \$1,800 painted any standard solid color. Fitting to the car is additional. Stripes are not recommended. If you really want them, they should be applied only after fitting to insure that they line up correctly with stripes on the car.

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FEEDBACK

Letters to the editor and other sayings. There was no Feedback section in the last newsletter (One Lap), so we have quite a few letters - some of the best yet.

~~~~~

May 13, 1999

My car is very competitive in shows. I have yet to race it. I modified the gear ratio from stock 3:73 to 4:10 and I paid extra for the Side Oiler at 10.1. It has Le Mans rods and crank and medium riser heads and intake with an 850 Holley carb. It has been dynoed at the rear wheels at 470 horsepower and 490 lb-ft of torque. I tach out at 2200 @ 70 mph in 5<sup>th</sup> gear and get about 16 mpg without the foot in it.

I have installed Street Bumpers to appease the local Police and my license plates read "7L SNAKE". Last but not least, it has been signed by Carroll Shelby in Cobra silver on the dash and sun visor.

Jeff Koenig (SP248)  
San Jose CA

~~~~~

May 15, 1999

Work like you don't need the money.

Love like you've never been hurt.

Dance like nobody's watching.

The Bayou Sage

~~~~~

*June 3, 1999*

I am so pleased with my Cobra #286 that I can't stop talking about it. I looked for years at different kits after building a Fiberfab Avenger and still haven't seen a kit done as well as my Superformance car. We were invited to a Mustang show last summer and showed our car. Several other kit Cobras showed up and asked to be a part of the show and were not allowed. One of the owners looked at our car and said he understood why. For the price, you can't build any kit and have it look as good. I know, I sold that d\*\*\*\*\* Avenger and was happy to see it go - completely finished!

*John Mahan (SP286)  
Warren, OH*

~~~~~

June 15, 1999

Mike:

Just got my roster and next day my first copy of Second Strike!!! Thanks for everything. I am enjoying my SP286 more every day - even forgot that 67 Vette we had so long ago. Just attended "Ford Night" at the local A&W (road sight of Super Nationals) and my Superformance Cobra was a hit! The Everett-Morrison car just went home, the guy building the Factory Five wants to come to my house to copy the Superformance as his guide, and the guy with a new Superformance 460 needs info on the aluminum flywheel!! Head and shoulders above the rest is the word on the street.

Doug Reed was just great doing my car and I enjoyed meeting him on delivery at my home in Florida (snow bird). While we are talking of Doug - from your feedback from him, he has 600 CID, twin intercooled blowers and multi-port nitrous oxide. What he doesn't have is anti-Amish suspender mirror attachments. He can get them at any store in Middlefield, Ohio!

One of my favorite pastimes is driving up and down the parking lanes while waiting for my wife at the Mall - setting off Corvette alarms with the Cobra side pipes. My wife says she doesn't understand me at times. What does she know, she drives a

73 Mustang Convertible with Sears muzzlers for pipes.

Thanks for the Newsletter, I'm looking forward to the next already!

*John Mahan (SP286)
Warren, OH*

~~~~~

*July 2, 1999*

Everyday John waits for the mailman, hoping for another edition of SECOND STRIKE. He needs a Cobra fix badly. Please strike him soon!

*Diane Stepanic  
Lakeland, FL*

*Ed: With feedback like that, you are on the mailing list forever!*

~~~~~

July 24, 1999

Mike,

I can't remember if I got a chance to thank you for the "as always" great job that you did on the One Lap coverage. Connie and I both were very pleased. You were able to put it into a perspective that she finally understands - and me too! She was touched and somehow thinks that I am more that just the most wonderful person that has ever been born of this Earth. You even managed to make me look good. Damn! I've had to get wider doors so my head can fit through.

Sorry you couldn't make the Run and Gun, we missed you and your suspenders. Hope everything is going well for you. I know you've heard this before, but if there is ANYTHING that I can do for you, please let me know. I truly treasure our friendship.

Thanks, again for your hard work.

*Doug and Connie
Chalmette, LA*

Ed: Doug Reed is the Superformance dealer in Louisiana and co-driver with Dennis Olthoff in the One Lap of America this year. He is also one of the funniest folks on the face of the planet. I too treasure our friendship.

~~~~~

*July 25, 1999*

Hi Mike,

Thanks for publishing "Second Strike", I really enjoy it. I take delivery of my new Superformance Cobra S/C, Royal Blue/White Stripes, and 351W motor in

late September to early October. Needless to say, I can't wait. It will fulfill a dream of 32 short years!!

I have two issues of "Second Strike". I got these from House of Cobras here in Orange, CA, where I am buying the car. Any Chance of getting the issues that I don't have?

Thanks again for publishing the Newsletter.

*Dwight Van Horn (SP 587)  
Castaic, CA*

*Ed: Dwight received missing Volume 2, Number 2, and the bound set of Volume 1. He paid for Volume 1 with a check that on close inspection had a photo background showing a P-51 Mustang and a B-17. The B-17 was the "909", a B-17 that I had the great honor to pilot for a few minutes a couple of years ago. The "909" flew more missions than any other B-17 in the war. I sent Dwight a copy of the article that I wrote about the experience. See below for his reply.*

*Shortly after the flight, I read the article to a local aviation history group. The original pilot of the original "909", Dusty Hoffman, was in the audience and I had a chance to meet and talk with him after the meeting. It was a real honor.*

~~~~~

October 5, 1999

Hi Mike,

Sorry for the long delay to the above article. Thank you very much, I enjoyed it a great deal. Yes, I too am a WWII aviation nut. I've had a ride in the back "seat" of a P-51 D and a ride, very much as you described, in a B-25. Both were real hoots, especially the P-51!! I'm pretty familiar with "909" and have had those checks for years and never noticed the B-17 was "909." My attention had been drawn to the P-51 in the squadron colors of George Preddy, the leading Mustang ace of the war. Thanks for pointing that out to me, it makes me appreciate the check that much more. Should be getting my Cobra in a couple weeks, can't wait.

I'll be in Charlotte May 19-26, 2000 for the annual meetings of the National Rifle Association, I'm on the Board of Directors and we have a meeting while there. Never been to Charlotte, can only hope there might be a NASCAR race while we are there!! Hopefully we can meet when I'm back there.

Thanks again for the article and also for "Second Strike". I greatly appreciate your efforts on both.

*Best Regards,
Dwight Van Horn (SP 587)*

~~~~~

August 22, 1999

Mike,

My name is Mike Tucker and I recently received an issue of your newsletter. I have recently purchased a Superformance Cobra from House of Cobra and would like to become a member. My first question is (because I saw a mention of this) who is your youngest member?

Let me introduce myself. I am a Marine Corps F/A-18D Hornet pilot currently deployed to Okinawa, Japan. I needed something with the acceleration comparable to the Hornet and found more than I expected with the Superformance Cobras. I have always wanted a Cobra and decided I couldn't wait any longer, so with the help of the House of Cobras boys I purchased a monster. It was almost too easy. Back to the question, I am 30 and when I return to the states in January I will pick up my Cobra (its being built right now). Your newsletter helped to remind me of why I bought the car. Please include me in the club.

*Sincerely,  
Captain Mike "FONZ" Tucker (SP 588)  
San Diego, CA*

*Ed: It took some doing, but I got his registry and newsletters to Okinawa. I mean, how can you not go all out for a guy that compares a Superformance Cobra to an F-18? Wwho is the youngest anyhow?*

~~~~~

August 24, 1999

Dear Mike,

Thanks for the Second strike magazines. Would you please add to Score:

Mr. P.M.A.M Sonnemans
Geermanstraat 26
NL 7678 BK Geesteren OV

He is the owner of the first Superformance Cobra we sold in Europe: SP451, a 427 S/C with front and rear bumpers, 460 engine, and royal blue white stripes.

*Kind regards,
Herman Eshuis
Netherlands*

Ed: Thanks, Herman. We now have three cars and owners registered in Europe. Read on...

~~~~~

*September 9, 1999*

Hi Mike,

It was quite a surprise to receive from your mail concerning the registration of my SP451. Of course will I link up to the registration initiative.

My Cobra runs well however the tuning of the engine is still a struggle for my dealer. We are suffering with ignition problems. The original Ford ignition is not ideal. This means it runs but has not optimal performance. I am now considering MSD ignition and programmable timer. Do you know anybody who has experience with C460 engines?

*Thanks for your reply message,  
Marino Sonnemans (SP451)  
The Netherlands*

*Ed: I touched base with the Olthoffs. Bob is working with Mr. Eshuis and Mr. Sonnemans to get this sorted out. It is worth remembering that 460's require BIG cams to make big horsepower and big cams are hard to tune correctly.*

~~~~~

September 22, 1999

Ed: Marino and Leonique Sonnemans sent the following notes on their registration form:

- Brakes Wilwood
- Tyres PS-Engineering 17" with Goodyear F1/GSC or Michelin
- Carter pan "Cobra" style
- Valve covers "Cobra" style
- MSD ignition (programmable)
- Edelbrock air cleaner
- Stainless specialties side pipes
- Only No 1 or Best of Show results this summer.
- Car has historical license plates and papers stating AC Cobra 427 28-02-1965!

*Marino and Leonique Sonnemans (SP451)
The Netherlands*

~~~~~

*August 27, 1999*

Hi Mike.

I just returned from Dynamic Motorsports in Ross, Ohio, where I had the seats in my Cobra (an early car..SP067) replaced with the new version. What a difference! I highly recommend this upgrade to owners of earlier cars. In addition to being more comfortable, they give much better lateral support. A 100% improvement.

Have you ever thought about doing an article on the

various vanity license plates that SCORE members have? Might prove to be amusing. Today I saw one with "DA COBRA" as the plate. Mine says "VRROOOM" There are probably many that are more creative. Just a thought.

I also got a set of the new Superformance floor mats. They are beautiful. A great addition to the car.

*Hope all is well with you.  
Bob Minton (SP067)  
West Chester, OH*

*Ed: And a good thought at that. See article on Licenses Plates, this issue. Send 'em in folks.*

~~~~~

September 20, 1999

Mike,

I am the second owner of this Superformance Cobra. I traded a 1995 Cobra R model Mustang (#10) for the Cobra. I am very happy with the car and its overall performance, quality and appearance.

I am an active NHRA/IHRA drag race competitor. I am currently campaigning a 1991 tube chassis Thunderbird with carbon fiber body and 540 CID big block Ford motor. With some motor mods this winter, I expect 7.30 sec ET's at 180+ mph.

Your newsletter is excellent and I would appreciate copies of any tech articles or info you have. The previous owner, John Lemoine, did an excellent job on the car and I look forward to a long ownership.

*Rob Basile SP087
Cincinnati, OH*

Ed: The Cobra R model is the ever rare and sought after 351W powered SVT Mustang developed and sold in very limited numbers for showroom stock racing. Nevertheless, I think Rob got the better end of the trade.

See Bit and Pieces in this issue for an index of technical tips.

~~~~~

*September 21, 1999*

Dear Mike,

I stopped by Dynamic International in Cincinnati yesterday and learned about your newsletter (Second Strike) and registry (SCORE). I purchased my Superformance 427 S/C on 6/24/97 from Ron Rosen - I live about 15 miles away. It is licensed in Indiana and I believe it was the first for the state. I would like to be registered and placed on your mailing list.

I have seen several back issues of your newsletter

(which is very good) and would like to know if the bound volume is still available. Also, are there any other back issues available? Is this year's registry available?

Thanks and keep up the good work - it's appreciated.

*William Wertz SP193  
West Harrison, IN*

*Ed:*

*Lots of questions here.*

*I will include a registration form for SCORE in this newsletter and future newsletters to help folks get registered*

*Back issues of Volume 2, Numbers 1, 2, 3 and 3 (and this one, Number 4) are still available. I print extras to include with all new SCORE registrations. I will send them out until the supply is exhausted.*

*The registry is mailed out once a year to all registered owners (and only registered owners). A registry is included with all new registrations.*

*The bound set of Second Strike, volume 1, is still available. See the end of this newsletter for how to order.*

*Welcome aboard!*



*September 30, 1999*

Hello!!

I am the proud owner of SP452, a replica '66 427 S/C. Superformance did an incredible job on this vehicle, and I really appreciate the quality and workmanship that went into making this car "exactly" as I wanted it. This car has already won her first trophy at a recent car show, and I was recently called to inquire if I would be interested in showing it in another.

I've added period correct number circles (meatballs), 60's period sponsor decals and a dash plaque that reads "Manufactured by Shelby American, Venice California COBRA." Since the car is a) fiberglass, and b) has a rectangular frame, there is no attempt to pass it as anything but a Superformance car. But that little plaque gets a lot of attention and adds to the overall race and originality looks of the car. I wanted this one to be a tribute to Carroll Shelby, and I'm happy with the way it turned out.

Superformance did an excellent job with the Guardsman Blue paint with white stripes, all correct gauges being Smiths and Lucas as well as the switches. She has a black roll bar and correct black

side pipes, a Carroll Shelby Motors chromed license plate frame, bungee holding down the trunk handle (going to jack pads), full Simpson race belts and buckles, chromed fire extinguisher, electrical "kill" switch, Trigo pin-drive wheels and "gummy" Goodyears, and a blowproof scattershield.

Under the hood is a Ford Motorsports bracket racing engine (made by Ford's own race group). It is a 460 CID big block with a Holley 850cfm double pumper which puts out 560hp in present tune. This is mated to a Tremec TKO five speed tranny. Also under the hood are two cooling fans, a remote oil filter, typical "lawnmower" coolant reservoir and wrapped header pipes. The wrapped pipes really do make a big difference in engine compartment temperature. Superformance did it right.

I grew up around the real Cobras as I lived in West Los Angeles, and used to watch them being tested around Marina Del Rey and in Venice. It was a long wait, as I'm now 52 years old and though my experience with the local dealer here was less than positive, I finally got the Cobra, and done exactly as I wanted it. A big "thanks" to Superformance. Everyone who sees the car immediately remarks on the accuracy of the lines and especially the attention to detail, and fit and finish. This car is well built.

*Paul Subbie SP 452  
Bothell WA*



*October 1, 1999*

Dear Mike,

I received my Cobra on 09-15-99. It came in a trailer pulled by Bill. It is the new Toreador Pearl with a silver Stripe. I saw a plain Toreador at Superformance, but this is the first one I have seen with a stripe. The color is very sharp. My chassis number is K1399AM1523. I believe you call that car number 523. It has a 485 hp 460 cu. in. Ford crate engine.

Please send me the 1998 Second Strike. If you have any of the 1999 issues, send them also. I received the May 15, 1999 issue from the Rosens when I was at their shop on June 18 to buy the car.

I am an old Ford man, 59 years old. My second car was a new 1960 Ford with a Hi Performance 352 cu. in. with 360 hp. This had a 3 speed with overdrive. I didn't know it at the time, but most of the parts on the engine were from the 406 cu. in. in 1962. I traded it in 1962 for a new 1962 406 cu. in. with 405 hp. This car was faster than the 1960, but not by much. It was better from 0-60. This car of course had

a 4 speed. Of course I sold that car too.

Now I have a used 1957 T-Bird, a new 1989 Ford SHO, a new 1993 Mustang Cobra, a new 1999 Ford SD F250 with a 7.3 Diesel, and of course the new "1965" Superformance Cobra. In addition to these cars, all the rest that I have owned have been manual transmissions. I think that this will hold me for a while, as the T-Bird needs work.

*Talk to you again,  
Gordon Schloemer (SP523)  
Plymouth, WI*

*Ed: Well, Gordon, as an old Ford man, I'll bet that the lead story for this issue is right down your alley. Your '60 Ford with the 360 hp 352, three on the tree, and overdrive was the HOT ticket.*

~~~~~

September 7, 1999

Dear Mike.

I was thrilled to receive the Superformance Cobra Owners Registry. Please see the changes on the form provided. My car, SP544, is to arrive next week where it will be mated to a balanced and blue printed 351W with aluminum ported heads. The engine will redline at 7200 rpm producing over 450 HP. Naturally. I am waiting in anticipation of what will be a great car. I am sure that everyone has their own unique story as to how they came to purchase a Superformance Cobra. I would like to share mine.

It started when I was fifteen years old when a neighbor asked a friend and me to come over and watch a movie called the Gumball Rally. Boy was I hooked. My eyes were glued to the screen as the classic dual between the Ferrari and the Cobra unfolded. The look and sound of the Cobra was mesmerizing and it completely sucked me in. About eight years ago, I looked at the Cobra kits and decided instead to purchase a 1968 tri-powered 427 convertible Corvette. The kits did not do it for me and I was not prepared to put one together. The Corvette was a lot of fun and there is no rival to the view from the cockpit of a 68-72 Corvette. Last year I purchased a M3 as a daily driver and quickly become spoiled by the power and handling of this car and found my Corvette spending way too much time in the garage.

During this time, I noticed a few Cobra kits running around town, which rekindled my desire for a Cobra. Once again I was faced with the same dilemma. I did not want to spend time and money on a car that simply sat in my garage. It had to offer more excitement than my M3. I learned of Superformance

and after driving one, found my M3 somewhat boring on the ride home. I am sure the folks at Roundel would roll their eyes, but this car is the most exciting car I have ever driven. Other Cobras could not compare. The attention to detail coupled with the SUPERIOR ride quality made the Superformance Cobra the only logical choice. I sold my Corvette and ordered the Cobra.

I decided to buck the system and have a local shop build my engine. The Olthoffs build great engines, however I preferred to have someone local. It has also allowed me to be much more involved in the end product. After deliberating between the 351 and the stroked 396, I decided to go with a hopped up 351. The engine should be completed within ten days and I hope to have the car on the road in two weeks. I have really enjoyed your Second Strike newsletters and would like to get the back copies. Please find my check for \$15.00. The registry is also a great addition. I was surprised to see so many cars in Virginia. It really hit home when I saw my name in the registry as one of those lucky enough to join such an elite crowd of owners. I am looking forward to your next newsletter.

*Sincerely
Ralph H Lovelace Jr. (SP544)
Richmond, VA*

~~~~~

*October 10, 1999*

Mike,

I got your materials in the mail. I just received my first of two Superformance Cobras (SP415) and should get the second (SP 533) on October 18th - both from Bob Olthoff. I was visiting Bob a few Saturday's ago and was told that you might show up, but wanted to go and try out my new car.

There is a story behind why I bought two - I travel for IBM and although I live in McDonough GA, I am currently assigned to a customer in Dallas Texas. So I bought a car (SP415) from Bob and had it shipped to Texas. But then I felt bad that my lovely wife of 25 years was not having any fun so I bought her a car (SP533) to have in McDonough (she may even let me drive it when I am home on weekends).

Like many of us, I first saw a 427 back in 1969 and dreamed of the day that I would own one - well the Lord has blessed me in many special ways and one of them is to own a dream!! I have found Bob and his team to be wonderful in getting everything sorted out - just wonderful people!! Look forward to the day that I get to meet you and personally thank you for all of your hard work in producing a first class

newsletter. Have a great week. I look forward to seeing the famous SP118!!

*Thanks,  
W.D. Goldsmith (SP415)  
Donna Goldsmith (SP533)  
McDonough GA*

*Ed: Well this is a first. I hope Pat doesn't read this. Hum... Actually, I hope she does.*

*I hate to tell you, W.D., but you had a chance to see the famous SP218. You passed me in Mooresville that Saturday going the other way. Your grin was so wide, your eyes were squeezed shut. I was glad to hear from you and know that you didn't run into anything.*

~~~~~  
October 11, 1999

Mike,

I received the package you sent to me and I appreciate all the information that was included.

Being new to Cobra ownership, I find the letters and feedback column very interesting. I am very interested in the information that you may have available on the installation of the 5 point competition harness that was mentioned as an upcoming article in "Bits and Pieces" section. I have been waiting to install my harness until I get the newsletter. Is there a trick way to do it? Or is it the spreader bar that clamps to the roll bar uprights above the body? Is there any insight you could give me before the newsletter comes out?

I have enjoyed my car at Bob Bondurant's school track, and Bob even showed me how it is supposed to be done. That was a trip! But, the NHRA boys at Firebird raceway would not let me through tech without a harness and wrist restraints. I have the harnesses and have been waiting to put them in.

I look forward to communicating with you about Superformance cars, the dealers, the support, the parts, and the fun in getting my car on the road. I may have learned some things that may benefit others during my experience. I have enjoyed my Cobra than any other car I've owned. Thanks for taking on the monumental task of putting SCORE together.

*Thanks,
John Hertz (SP 208)
Gilbert, AZ.*

Ed: I met John through his son Greg Fresquez. Greg works for Bob Bondurant at the driving school and was most helpful in putting the Bondurant

article together. I called John and we worked out the five point harness.

~~~~~  
*October 17, 1999*

Hi Mike,

I was awakened yesterday morning by a 7.0 magnitude earthquake and got to thinking about the storms you North Carolina folks weathered last month. I hope you held up well and didn't suffer any damage! It seems like 1999 has not been a great year for storms and other natural disasters.

I also just want to say thanks for your newsletters. They are a great source of information and entertainment.

I entered my car in our local "Placentia Heritage Days" car show last weekend. About 225 cars were entered this year. Last year I won a 1<sup>st</sup> place trophy for Best Corvette. My wife told me not to expect any awards this year because the Cobra is, "Just a nice new car." Well, I proved her wrong and actually surprised myself and took home 1<sup>st</sup> place for Best Sports Car. This car is more fun than any Vette I have ever owned.

*See ya,  
Billy Hufnagel (SP500)  
Placentia, CA*

~~~~~  
October 25, 1999

SP353 was originally commissioned by Ford Motorsports and was displayed at their booth at the S.E.M.A. show in Las Vegas November 1998. The car was later used as a demonstrator by Top of the Hill.

*Scott Thompson (SP353)
San Ramon CA*

Ed: Scott sent these comments in with his registration. I have added them to his registration and they will be carried with the car history.

~~~~~  
*October 27, 1999*

Hi, Mike:

I received the copy of the new register with myself in it (555) along with the back issues of the newsletter. I am impressed! I think you are doing a fantastic job. I will be mailing you the \$15 for the back issues soon. I think it is great that someone like you can take the time to do such a professional job as you have done.

On a less happy note, I will hopefully sending you an update to my registry entry. I had SP555 a little over a month and took it in to a local mechanic for replacement of the leaking rear main engine seal. The mechanic finished the job, took it for a test drive, and 1 block from his shop, someone pulled out in front of him. He never had a chance to hit the brakes. He swerved, hit the curbing on the median, went airborne, and flew into a concrete light pole at 35 mph.

Dynamic Motorsports says it is totaled and I sincerely hope so. The right front frame member is pushed in about 2-3 inches! I will be fighting to get a new chassis and body. Will let you know the new number when I find out what is happening.

Talk to you soon.

Ron Daveley SP555  
Wauwatosa, WI

*Ed: This is not the first story that I have heard of a service person smashing up a Cobra. I am including this story here to remind us all that the adrenaline rush of big horsepower is stronger than law, stronger than friendship, yes my friends, even stronger than reason itself. If the mechanic has to take a test ride, perhaps the owner should do the driving and the mechanic go along for the ride.*

## UPCOMING EVENTS

### South Africa Tour

The Superformance factory is planning a "South Africa Tour" for next year. The details are still being worked out. Everyone will receive full details, including costs, when they are available.

The tour will be limited to Superformance owners and their spouses, significant others, traveling companions, reasons for living, or whatever, so we will be traveling with a great group of folks. The Tour is designed for a group of about 16 people.

The two week trip will include the Superformance factory, of course, and stays at a number of great vacation spots. If you have access to the web, check out some of the other sites under consideration:

Steenberg Country Hotel ([www.steenberghotel.com](http://www.steenberghotel.com))  
 Ellerman House ([www.ellerman.co.za](http://www.ellerman.co.za))  
 The Table Bay ([www.sun-international.com](http://www.sun-international.com))  
 Fancourt Country Hotel ([www.fancourt.co.za](http://www.fancourt.co.za))  
 Shamwari Game Reserve ([www.shamwari.com](http://www.shamwari.com))  
 Victoria Falls Safari Lodge ([www.vfsl.com](http://www.vfsl.com))  
 Songwe Point Village ([www.vfsl.com](http://www.vfsl.com))  
 Palace of the Lost City ([www.sun-international.com](http://www.sun-international.com))

### One Lap of America 2000

The One Lap of America 2000 will run from May 6<sup>th</sup>

- May 13<sup>th</sup>. The starting and finishing will be at Gingerman Raceway in South Haven, Michigan.

The route will be generally southern with possible stops at Virginia International Raceway near Danville, Sebring in Florida, Road Atlanta in Georgia, and Lime Rock in Connecticut.

Rumor has it that Superformance will enter two of the new Superformance Daytona Coupes.

Stay tuned.

OOPS!

On the rare occasion that I might just print something that was not exactly correct and I might actually find it, I will include a correction here. I also correct the original so that any reprints will be correct.

### Rev Limited - Volume 1, Number 4.

The article gave the part number of the required SVO ignition coil as M-12071-A301. The correct part number is M-12029-A302.

### Bondurant Article - Volume 2, Number 2

In the Bondurant article, the length of the Daytona Coupe was incorrectly given as 181.5 inches. The comparison chart should have read:

| The Cars     | Shelby<br>Daytona Coupe | Ferrari<br>250 GTO |
|--------------|-------------------------|--------------------|
| Weight       | 2,300                   | 2,375              |
| Wheelbase    | 90.0                    | 94.5               |
| Length       | 167.0                   | 173.2              |
| Width        | 61.0                    | 65.9               |
| Height       | 49.0                    | 49.0               |
| Engine       | V8 OHV                  | V12 SOHC           |
| Cubic Inches | 289                     | 242                |
| Horsepower   | 375 @ 6750              | 390 @ 7500         |
| Transmission | 4-speed                 | 4-speed            |

Anyone who has ever driven both the Daytona Coupe and the Ferrari 250 GTO would know without thinking that the Daytona Coupe is slightly shorter. I don't know what came over me.

SCORE

The Superformance Cobra Owners Registry, or **SCORE** is a registry of Superformance Cobra owners and their cars. The objective is to enhance our enjoyment of our Cobras and to enhance the value of our investments in our Cobras.

As a Superformance Cobra owner entered in the registry, you are automatically a member of the **Second Strike** owner's association and will receive newsletters as they are published. As of this writing, there are no dues or fees. The only requirement for membership is ownership of a Superformance Cobra.

A complete registry is mailed with each new registration. The complete registry is printed each year and mailed to all registered owners.

If you are a Superformance Cobra owner and are not registered, please complete the registration form included with this newsletter and mail it to me at the address on the form.

If you know other Superformance Cobra owners who are not registered, I encourage you to make a copy of the registration form and pass it on to them.

Those of us in the Olthoffs' area have enjoyed a number of events each year. Being a member of **Second Strike** and spending time with other owners has been a quite a pleasure. I would certainly like to see owners in other areas have that same opportunity. In the past year we have located and registered enough owners in the Midwest and California where that is certainly possible. Ross Weaver has agreed to serve a coordinator for the Midwest. We need a volunteer from California.

## SECOND STRIKE VOLUME 2, NUMBER 4

The **Second Strike** newsletter is published every quarter, more or less. **Second Strike** is mailed to all registered owners when published. Among other thing the newsletter contains a **Bits and Pieces** column which includes owner's modifications and enhancements to their machines and a **Feedback** column for letters to the editor. You contributions to both of these columns are appreciated and nearly all are used. Please submit all contributions in writing or via e-mail to:

Mike and Pat Stenhouse  
400 Avinger Lane Villa 902  
Davidson NC 28036-6708  
Email: [Mike@SecondStrike.com](mailto:Mike@SecondStrike.com)

## IN UPCOMING ISSUES!

"Upcoming", not necessarily "next".

### Articles

- The Ford 90° V "Windsor" Family of Engines

- The Ford FE Family of Engines
- The Ford 385 Family of Engines
- How to pick a cam for emissions compliance.

### Bits & Pieces

- Door latch alignment.
- Freeing the heater temperature control switch.
- Moving the brake light switch to the interior.
- Radiator rock guard.
- Realigning the front seat for comfort.

The astute observer will note that some of the items have been on the list for awhile. True. I am not going to print it until I get it right. Some of these are not right yet.

## BACK ISSUES AVAILABLE

A number of members have written and asked for copies of back newsletters. I have continued to mail them out as long as the supply lasted. It is now exhausted. To continue to make back issues available, I am reprinting the newsletters for 1998 as a bound set for the year.

Each set is an individually printed and bound color original. The set is 40 pages bound with a clear plastic cover sheet, soft cover back, color title page with contents, 26 photographs (mostly color), and 8 drawings. Newsletter 3, first published in black and white, is reproduced in full color including a special color photo page from SAAC-23.

The bound set is available for \$15.00 including shipping and handling. If you would like a set, please send your request with \$15.00 to:

Mike and Pat Stenhouse  
400 Avinger Lane Villa 902  
Davidson NC 28036-6708  
Email: [Mike@SecondStrike.com](mailto:Mike@SecondStrike.com)  
Phone: 704-655-1902

## A PERSONAL NOTE

As many of you know, I was diagnosed with prostate cancer this Spring, just as I was putting together the Run and Gun issue. I underwent surgery on August 5<sup>th</sup> and it was completely successful in removing the cancer.

The recovery from the operation has been longer and more difficult than I expected, but I am making headway. Pat and I want everyone to know how much we appreciate all the kind words and support that we have received during this difficult period. It sure is nice to have friends, especially ones with Cobras.

**MAINTENANCE PARTS**

**ENGINE MAINTENANCE, ALL ENGINES**

| Part                                    | Supplier | Part Number | Qty      | Description                               |
|-----------------------------------------|----------|-------------|----------|-------------------------------------------|
| Air filter<br>Cobra Oval                | K&N      | E-1960      | 1        | Oval filter element,<br>1.81" high        |
|                                         | Ford SVO | M-9601-A302 | 1        | Oval filter element,<br>1.75" high.       |
| Air filter<br>8" Stelling & Helling     | K&N      | E-1025      | 1        |                                           |
| Air filter<br>9" Chrome Open<br>Element | K&N      | E-3530      | 1        |                                           |
| Oil filter                              | Ford     | FL1A        | 1        | Replacement oil filter                    |
|                                         | Fram     | PH 8        | 1        | Replacement oil filter                    |
|                                         | Mobil    | M1-301      | 1        | Replacement oil filter<br>for Mobil 1 oil |
| Oil                                     | (any)    | 10-30W      | 8 quarts | Engine oil<br>(winter duty)               |
|                                         | (any)    | 20-50W      | 8 quarts | Engine oil<br>(normal or summer duty)     |
|                                         | Mobil    | 10-30W      | 8 quarts | Engine oil<br>(winter duty)               |
|                                         | Mobil    | 15-50W      | 8 quarts | Mobil 1 oil<br>(normal or summer duty)    |

**SVO 351, TFS 351, EDELBROCK 351, AND SVO 460 ALUMINUM HEADS**

| Part        | Supplier | Part Number | Qty | Description                        |
|-------------|----------|-------------|-----|------------------------------------|
| Spark Plugs | Bosch    | 4419        | 8   | Platinum+4<br>(+4 version of 4202) |
|             | Bosch    | 4418        | 8   | Platinum+4<br>(+4 version of 4201) |
|             | Bosch    | 4202        | 8   | FR8DPX Platinum                    |
|             | Bosch    | 4201        | 8   | FR7DPX Platinum<br>(colder plug)   |

**BRAKES, STANDARD**

| Part                | Supplier | Part Number |
|---------------------|----------|-------------|
| Brake pads, front   | USA      | DM 152      |
| Brake pads, rear    | USA      | DM 347      |
| Hub and rotor front | Wagner   | BD60431     |
| Brake rotor, rear   | Ford     | F1SZ-2C026A |
|                     | USA      | 6226        |

**BRAKES, WILWOOD**

| Part                         | Supplier | Part Number |
|------------------------------|----------|-------------|
| Brakepads, tan cold stoppers | Wilwood  | 150-3668 K  |

**DRIVETRAIN**

| <b>Part</b>                  | <b>Supplier</b> | <b>Part Number</b> |
|------------------------------|-----------------|--------------------|
| Clutch master cylinder, 7/8" | Wilwood         | 2603376            |
| Clutch master cylinder, 3/4" | Wilwood         | 2603374            |
| CV boot long clamp           | Carquest        | 66.3004            |
|                              | NAPA            | U-joints 3416      |
| CV boots, inner and outer    | Carquest        | 66-1002            |
|                              | Advance Auto    | UF2001 Unifit      |
|                              | NAPA            | U-joints 8411 (1)  |
| CV joint, inner              | TRW             | 22936              |
|                              | NAPA            | U-Joints 8315 (2)  |
| CV joint, outer              | TRW             | 23055W             |
|                              | NAPA            | U-Joints 8326      |
| CV joint, tripod inner       | TRW             | 22934W             |
|                              | NAPA            | U-joints 8312      |

Some part number shown are individual parts and some are sets. Inspection at the time of purchase is recommended.

(1) Includes boot

(2) Includes joint, boot, clamp

**ELECTRICAL**

| <b>Part</b>                                      | <b>Supplier</b> | <b>Part Number</b>       |
|--------------------------------------------------|-----------------|--------------------------|
| Battery                                          | Duralast        | 56DS                     |
| Brake stoplight mechanical switch                | NAPA Echlin     | SL 169                   |
| Brake stoplight pressure switch                  | Wells           | RB 401                   |
|                                                  | NAPA Echlin     | SL 143                   |
|                                                  | Big A Tune-up   | 19-803                   |
| Cooling fan relay                                | Standard        | RY100                    |
|                                                  | Wells           | 19941                    |
| Headlight relay                                  | Wells           | LR623                    |
|                                                  | Echlin          | AR284                    |
| Ignition coil                                    | Ford            | D5AZ-12029-A<br>DG314    |
| Ignition module (blue)                           | Ford            | D9VZ-12A-199-A<br>DY184C |
| Starter solenoid                                 | Ford            | B6AZ-1145<br>SN3         |
| Thermostatic cooling fan switch<br>(in radiator) | Sorensen        | 40-5012                  |
| Voltage regulator                                | Ford            | F0PZ-10316-A<br>GR540B   |

**FRONT SUSPENSION**

| <b>Part</b>                        | <b>Supplier</b> | <b>Part Number</b> |
|------------------------------------|-----------------|--------------------|
| Ball joint upper/lower control arm | TRW             | 10162              |
| Steering rack boots                | Motormite       | Speedi-Boot 03670  |
| Tie rod end                        | Silver          | ES429RL            |

**INTERIOR**

| <b>Part</b>  | <b>Supplier</b> | <b>Part Number</b> |
|--------------|-----------------|--------------------|
| Shifter boot | Ford            | C2AZ-7277-A        |

**WHEELS**

| <b>Part</b>                         | <b>Supplier</b> | <b>Part Number</b>    |
|-------------------------------------|-----------------|-----------------------|
| Front Spindle nut                   | Dorman          | 615-074               |
| Front wheel bearing seal            | Fed Auto Parts  | 6815                  |
| Front wheel bearings, inner         | SKF             | L68149                |
| Front wheel cup, inner              | SKF             | L68110                |
| Front wheel bearings and cup, inner | Timken          | Set 13                |
| Front wheel bearings, outer         | SKF             | LM12749               |
| Front wheel cup, outer              | SKF             | LM12710               |
| Front wheel bearings and cup, outer | Timken          | Set 12                |
| Hub and rotor front                 | Wagner          | BD60431               |
| Rear wheel bearing                  | Ford            | E9DZ-1215-A<br>513058 |
|                                     | Timken          | JRM4249               |
|                                     | Timken          | set 49                |

# SCORE

## The Superformance Cobra Owners Registry

If you own a Superformance Cobra and have not registered your car with SCORE, please complete this form and send it to me at the address below for entry. Include any special modifications, competitive or show events in Notes.

Mike Stenhouse  
400 Avinger Lane Apt 902  
Davidson, NC 28036

| Owner               |           | Notes |
|---------------------|-----------|-------|
| Name                | (R) _____ |       |
| Address, Line 1     | (R) _____ |       |
| Address, Line 2     | _____     |       |
| City                | (R) _____ |       |
| State               | (R) _____ |       |
| ZIP                 | (R) _____ |       |
| Home Phone          | _____     |       |
| Work Phone          | _____     |       |
| Pager               | _____     |       |
| FAX                 | _____     |       |
| Cell Phone          | _____     |       |
| E Mail              | _____     |       |
| Car                 |           |       |
| Car Number (1)      | (R) _____ |       |
| Dealer              | (R) _____ |       |
| Dealer City, State  | (R) _____ |       |
| VIN #               | (R) _____ |       |
| Date Purchased/Sold | (R) _____ |       |

| Body Style (R)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Body Color (R)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Stripe (R)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Engine Block(R)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Transmission (R)                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 427 S/C<br><input type="checkbox"/> 427 Roadster<br><input type="checkbox"/> 427 Competition<br><input type="checkbox"/> Daytona Coupe<br><input type="checkbox"/> Other:<br>_____                                                                                                                                                                                                                                                                                                                                                  | <input type="checkbox"/> Medium Royal Blue<br><input type="checkbox"/> Pearl White<br><input type="checkbox"/> Performance Yellow<br><input type="checkbox"/> Portofino Blue<br><input type="checkbox"/> Posilipo Blue<br><input type="checkbox"/> PPG Titanium<br><input type="checkbox"/> Prime<br><input type="checkbox"/> Purple<br><input type="checkbox"/> Quasar Blue<br><input type="checkbox"/> Red<br><input type="checkbox"/> Royal Blue<br><input type="checkbox"/> Sikkens Blue<br><input type="checkbox"/> Sikkens Red<br><input type="checkbox"/> Silver<br><input type="checkbox"/> Toreador<br><input type="checkbox"/> White<br><input type="checkbox"/> Wild Strawberry<br><input type="checkbox"/> Wildberry<br><input type="checkbox"/> Wimbledon White<br><input type="checkbox"/> Yellow<br><input type="checkbox"/> Other:<br>_____ | <input type="checkbox"/> None<br><input type="checkbox"/> Black<br><input type="checkbox"/> Blue<br><input type="checkbox"/> Cap. Blue<br><input type="checkbox"/> Dark Blue<br><input type="checkbox"/> Gold<br><input type="checkbox"/> Ivory<br><input type="checkbox"/> Red<br><input type="checkbox"/> Royal Blue<br><input type="checkbox"/> Silver<br><input type="checkbox"/> White<br><input type="checkbox"/> White/Black Outline<br><input type="checkbox"/> White/Grey Outline<br><input type="checkbox"/> Woodland Green<br><input type="checkbox"/><br><input type="checkbox"/> Other:<br>_____ | <u>Ford</u><br><input type="checkbox"/> 260<br><input type="checkbox"/> 289<br><input type="checkbox"/> 302<br><input type="checkbox"/> 302 Boss<br><input type="checkbox"/> 351W<br><input type="checkbox"/> 351C<br><input type="checkbox"/> 390<br><input type="checkbox"/> 406<br><input type="checkbox"/> 427<br><input type="checkbox"/> 428<br><input type="checkbox"/> 429<br><input type="checkbox"/> 460<br><input type="checkbox"/> Other:<br>_____<br>Actual Displacement:<br>_____ | <input type="checkbox"/> Borg Warner T-10 (4-speed)<br><input type="checkbox"/> Borg Warner T-5 (5-Speed)<br><input type="checkbox"/> Borg Warner T-56 (6-Speed)<br><input type="checkbox"/> Ford Toploader (4-Speed)<br><input type="checkbox"/> Tremec (5-Speed)<br><input type="checkbox"/> Tremec TKO (5-Speed)<br><input type="checkbox"/> Other:<br>_____ |
| Body Color (R)<br><input type="checkbox"/> Acura Red<br><input type="checkbox"/> Banzai Blue<br><input type="checkbox"/> Black<br><input type="checkbox"/> Black Metallic<br><input type="checkbox"/> Cloisonne Blue<br><input type="checkbox"/> Dark Portofino Blue<br><input type="checkbox"/> Electric Blue<br><input type="checkbox"/> Garnet Red<br><input type="checkbox"/> Green<br><input type="checkbox"/> Guardsman Blue<br><input type="checkbox"/> Jewel Green<br><input type="checkbox"/> Laser Red<br><input type="checkbox"/> Malachite Green |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                 |

(1) = Car number is last three digits of Superformance assigned VIN. Your state assigned VIN may be different.

(R) = Required Information

Updated 11/15/99 to include all known colors