CHARGIN' THUNDER

VOLUME I | Bill Hull, *President & Editor* | JUNE 1996

THE OFFICIAL NEWSLETTER OF THE SUPER COUPE CLUB OF AMERICA

Dedicated to the Preservation and Performance of the Thunderbird Super Coupe 1989 - 1995

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FROM THE BIRD'S NEST.....By Bill Hull

Much has happened since Volume 1 of Chargin' Thunder left the printers last March. We had to re-order another 105 copies in May and then had to re-order another 50 copies the first week in June.! Membership has grown to over 190 members in just three short months! Twenty new members joined last weekend at Carlisle alone (more on Carlisle later). I expect many people from the Thunderbird Information Exchange to join the Super Coupe Club of America also, as Paul Cornell of TIX has been kind enough to include a one page flyer about SCCA in his current newsletter. With the publication of August Super Ford magazine and the long awaited feature article about my Super Coupe I expect many more SC owners will become aware of the existance of a club just for and about the Super Coupe. Magnuson Products has referred many people to us as has SVO, SVT, Lee Bender at C&L, George Spears at Spearco, and others. As the Club grows, so does its clout, especially with aftermarket performance parts producers.

Since March, many SC specific parts have been produced or are being produced for the first time on a volume basis. Stainless steel short-tube headers with matching off-road exhaust pipes (with or without high-flow cats) in 2, 2¼, or 2½ inch sizes are available. Griffin radiator has used my radiator (produced by them 5 years ago) as a model to produce more of the same. ARP is manufacturing high-strength head studs, rod bolts, mainstuds, and rocker studs so we can have adjustable roller rockers and bullet-proof bottom ends (Buns of Steel?). At the present time, no one, including ARP, lists any high-performance bolts or fasteners for the 3.8L engine. They have parts for all Ford V-8's, inline six's, 2.9L V-6, but none for the 3.8L. Has the Super Coupe been over-looked and neglected or what?!!

I have become a dealer for both Jacobs and Magnacor (high performance plug wires). We are also dealers for ARP, Vortech/C&L mass air meters (best on the market), Magnuson Products, Auto Specialties, BBK, Cartech, Extrude Hone, Tracking Products True-Dual exhaust, Watson Engineering short tube headers, Art Carr, Tokico, Eibach, Performance Suspension Technology, Jet-Hot coatings and others. None of this would have been possible (or needed) if not for the SCCA.

Magnuson Products is still trying to get an enlarged supercharger adapter air-outlet into production. Mike Hewitt, and engineer at Eaton believes they still have in their possession (somewhere in the attic?!) a pre-production piece. Initially, the S/C adapter was full size - then Ford discovered the SC hood wouldn't close, so Eaton had to put the chop and channel job on the adapter, making it a definite restriction. If Eaton can provide Magnuson Products with the original prototype, they believe the part can be reproduced at a modest price.

Bill Evanoff, engineer at Ford and SCCA member, reports his modified S/C adapter (½ inch raise, approx. 50% more flow area) fits under his stock hood even with the hood blanket in place. He also says the stock upper I/C tube will work with very minor modifications. Bill reports a noticable difference, especially at higher RPM's. Bill also is trying to find an aluminum casting source to reproduce this part. If possible, two different sizes will be made.

I have been working with George Spears to develop a new high-flow intercooler for the SC. As most of you know, Spearco lost their supply of inlet/outlet flanges (Ford ordered the casting molds destroyed). I called George about a month ago and he told me the intercooler for the SC was a dead horse. I encouraged him to re-consider as the intercooler is a critical part on these cars, and the stock one gives up at approximately 275 HP, probably sooner. Upon mentioning the rapidly growing membership of the SCCA, he realized the potential market for a high-flow intercooler for the SC, and become very interested in re-starting production. He sent me a prototype inlet and outlet housing he had left over from the 80's when he did the R&D for the Ford intercooler. I checked them out and sent them back to him with my spare stock intercooler. He told me last week he would have a new prototype sent to me for examination. If it works, and I'm sure it will, he will begin full production again. It will be similiar to the other Spearco unit, with the exception of the inlet and outlet flanges, which will have a barbed end for a slip joint (double-clamped, heavy duty hose) connection. I believe it will be better than the original - no more fooling around with teflon tape or blue gasket sealer.

I have also been working with Gordon Johnstone at Crane Cams to develop a roller rocker kit for the SC. He sent me several parts which he hoped would work (some of them will). I believe we will have both bolt on (non-adjustable) and stud mounted adjustable rocker arms very soon (check parts list in back). Also, after doing some research,(buying three different head gaskets), I have confirmed that Ford did indeed improve the head gaskets for the SC in 94. It is actually produced for Ford by Fel-Pro, has the Fel-Pro stamp on it as well as a Ford part # F4SE-605HBB. The Fel-Pro head-gasket, part #9642PT-1 is identical to the Ford gasket, and supercedes all part numbers for previous year SC's. All gasket holes match up perfectly with previous years so block and head interchangability should be there.

94 connecting rods (part #F4SZ-6200-A) and 94 pistons (part #F4SZ-6108-A) will retro-fit previous year SC engines (should re-balance). The 94 rods were much improved - Ford eliminated the oil squirter hole in the big end of the rod,(which was a weak point), it is made of higher grade forged steel, and the small end is bronze-bushed to work with the free-floating wrist pin on the 94 piston. The 94 piston is a hypereutectic (high silicon-content) casting, as were previous years SC pistons. They should

hold up to all but the most severe conditions, in which case a high quality forged piston should be used.

I am presently beginning work on a new engine for my SC. Hoping to make 400 streetable horsepower, I intend to have it dynoed at the local Tech school (I am good friends with the auto mechanics teacher). I am planning to use a different cam grind with more exhaust events. Also, I am going to try Thermal Coating technology on my pistons, valves, combustion chamber surfaces and intake and exhaust ports for the first time (works great on headers). I've had my stock heads punched out for the 1.6 inch exhaust valves, done some preliminary bowl work with the die grinder, and have shipped them off to Extrude Hone for the final "Hoggin' Out". The Extrude Hone process is actually superior to hand porting, and for several parts on the SC engine, the only way to enlarge and smooth the interior walls (inlet plenum,I/C tubes, and I/C tube to intake manifold adapter). Although not inexpensive, neither is a good hand porting job. Extrude Hone did my I/C tubes,inlet plenum and manifold adapter- it really made a difference. After the abrasive media has been forced thru these pieces (in direction of air-flow) at between 150-250 psi, it leaves the walls smooth as glass. An old hot-rodding axiom was to leave the intake ports slightly rough, to keep the fuel from separating from the fuel-air mixture and clinging to the intake passage walls. With port fuel injection, this no longer holds true - smooth intake and exhaust surfaces promote good laminar air flow. Remember, it's not necessarily how big the ports are, the important thing is velocity and low turbulence - thus increasing over-all air flow and horsepower.

Had a wonderful time at the Carlisle All-Ford Nationals. Lisa Leathery, SCCA member #1, also Marketing Director and Managing Editor for Carlisle Productions really rolled out the Red Carpet for the Super Coupe Club of America. We had a free 20 X 20 foot tent provided under which Club members (and others) could gather (lucky, as it showered off and on all three days). Lisa must have known I was over-the hill and balding because she assigned me a vender space to show parts under the only tree on the entire grounds large enough to provide shade. Thank you, Lisa!. We met several Club members for the first time, stayed at the same motel, ate together, heck! we even celebrated my birthday together! Dick Adams, from Roanoke Rapids, NC, owner of his second SC, a brand new-looking 95, demonstrated the toughness of the T-Bird by knocking over a 3-ton rock, while barely putting a scratch on his rear valence! (And I thought I was a dedicated T-Bird man!). Thanks for the bang-up performance Dick, I LOVE YOU MAN!

Last year at Carlisle, there were only 3 SC's, this year there were seven. However, twenty SC owners joined the Club during the three day show. The interest is definitely there! Lisa suggested SCCA hold our first annual convention at Carlisle next year as part of the All Ford Nationals. I think it is a great idea as I have never held a convention before, Lisa said she

would help with the preparation, and she has the experience (sure helps to know people is high places!). Anyway, new member #167, Michell Morgan from Coatesville, Pa. won first place in the SC show class. Congratulations Michell! I'll get your SCCA trophy to you as soon as this newsletter goes to the printer. I have to love your rear window decal "BADD GIRLS DRIVE BAD-ASS TOYS'! Second place winner in the SC show class was Bill Evanoff from Cleveland,Ohio. Third place went to Richard Thomson from Fairfax, Va. Congratulations to both of you! How about like we do it again next year, only bigger and better! How about like we have about 200 Super Coupes assembled together in one place at one time! Awesome! Don't forget the Red Dog, Richard!

Chief Petty Officer, U.S. Navy, Chuck Coryell showed up driving my 1990 35th Anniversary SC; take good care of my baby, Chuck, and thanks again for remembering my birthday! Barry Gibson drove over from Delaware along with his nephew, LeLe, who was soon sporting his new SCCA tee-shirt "Get Blown or Get Blown Away". I bet he hasn't taken it off yet! It was great getting to know all of you and meeting the new members who joined at Carlisle; thank you all for your support!

Fords Special Vehicle Team had a vender space right next to ours at Carlisle. They had a new 96 Mustang Cobra with the Mystic paint there for the show. SVT had a questionaire for people to fill out asking which Ford car they wanted SVT to upgrade next. We stuffed the ballot box for the SVT T-Bird or something similiar. Check out August Motor Trend and the 96 4.6L T-Bird with the Eaton-Roots blower making 350 HP on pump gas. The blown V-8 actually belongs to John Coletti, head man at Ford's Special Vehicle Engineering (SVE) (thanks for the hot tip, Paul Cornell at TIX).

Scuttle-butt has it Ford is dropping the T-Bird line after the 99 model year to concentrate on the burgeoning minivan, SUV-Rec vehicle market. By eliminating less profitable model lines, Ford hopes to increase market-share and profits. SVT has proposed making the Ford Coutour their next project car, now that they have killed off the SVT T-Bird. I just can't wait to buy one, can you?! I can picture myself laid back in my Laz-Y-Boy watching Dale Ironhead in his FWD Dual-Twin-Cam V-6 Bowtie chasing Mark Martin in his Roush-prepped four-valve Duratech V-6 (don't forget - 100,000 miles between tune-ups!). Heck! Maybe Chrysler could throw in a few Traco-prepped Neons to sweeten the pot! Why stop there! Add a few Hundais, Subarues, Isuzus, and Daewoos, maybe a couple of Russian mini-Ladas and Nascar would have a real international flavor like Formula One! Think of all the problems this would solve - no speed limit would be needed on pit road. No more restrictor plate engines. Speeds would be so slow fans could stand on the track during the races and get autographs from their favorite drivers as they drove by. Tire wear and gas mileage would be so good pit stops would become a thing of the past. Big Brother and his wife Hillary could go ahead and ban tobacco advertising at the track and no one would

notice or care because few people would attend the races anymore. This would conserve our dwindling fuel supplies and solve traffic congestion problems on the entire East coast. Dad would become a functioning member of the family between February and November again, thus lowering the nations divorce rate. Beer sales would plummet, making drunk driving unheard of. The hole in the ozone layer would disappear, global warming would cease, Green Peace would no longer have to worry about Saving the Whales, People For the Ethical treatment of Animals would start eating meat again, saving the cattle market. The owls in Washington and Oregon states would no doubt move to New York City so loggers could have their livlihoods restored, making housing cheaper world-wide. Acid rain would no longer spot new car paint jobs and the Egyptian Sphinx would last another two billion years. The National Debt would be retired, so politicians would no longer have to lie in order to get elected. NAFTA & GATT would actually work as advertised - that giant sucking sound down South would be all the illegal immigrants leaving the land of milk and honey and going home where they belong. Drug-dealing and drive-by shootings would stop because all of America would be camped out down at their local Ford dealers anxiously awaiting the arrival of their very own SVT Contour. The illegitimate birth-rate would go down due to the small back seat, taking care of the welfare problem. Heck! I bet even O.J. would finally confess and Saddam Hussein would convert to Judaism! Come on SVT, JUST DO IT! Everyone is waiting breathlessly, and the Whole World will be greatful!!

TORQUE VS HORSEPOWER

OR

WHAT MAKES THE BIRD REALLY FLY!

Several Club members have expressed amazement over how well their Super Coupes compare performance-wise against 5.0L Mustangs and Chevy Camaros,etc. I have heard statements such as "My SC only has 210 HP while my buddies 5.0L Mustang or LT1 Camaro is rated at 225 to 285 HP, both weigh less, and yet I am able to run with them, sometimes outrun them!" I always respond by saying "Look at the torque figures". More accurately, one needs to compare the peak horsepower and torque figures to really understand why the Super Coupe is so effective on the street and on the strip..

	HP	TORQUE
5.0L Mustang	225 @ 4200 rpm	300 @ 3200 rpm
96 Cobra SVT	305 @ 5800 rpm	300 @ 4800 rpm
96 Camaro LT1	285 @ 5200 rpm	325 @ 2400 rpm
Super Coupe	210 @ 4000 rpm	315 @ 2600 rpm (89-93)
	230 @ 4500 rpm	330 @ 2500 rpm (94-95)

The Super Coupe 3.8L supercharged engine makes abundant torque, and it makes it early in the powerband. This fat, broad torque

curve is the key factor in the Super Coupe's outstanding performance. There is an old and often used phrase "Torque rules the street". This is still true, and especially applies to the Super Coupe, because of its comparatively heavy weight.

Engines don't make horsepower, they convert fuel into torque. Torque can be defined as twisting force, or a measurement of the amount of force applied to an object which causes it to turn or rotate; ie. the pressure applied to a rotating crankshaft by the downward moving piston in an automotive engine. Horsepower is a measurement of the amount of work an engine is capable of performing over a given period of time, and is a function of both torque and rpm. Torque is primarily determined by engine size (c.i.d) in normally aspirated applications, and is enhanced by (among other things) longer stroke to bore ratios. Horsepower, on the other hand, is determined by total airflow thru an engine. This is why peak torque almost always occurs at lower rpm than peak horsepower.

An engine is most efficient at its torque peak, whatever the rpm this may occur. Typical torque and horsepower curves show torque increasing rapidly at lower engine speeds, while horsepower starts slowly and climbs steadily before peaking and falling off well beyond the torque peak. HP = RPM X TORQUE divided by 5252. Because Torque and RPM are divided by 5252, Torque and Horsepower are always equal at 5252 RPM! Two extreme and contrasting examples between high torque-low horsepower vs low torque-high horsepower engines would be long stroke, low RPM diesel tractor engines compared to short stroke, high RPM two-stroke motor cycle engines.

Automotive engines are basically air pumps. Simply speaking, the more air that can be moved through an engine at any given RPM will result in more power. That is why larger engines make more power than smaller engines, other things being equal. The camshaft, more so than any other engine component, critically influences the selection and function of virtually every other engine system. The camshaft is the "brain" of the engine. You can alter the character of an engine by changing the cam, moving the power band up and down, but like all mechanical devices, the camshaft is a compromise. One design may give good low-speed torque and economy; another cam might produce better high-rpm horsepower; a different selection could produce strong mid-range power (sacrificing a little at both extremes). However, one cam can't do it all. All of the standard high-performance characteristics - increased induction, better exhaust system, special ignition, etc. serve to increase the breathing efficiency of the engine; but these characteristics, in turn are limited by the engine valve action. Since the valves control the induction and exhaust cycles, the camshaft will affect the functioning of other performance equipment. Put simply, cam design dominates part and full-throttle horsepower output, and selecting this component is one of the most important decisions that an engine builder can make.

Typical high performance camshaft technology has been developed to get unpressurized air into and out of the cylinders. This technology does not apply to supercharged engines. Actually, camming a blown engine is quite a bit easier than trying to match cam timing and profile to the various components of a normally-aspirated high performance engine. A blower tends to broaden the power band of any camshaft. In a blown motor, the supercharger will do the work of getting the mixture into the cylinders, and much of the job of getting the exhaust out, providing the exhaust system is sufficiently large enough to carry it away. The blower will increase overall cylinder pressure, since it will pack a greater mass of air into it. After combustion, this "super charge" of air and fuel expands, filling the cylinder with a greater mass, and greater pressure, of hot exhaust gas than would be present in a normally-aspirated engines cylinder. Consequently, when the exhaust valve opens, the significantly increased pressure of the heated gases in the cylinder forces them out the exhaust port at a greater velocity. However, there is more mass of exhaust in the cylinder, so it will still take more time to get it all out. Engine builders who know supercharged engines agree that blower cams, in general, should have relatively short duration, greater exhaust bias (vs.intake), wide lobe centers, and slightly advanced overall cam timing.

This brings us back to why the Super Coupe is such a strong performer. The stock cam in the SC is virtually identical to the one in Grandmas 3.8L Taurus Station Wagon (as are the stock exhaust manifolds). The lift is .424, intake; .448, exhaust. Duration is around 190-195 @ .050. The stock cam, more than any other single component, determines the HP peak of 4000 - 4500 rpm, in the SC. The Eaton Roots-type supercharger is also basically an air pump. Turning approximately 2.5 times engine speed, it is able to deliver an over-abundance of air to the 3.8L SC engine, resulting in what is called boost. All of a sudden 232 cubic inches begin acting like 350 cubic inches, with no lag! Ahhhh....isn't that torque wonderful!!

Of course, as we all know, "there ain't no free lunch". The Eaton blower boosts the stock 3.8L torque over 100 ft/lbs and the horsepower over 80, but it also requires 50 crankshaft horsepower to turn it at 5000 rpm. It also generates a lot of heat when it compresses the air. The factory intercooler, more properly called an air-to-air heat exchanger, helps in cooling the intake charge. But, as many of you have found out the hard way, spinning the blower faster only builds more heat, overwhelming the stock intercooler. Combined with the very restrictive stock exhaust system, the super-heated air reaching the combustion chambers causes damageing detonation, resulting in blown head gaskets - or worse! Asking any engine to make more than one horsepower per cubic inch places stress on virtually every engine part. Wisely, Ford beefed the SC block, crankshaft, pistons, and heads, and specified different clearances for the pistons and main bearings. Most models come with factory engine oil coolers, and have the strongest AOD and AOD-E automatic transmissions in

the Ford lineup. The Mazda 5-speed manual transmission is a big step ahead of the B-W T-5 that came in the 5.0L Mustang.

When desiring to improve the performance of any automobile one needs to look at the overall package, front to back, top to bottom. I am certainly not an automotive engineer, and actually don't even consider myself a very good mechanic. I have, however, been fooling around with cars for the better part of 35 years. After one year of being intimidated every time I lifted the hood on my SC, I decided to see what potential it really had. I will sign off on this chapter and call my next one.....

INTIMIDATION..PROCRASTINATION...

SATISFACTION !!!!!

After driving my SC around for a year, I became dissatisfied with its stock performance. It had run a best 15.92 @ 89 MPH in the quarter-mile - excellent for a car of its size and weight. Still, I did not like getting beat by Mustangs (as much as I like them) but especially, I couldn't deal with Bowties eating my lunch! I just had to do something! Throwing caution and good sense out of the moonroof, I installed 3.73 rear gears. They helped but I wanted more. I drove down to Holcomb Motorsports in Lumberton, N.C. and exchanged the 3.73's for a set of 4.10's, that was more like it! Next, I removed the stock exhaust pipes, middle resonator, and factory mufflers. I kept the factory 2½ inch single pipe, had a muffler shop bend me a set of 2 inch exhaust pipes, and hung two Sonic Turbo's in the back. What a difference! Off to the drag-strip...15.2 @ 92mph. Next I added a K&N airfilter, mounted a 950 cfm fan behind my intercooler, an Autospecialties overdrive pulley, and a set of their underdrive pulleys...15.0 @ 93mph. I added a C&L 73mm Mass Air meter and enlarged my supercharger adapter air outlet...14.6 @ 95mph. Next I installed 2¼ inch short-tube headers, cut my gas tank in half to make room for a set of 2¼ inch duals with Dynomax mufflers. These changes netted me a best of 14.23 @ 96.7 mph.. Finally, I installed the Crane Cam, big valve heads, roller rockers, Magnuson S Blower, Spearco high-capacity intercooler and the BBK 70 MM throttle body, 38 lb Lucas injectors, 155 lph fuel pump, Cartech FMU, then went to meet Rod Short from Super Ford. On a bad day (25 mph head winds) the big 'Bird went 13.50 @ 101.6...on a still day I believe it would have run low 13's @ 104. The beautiful thing is, my SC is perfectly steetable. The Eaton Supercharger is like a big sledgehammer waiting, always ready if needed, but hardly noticed during normal driving. My Aunt Hattie could drive my SC to the grocery store as I often do, and except for a slightly louder exhaust note and the very mild lope of the Crane cam she would never have a hint of what lurks under the hood. If however, sweet Aunt Hattie unsuspectingly put the hammer

down, she would no doubt have to change her "Depends" upon arriving back at home! I have not run the car since March 23, mostly because I have been taking parts off it to send to after-market producers so you Club members can also run low 13's if you so desire. This brings us to the next chapter, which many of you have requested....

HOW FAST CAN YOU AFFORD TO GO?

In Volume 1 of Chargin' Thunder I recommended rear axle ratio changes first, the most bang for the buck! The SC is a heavy car and no other single modification will get them moving quicker than a higher (numerically) gear-set. Most of you report great success with 3.55's on the 5-speed car. A minimum of 3.73's are needed for the automatics, 4.10's are even better! (except 94-95 AOD-E's, the computer gets confused with anything over 3.55). Many of you have expressed surprise that I am running 4.10's on the street. We used to run 4.11's all the time back in the 60's and 70's without overdrive! We paid no mind to the fact we were taching 3000 RPM @ 60 MPH. Of course, gas was much cheaper then, etc. but remember, it is not only the rear gear ratio that matters on the highway, it is your overall gear ratio that counts. With overdrive ratios on the 5-speed of .75, the 3.55 becomes a 2.66 over-all. The 3.73 rear gear on the automatic with the .67 overdrive becomes a 2.50...even the 4.10 rear gear becomes a 2.75 over-all. These used to be considered "dog-gears" in the old days. Remember, an engine is most efficient at its torque peak, 2600 RPM on SC's'. My car turns 2600 RPM at 70 MPH - legal interstate speeds in Virginia -Perfecto!- and I still get 25 MPG at this speed! So fear not! Turn it loose and enjoy! Trust me, your car will turn more RPM's on the highway, but it will run easier, won't lug when climbing a hill, won't go into boost as often, and will just be flat-out more fun to drive!

89 thru 93 SC's were factory rated at 210 HP at 4000 RPM; 94 - 95's were rated at 230 HP at 4500 RPM with the up-graded second generation Eaton supercharger, stronger rods, pistons, and head-gaskets. In 94 Ford also up-graded the oil pump and water pump, changed the cam profile (milder, for a smoother idle) and added a crankcase windage tray. The block deck and head surfaces were machined to a smoother finish for better gasket seal. Ford also recognized the deficiencies in the SC radiator - one-third of the available space up front is used for the intercooler inlet bellows. In 94 Ford added an electric pusher fan in front of the radiator to assist the puller fan behind the radiator. The SC cooling problem is two-fold- insufficient radiator capacity for a V-6 on steriods, and low air-flow thru the grill opening (because of the excellent aerodynamics of the car). On page 10 of their sales brochure for the 94 T-Bird Ford states "air for engine cooling is taken in from under the bumper rather than thru a conventional grill". On my 91 SC I replaced the flexible 1½ inch air dam under the bumper with a rigid 2½ inch Lexan piece

(similiar to Plexiglas, but more suitable for cutting and drilling) using the factory bolt holes and 2 inch metal angle braces. It really helps by scooping up more air and feeding it to the radiator from underneath the car. The high capacity Griffin radiator is the real key for you that live in warm climates or have cooling problems. It is a drop-in replacement, but is one inch deeper front to back, and offers approximately 50% more cooling capacity.

Given the factory rated 210 HP for the 89-93 SC's, and the 230 HP for the 94-95 SC's, (they actually dynoed slightly higher) and assuming excellent traction, good weather conditions, and using synthetic lubricants, I have listed incremental improvements SC owners can make to their cars along with the expected results one can expect in the quarter-mile. While not infallable, I do believe the following data is valid, at least for the sake of comparison.

275 HP ...4500 RPM shift points..13.5 @ 96 MPH

1. Headers and dual exhaust ..2" minimum
2. Modified supercharger adapter air-outlet
3. C&L Mass Air Meter (750 CFM vs 525 CFM stock)
4. BBK 65MM throttle body (60MM stock)
5. 155 LPH fuel pump (stock 110 89-93, 125 94-95)
6. 30 lb/hr injectors 89-93, 35 lb/hr 94-95
7. K&N air filter with air silencer removed
8. Intercooler fan
9. SVO blower pulley
10. Jacobs or Magnacor plug wires
11. 180 degree thermostat (during summer) factory 197 thermostat is not fully open until 221 degrees F!
12. 93 octane gas

300 HP...5000 RPM shift point...13.0 @ 100 MPH
(all of the above plus or in place of)

1. 94-95 Magnuson S model blower
2. Spearco high capacity intercooler with fan
3. Headers and duals 2½ inch minimum
4. BBK 70MM throttle body
5. 36lb/hr injectors w/matching C&L air sampling tube
6. Underdrive pulleys
7. Roller rockers
8. Spearco intercooler optimizer
9. Auto trans cooler

350 HP...5500 RPM shift point..12.5 @ 104 MPH
(all the above plus)

1. Crane Cam part #HR 208/294-13, lift .509, duration 206 at .050 (power band 1500 - 5500 RPM)
2. HD valve springs, retainers, keepers, push-rods, ARP head-studs, Fel-Pro head gaskets

3. Head work...1.60 exhaust valves, porting (either hand or Extrude Hone
4. 2½ inch headers and duals
5. 190 lph in tank fuel pump plus high capacity inline fuel pump
6. Cartech boost-controlled FMU with 38 lb/hr injectors
7. Balance and blue-print recommended with 94 rods and pistons, ARP high strength rod bolts, main studs, windage tray
8. 2500 RPM stall converter for automatic cars
9. HD AOD with low-ratio gear-set, Art Carr one-piece input shaft, heavy duty clutch packs and OD band
10. Extrude Honed inlet plenum, I/C tubes, I/C to manifold adapter

400 HP...6000 RPM shift point...12.0 @ 110 MPH
(all of the above plus)

1. Crane Cam part #HR-220/311-14, .538 lift, 220 duration at .050 (power band 2000 - 6000RPM)
2. Definite balance and blueprint as above
3. 42 - 45 lb/hr injectors
4. Buick G/N type high-capacity intercooler mounted behind grill with dual 12 inch fans and custom intercooler tubes.

I am sure I have left something out, but for all you members who have called and said "nobody makes anything for the SC but a K&N, an over-drive pulley, and a cat-back exhaust, there you have it! Best of all, the above items can be obtained thru SCCA headquarters! So don't do as I did..don't be intimidated just because you can't see the engine when you pop the hood!..you know its in there somewhere!..don't procrastinate!...go for the gusto!...you only live once!...Win the Lotto!...Mortgage the Farm!...Hock the family jewels!...HOCK THE FAMILY JEWELS!!!?,,not those family jewels, man..you might need them again when the wife comes back after you finish spending all that money on your real baby...your SC!!

Nuff said.....your dedicated and humble editor..

P.S. On a more serious note, I feel I must mention the following. When I started this Club I had no idea exactly what would be involved. As many of you know I am a painting contractor by trade; I have never been an editor, much less a president of anything. I had not even typed or written so much as an essay since my University of Virginia days 26 years ago. Originally, I pictured a 10 or 15 page newsletter, stapled at the corner, requiring minimal printing and postage expenses. Even before the first newsletter went to the printer, I became more ambitious, and as full of ideas as I am, decided to have it become more like a magazine in format, right from the get-go. I have never been one to do things half-way, and being from the old

school, I was taught to always do things to the best of my ability (however limited that may be) (check quote on front page). I have been called a perfectionist, hardheaded, stubborn, (and alot of other things I can't mention!) and as I have been told more than once by loved ones, I may be my own worst enemy! However, when I really love someone or believe in something, I can be a real bull-dog, as I am sure many of you members can be. I REALLY LOVE THE THUNDERBIRD SUPER COUPE AND I REALLY BELIEVE IN THIS CLUB! In the initial newsletter, I wrote - "The Super Coupe deserves the proper recognition". I believe it is the best automobile Ford ever mass-produced for the driving public when all of its qualities are compared to anything else! I also wrote it would be your Club members - not me! - that would determine if the SC got this recognition. Neither myself, nor anyone else, could do this on their own. It must be a collective effort on all our parts! I just happen to be the one in the middle. Call it fate or good fortune, I was the person who got his name mentioned in April Super Ford as having started a Club for SC's. At that time, there was no SC Club! It was just a thought I had been kicking around for a couple of years, but had never followed up on until people starting calling and wanting to join. I do not now, and will never feel this is MY Club! THIS IS OUR - the collective members - CLUB! I am just the pivot man, so to speak.

Having said all of the above I feel I must speak the rest of what is on my mind. Initially, I thought $25 would be a fair price for annual dues, enough to cover publication and postage costs. Being ignorant of these things (never having done them before) I soon learned the facts of life! Printing costs for these newsletters is over $5 per copy (yes I shopped around), the classy gold-anodized aluminum membership cards are $2.50 per, and first class postage is $1.50 -$1.70 per newsletter (check your envelope, which by the way weren't cheap either). Add this up and multiply times 4, and it comes up to much more that the $25 annual dues. From now on, for NEW MEMBERS ONLY, the annual dues must be increased to $40, enough to cover actual costs. Members who have joined as of today, June 24, will not be affected, as I am not one to go back on an agreement. However, if Chargin' Thunder becomes a bi-monthly instead of a quarterly publication, than the initial $25 dues will cover four newsletter, as agreed, but not a years worth of publications (which would be six). I am certainly not trying to get rich off of this Club, obviously, but neither can I afford to operate in the red (only the Federal Government can get by with this!). In the beginning, I promised my long-suffering wife the Club would be self-supporting (meaning I would not use our personal money to sponsor the Club). I lied.

I would like all of you to put yourself in my shoes (as Pam Tillis sings in her song by that name) and consider this next point. I have been cajoling, pleading, actually begging many

after-market parts manufacturers to produce specific parts for the SC that have NEVER been produced before on a volume basis. Most of my special parts were produced on a one-time basis and were very expensive. Getting these parts mass-produced will bring the price down for you Club members. Remember,I don't need these parts, I already have them! My long-distance phone bill has not been under $350 for the past four months, as I touch base with all of the manufacturers at least once a week. Many of you called begging for headers and dual systems - one member called me every week for two months asking when the headers would be ready, already knowing what the price would be. When he found out the headers were now available, he said, "Well, I'm going to start saving my money"! When I finally convinced Watson Engineering to start making these headeers, I told them I had 20 people waiting (so I thought) and would probably place one order per week (even more as the Club grew). The headers have been available for three weeks now, I even sent out a special mailere, and to this day not one Club member has placed an order. The people at Watson asked me today "Where are all these people you said wanted headers"? It makes me feel real DUMB! Repeat this scenario over several times and you should get the picture. If you all don't want or need these parts, this is fine. Just don't call and tell me you do. If you all don't want or need these parts, than I can guarantee one thing, THEY WON'T BE MADE!. We will all be back to square one! I would love to see every SC ever made run low 13's, corner like its on rails, and be able to stop on a dime. I have not with-held any "speed secrets" or given any false information, at least not intentionally.

Another example - ARP - who, let me mention again, at the present time list NO PARTS for the 3.8L - has agreed to produce 10 sets of high-strength head studs, main studs, rod bolts, and rocker studs. They have told me if these 10 sets sell, they produce 100 sets of each and make them a regular part number. If they don't sell, they will never again agree to produce them on a volume basis. The same holds true for Spearco, Crane, etc, - it would not pay for them to do so. Remember, THEY DON'T NEED US - WE NEED THEM! One more point needs to be made, than I will shut up! Many of you said you would love to have Club apparel available. Not having the necessary capital myself, I tried to come up with the money to have this done, to no avail. Finally, I approached the owner of Blue Ridge Graphics, the manufacturer of these fine clothes, showed him our newsletter, explained to him what we were trying to do. HE BELIEVED IN ME! He agreed to supply what turned out to be $4000.00 worth of Club apparel on a 30 day account. Again, to this day, we have sold only about $400.00 worth of Club apparel (most of that at Carlisle), and my 30 days is almost up. I can understand why many of you would not want to change your SC mechanically, they are great cars totally stock. I am surprised and disappointed however, that all of you wouldn't proudly want to wear your Club's logo wherever you go. These are really nice clothes of high quality. If in doubt, call the members who have seen them and bought them at Carlisle - Bill Evanoff, Rich Thompson, Dick Adams, Lisa Leatherey, Chuck Coryell, Barry Gibson, and Michell Morgan.

I have always tried to tell it like it is, even if it hurts. Having said all of the above, I want you all to know I don't want your sympathy. No one held a gun to my head and made start this Club. Maybe I was overly optimistic and expected too much too soon. But like I have already said and I think most of you believe by now, I LOVE THE THUNDERBIRD SUPER COUPE AND I BELIEVE IN THIS CLUB! This is not a ME Club, this is a WE Club, we are all in this endeavor together. I appreciate your support! Like I have already suggested, Win the Lotto!...Mortgage the Farm!... Hock the Family Jewels!.....

Bill

BIRDS OF A FEATHER: (Letters to the Editor)

Bill,

It was a pleasure speaking with you on the phone and I am happy to be a new member of your club. If there are any functions planned for the Atlanta area I would like to help if I am available. I included an extra $10.00 to help with capital raising. I know its not much but keep up the fight!
Thanks, Cal (THANK YOU CAL FOR YOUR SUPPORT) BILL

Mr. Hull,

Enclosed is a check for my club dues. I'm really psyched about the club. Finally I have somewhere to go for reliable SC info. I can't wait to receive the newsletter. I'll send photos and technical info. on both my cars later.
Thanks Again, Frank J. Alvarez

Dear Bill,

Enclosed is a picture of my 93 LX which I traded for a 90 SC. I will send a picture of that car soon. The only things I've done to my SC so far is, K&N filter and pioneer six speaker stereo W/ remote control CD player in the trunk. Some of the upgrades I have in mind are- Exhaust, headers, better blower rebuild, and 225/50 Z rated tires. I would enjoy hearing all about your SC and look forward to seeing it in Super Ford Magazine.
Thanks, Barry Gibson
P.S. It's a shame that Ford did not come out with the SVT T-Bird this year. I've driven 3 of the 96 Cobra's and found the high winding power fantastic.

Dear Bill,

Received Volume 1 of Chargin' Thunder. Found it very interesting. Looking forward to next one and Sept. issue of Super Ford. (Look at August) I have one important question, to me. What exhaust system gives the SC (mine is a 95) the best sound? Answer-Tracking Products- True Dual cat-back exhaust with Dynomax Mufflers. Do these kits need welding or are they bolt on? (Depends on size of exhaust.Ed.)

Here's how I happen to own a SC. For years I've wanted to get a West Coast Cobra KIT CAR. I flew to Detroit Windsor and had a ride in one with the builder. Some ride, like a constant roller coaster. Awesome machine! Only problem was the cost; $23,000 without an engine and trans. I just couldn't seem to want it that bad. Mustangs may be Ok for some but I hate that back seat. They need to eliminate it. My daughter wanted to look at new Fords and I said OK and told my wife I was going to look at T-Birds. I didn't know what a SC was til then. Only one in Tulsa and I was hooked. One in car show rooms that is. Here was this road rocket and it comes with an engine!

You know when I look at the SC from the aft side forward I can see the Cobra lines. Eerie....

Please respond to my exhaust question. (Done) Thanks,
Sincerely, Bruce Longwell

Dear Bill Hull,

As you can see by the enclosed picture I have had a couple of T-Birds. The SC is the only one I own right now. I have done a few minor modifications to it including Flowmaster exhaust, Blower Pulley, Underdrive Pulleys and a K&N filter. I Love my T-Bird and look forward to being in a Club focused on the Thunderbird SC. Sincerely, Todd Bade

Dear Bill,

As per our phone conversation I'm enclosing a $25.00 check for my first years dues. I'm really excited about this Club and am looking forward to taking part in as many events as possible. If you need any help out here in the Northern Neck feel free to give me a call. If you happen to run across a 93 5-speed with low miles give me a holler. I'll keep an eye out for an Anniversary Edition for you. Hope this finds you and your family well. Sincerely, Charles Coryell

Dear Bill,

Received the premier issue Chargin' Thunder- GREAT JOB! Please enrole my daughter (and her husband) who now have my first SC- a 1990 Midnight Blue with Lt. Blue/Grey leather.(Bob, your daughter and her husband have been enrolled into the Club and as you can see "Birds of a Feather" does sound like a good name. We decided to leave the magazine as is, Chargin' Thunder and use "Birds of a Feather" for our members letters. Thanks for your input, thats what we want from the Club members). Bill Robert DeGrilla

To Bill Hull,

Please find enclosed a money order for $25.00. Please include our car in your club and send us your newsletters. We are looking forward to reading them. If possible, I would like to know how many Super Coupes were made each year from 89-95. Also, do you have any information on the Supercharged Cougars of 89-90. I hope you have some of the initial newsletters left over. I would like a copy. The only modifications I have done so far is a K&N filter-the exhaust is next. I don't have a picture right now but I will send it when I get one. It is loaded including automatic dimming lights, dimming mirror, power passenger seats and keyless entry. It is silver with a black interior. Any further information you require, please let me know. (Bob, what year is car?) Thanks Carol and Bob

Dear Bill,

I received your name from Joe Scott in Maryland and I'm interested in becoming a member of the Super Coupe Club of America. Per your request, is my check for $25.00 to cover the membership materials and packet. Description of my T-Bird as follows: 1991, 3.8 SC V6, 5 speed, All White. Stock Exterior. Stored winters and I'm the original owner. Has approx. 40,000 miles now. Modifications thus far: Dynomax Cat-Back exhaust system. Superchips Computer Module. Steeda 5/8" Rear sway bar.(Urethane Bushings). Auto Specialties underdrive and

Supercharger overdrive pulley set. ProFlow 77mm Mass air meter that encludes the K&N cone Air filter. Spearco high flow Intercooler.
Car is not raced. I'm a former Railroad Manager that took an early Retirement and just LOVE MY BIRD. Thanks, Bob Hohl

Bill McKinley wrote about his 1989 T-Bird SC 5 Speed on the Modifications Made:

1. Undersize blower pulley
2. 73mm Mass air, used 30lb. air control (must check air fuel mixture).
3. 36lb fuel injectors (302)
4. Borla exhaust system (regular steel only).
5. 3.27 rear gears (need to use 3.55) I run out ¼ mile at 4800rpm
6. Nitrous 10lb. bottle in trunk 50 or 100 HP- use only in 3rd or 4th
7. Mickey Thompsons on rear 22lbs of air 9.50 x 26 x 16"
8. Shut off switch on radiator fan.
9. Mobil 1 oil
I have 96,000 miles on my red Bird and I ran 98.27 mph in ¼ mile last saturday. 14.03 - 60' time 2 seconds .100 sec. slow reaction time or 13.93 June 1, 1996 car no. 509

Dear Bill,
I am really anxious to see the Thunderbird SC Club get started. You need to come up with a name. Enclosed you will find a check in the amount of $25.00 this is my official membership fee. 1989 SC, 4 speed, power moon roof, JBL sound system, keyless entry. I opted for all available options. The only thing that it did not come through with was the gas lock. At time of production they were out of stock so the car was shipped without it. The enclosed brochures should be mailed to everyone that has shown an interest in becoming a member. (Carlisle All-Ford Nationals). I hope we can have a strong showing. I even added a special class just for SC. If you want help on making the mailing just send me a copy of the names and addresses. Give me a call if there is anything that I can help you with. Looking forward to meeting you in June.
Lisa Leathery, Marketing Director, Carlisle Productions

Dear Bill:
Enclosed are pictures of my 1994 SC, and a check for $25.00 to join the club. As you may have read in my TIX newsletter, I have made some basic Mod's to my car including a 73mm mass air meter, smaller SC pulley, Superchips computer, and I replaced the stock tailpipe mufflers with a Dynamax system that runs from the first muffler to the back of the car. These changes have improved the performance enough to notice, especially as the RPM's climb the car keeps pulling where it ran out of steam before.
I would like to hear about exhaust options, especially from anyone who has changed out the first muffler. My car sounds a little better than stock, but still is very quiet. Also, if there are any cowl induction hoods for a 94 available, and if anyone has made any modifications to the electronic overdrive

transmission to get firmer shifts.
I look forward to hearing from you. Best of luck with the club.
sincerely, Scott Rasbach

Scott Rasbach
Ft. Lauderdale, Fl. (954-493-9367)

Calvin Kinard
Atlanta, Ga (404-261-6509)

Frank J. Alvarez
Deltona, Fl.(407-860-0082)

Bill Mckinley
Ada, Ohio (419-634-7556)

Todd Bade
Inver Grove Hts.,MN. (612-457-2276)

Charles Coryell
Montross, Va. (804-493-9367)

Carol and Bob Dowd
Arborg,Manitoba,Canada (204-376-5354)

Lisa Leatherly
Carlisle, PA. (717-243-7965 ext.4)

Bob Hohl
Wyoming, MN. (612-434-9672)

Robert DeGrilla
Orlando, FL. (407-876-0369)

Bruce Longwell
Owasso, OK. (918-272-2758)

MEMBERS: We will try to publish at least 10 letters that we receive from you in each newsletter. If there are any modifications you have done to your car or modifications you would like to ask about, Please write us. Thank You, Bill (Ed.)

SVT
SPECIAL VEHICLE TEAM

April 12, 1996

Mr. Bob Hull, President
Super Coupe Club of America
2239 Banbury Street
Charlottesville, VA 22901

Dear Bob:

Thank you for your newsletter, apparel and owner's plaque. Yes, I was a Super Coupe owner (leased a '95, loaded, red/tan) and prior to that leased '84/'85/'87/'88 Thunderbird Turbo Coupes, the spiritual predecessor to the Super Coupe. Wonderful cars, all of them.

As you are now aware, SVT developed a prototype SVT Thunderbird. Based on a variety of factors, we concluded that the project did not have the right mix of attributes to ensure success in the marketplace, so we have prioritized other SVT projects ahead of it. I, like you, am disappointed, but I believe this is the correct decision at this time. I would encourage you and your readers to drive the '96 Cobra. You may be surprised at what a comfortable and refined--yet exhilarating--vehicle this Mustang has become.

You have an interesting and informative newsletter. Best of luck in your efforts to expand it and to build an organization that honors and involves owners with 1989-1995 Super Coupes.

T. S. Boyd
Specialty Vehicles Marketing Manager

Thunderbird Club Center
P.O. Box 2909
Farmington Hills, MI 48331

March 8, 1996

Mr. Bill Hull
Thunderbird SuperCoupe Club
2239 Banbury St.
Charlottesville, VA 22901

Dear Bill,

As per our recent conversation, enclosed please find an enrollment kit for registration with the Thunderbird Club Center.

This packet contains information on TCC as well as how to enroll with us here. Please review the information and complete the enrollment process as soon as you are able.

We look forward to working in with your SuperCoupe Club in years to come. Please contact us at 800-824-7310 should you have any questions.

Sincerely,

Randy Lotero

Randy Lotero
TCC Coordinator

Tuesday, May 21, 1996

Bill Hull
President & Editor
The Super Coupe Club of America
2239 Banbury Street
Charlottesville, VA 22901

Bill,

Thanks for the prompt reply. I found the newsletter very interesting and informative. Enclosed is a check for the $25 dues for my membership in SC Club of America. Please mail the June Quarterly to my Japan address. In August I will permanently return to the USA. I have listed both of my addresses below. My white/ titanium '89 SC is described in TIX #262. I really like the engine modifications that you have done to your SC. From the info in the newsletter, as well as other contacts I have made, it appears that I started on the wrong end of my engine. I plan to work on the exhaust system as soon as I return. I am very interested in a set of tubular headers for my engine. Where do I send the check? In the build sheet on your engine you stated that you had installed high flow cats, but these weren't in the parts list at the end of the newsletter. Where can I find the high flow converters. I am also interested in a Flowmaster exhaust system like the one described in the June '90 Super Ford article. Do you know of anyone marketing a single tube system? As I mentioned in my TIX note, I want to get about 400 HP out of the 3.8 liter engine, but I am afraid this will require a major rework of the fuel injection system. This kind of HP will require appx 45 lb/hr injectors. I fear this will seriously affect the driveability of the engine during everyday use. Do you know of anyone who has gotten this level of power out of the SC engine without nitrous? Also, per my TIX note, I am interested in installing a Borg Warner T56 6 speed transmission in my SC. I want to put in a shorter rear end, but I don't want to lose the high speed cruise that the current 2.73 gears give me. Additionally, I am interested in chassis stiffening and suspension modifications to support the largest brakes I can fit under 17" wheels and 275/40 or 315/35 tires. I basically want to turn my SC into a street legal and comfortable T/A or GT1 cruiser. I realize that this may be a bit much, but I plan to keep it a long time. Basically, I love my SC and think it is the best high performance sport coupe ever to come out of Detroit.

Addresses:

Japan (until 7/15/96)

Yamate House #301
11 Suwa-cho, Naka-ku
Yokohama-shi, Kanagawa-ken
Postal Code 231 Japan

USA (after 8/15/96)

305 Serenity Lane
Readyville, TN 37149

Sincerely,

Jon Thibodeau

Tuesday, April 16, 1996

Hi Bill!

My name is Cliff Jolley and I work at Ford Motor Company, Engine Laboratories Dept. (Dynamometer Lab.). I talked with you on the phone, April 15, about joining the Super Coupe Club of America. Enclosed, you will find my check for $25 to join the club and a picture of my baby (Bill Evanoff said that you wanted pictures).

My car is a 94 model with a 5-speed manual. For now I have not made any modifications but I plan to rectify that soon. My plans include a new exhaust system (Possibly a Borla system - I'm looking for advice on this), a K&N air filter and a speed chip (Maybe?). I also plan to install 3.27 gears. I hope to reduce my 1/4 mile times down to about 15 seconds even - maybe even a little under that - without sacrificing drivability. In my first time at the track I did a best of 15.77 sec @ 86.9 mph. While not great, it wasn't too shabby considering that I babied the car through the runs and I was learning the basics of drag racing. I should get better with experience.

I have been a fan of the SC ever since it was introduced for 89. At the time, however, I had just hired into Ford and needed a new car badly. I ended up buying a 88 T-bird Turbo Coupe and it was a great car. When the SC came out a few months later, however, I kicked myself for not waiting but I could not afford to trade in my 88 so soon. I waited for the 91 model which was the soonest that I could afford to trade in my 88. As it turned out, in 1990, I decided to wait for the 94 model. Because of where I work, I have some access to future information. I also have several friends who work on the 3.8L SC engine. I learned that there were plans to make the engine more powerful in 94. Also, I had a chance to see the car and I liked what Ford was doing to the interior. While we are on the subject, I might as well say that I like what Ford did to the outside of the car as well. There have been a lot of negative comments about the looks of the 94 but I don't care what anyone thinks.

Again, as I said, I ended up waiting impatiently for the 94's to come out. I bided my time with a 90 Taurus SHO but the less said about that experience, the better. In March, 1994, I ordered my SC (fully loaded) and 6 weeks later, I finally had my dream car.

Right now, I use the car strictly for pleasure. In two years it has less than 3500 miles on it and I don't drive it in the winter. I keep the car in my garage under a car cover. I only drive it on sunny days (No driving in the rain for this car if I can help it) and I am absolutely fanatical about keeping it clean (Hey, I admit it). For instance, the engine compartment is so clean you can probably eat off of it. I even Amour-All the hoses and plastic pieces under the hood.

I'm probably boring you by now but as you can tell, I LOVE my car! It's nice to find fellow SC owners who appreciate this fine car like I do. I got to get back to work but it was nice chatting with you. Keep up the good work!

Clifford Jolley Jr.

Clifford Jolley, Jr. - Test Development Engineer
14838 Cherrylawn
Detroit, MI 48238-1840
(313) 933 - 4941

12th April, 1996

Hi Bill,

It was nice talking with you this morning. Glad I was able to catch you. Here is my check for $25 for annual dues in the new SCCA club. I know I have an XR7, but its the REAL XR7 with the supercharged 3.8. - not the naturally aspirated 3.8.

I love the car; it has only 11,367 miles. I ordered it new and picked it up with 7.2 miles on the odo. Its black-on-black with leather and EVERY possible option, even the fold down rear seats. It has NEVER seen snow, and rain only when I've been caught. It still smells new!

My modifications are:

1. custom made 71mm throttle body
2. '92 MAF assy.
3. custom underdrive pulley set (that is a story in itself)
4. removed the muffler from the intake
5. '94 3.8SC 38lb. injectors (I have them and plan on installing them this summer)
6. '94 140 mph speedometer (I reset the mileage EXACTLY, down to the tenth)
7. shift kit in the AOD transmission
8. 3.73 gear in the differential + repacked posi unit
9. Hypertech chip in the service port of the processor
10. K&N air filter

I haven't done too much to it, and have all stock parts and could put it back in 1 day. The mods I have done have really increased the driveability of the car. I'm looking to do some exhaust work, but I don't want to make the car too loud. I also would like to look at other mods that aren't too radical people have done and apply those to my car.

Thanks again Bill, I look forward to receiving your ambitious newsletter!

Sincerely,

Ralph Boyer
1990 Cougar XR7
1MEPM62RXLH673917

3/26/96

Dear Bill,

I finally have gotten some pictures of my car taken and can send you the information you asked for a month ago. Here is a description of my car and personal data.

My T-Bird is a bright red 1990 S.C. with a 5 speed. Major options include JBL stereo with electric antenna, theft alarm, and clear coat paint. Every other feature I wanted was standard on the S.C. The modifications made to date include:

- Performance Friction front pads

- Spearco intercooler

- Larger mass air flow sensor (mfg. by FoMoCo.)

- Lincoln Mark VIII all aluminum rear end center section with 3.55 gears

- Enlarged stock throttle body

Planned improvements for 1996:

- High flow off road pipes and cat back exhaust system

- Electric fan assist for intercooler - J.C. Whintey

- Modified supercharger cover for less restrictive air flow to intercooler. (Spacer to be installed under existing cover to eliminate necked down area of cover where air exits the supercharger - 75% complete)

- Remove air box silencer and make a ram air setup to bottom of stock air box.

I am already convinced that the SCCA will be a smashing success and will become your second full time job if you let it. You seem to be the perfect person for the job and your enthusiasm for these cars is evident over the phone! I have had a great response here at Ford and have passed your name on to at least 15 people in the last few weeks. Today, I even got a call from a woman that I had left a note on here S.C. in a parking lot near work. She was excited to learn about the SCCA. I have included some blow outs of the '94 engine and the '92 and '94 superchargers. I also included some of the furious letter writing that have been going on since I posted the SCCA on the Ford bulletin board. People love it!

Thank you again for the honorary member status. I really appreciate it. As you know, you can always call me with questions, and I will find somebody at Ford who knows the answer. I don't claim to be the one who has all the answers - only someone interested enough to find them. My numbers again are (W) 216- , page 216 or (H)

Sincerely,

Bill Evanoff

Bill Evanoff

POWER-PLUS INDUCTION COMPONENTS

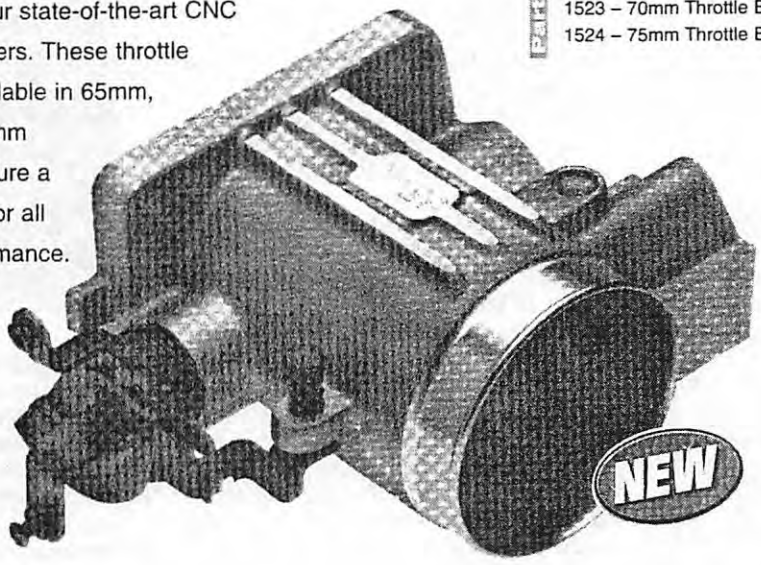
To meet the demand of today's Mustang enthusiast, we have added a new series of our popular throttle bodies to cover all 1994-95 Mustang GT models.

As with all BBK throttle bodies, each unit starts from a high-quality 356 aluminum alloy casting which is machined on our state-of-the-art CNC machining centers. These throttle bodies are available in 65mm, 70mm, and 75mm versions to ensure a perfect match for all levels of performance.

PERFORMANCE THROTTLE BODIES FOR 1994-95 MUSTANG GT

- Available in 65mm, 70mm, & 75mm sizes
- Direct bolt-on
- Adds 8-15 horsepower
- 50-State EPA Legal D-215-18

Part #
1522 – 65mm Throttle Body
1523 – 70mm Throttle Body
1524 – 75mm Throttle Body



To meet the high fuel pressure demands of late model EFI equipped cars, OEM manufacturers have supplied these vehicles with in-tank high pressure electric fuel pumps.

However, when a person modifies one of these motors, fuel delivery can become a bit of a problem — due to the fact that the stock units have a low liter-per-hour rating.

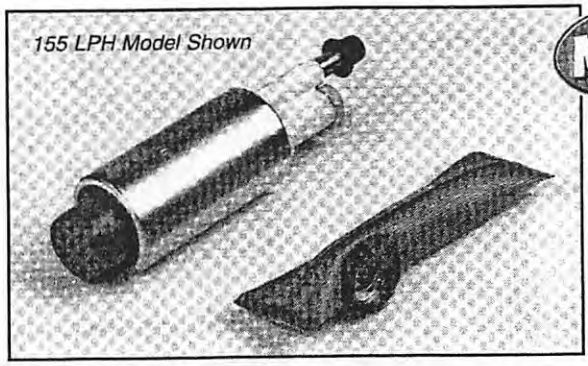
To fill this need for a performance version of the factory type fuel pumps, we at BBK have come up with a few performance Hi-Flo fuel pumps. These pumps not only offer a much improved LPH fuel delivery — but also a value that even exceeds the factory replacement pumps.

All BBK Hi-Flo fuel pumps come complete with the strainer assembly, and are a direct replacement with no other modifications necessary.

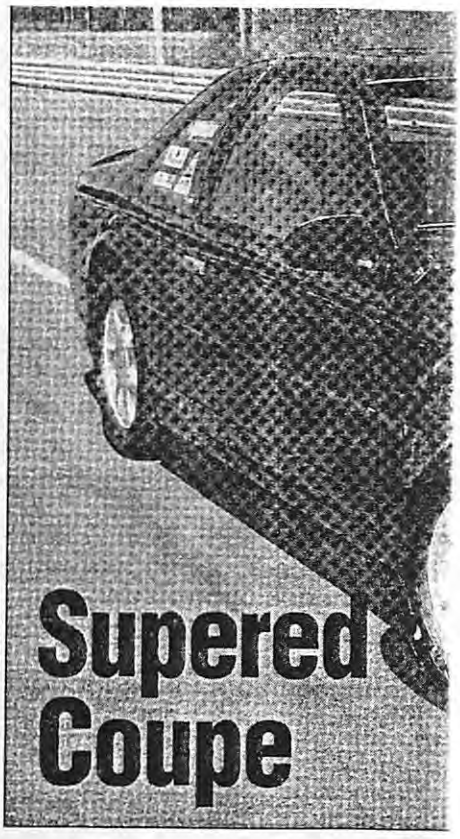
PERFORMANCE HI-FLO FUEL PUMPS

- All pumps come complete with new strainer assembly
- Available in 110 LPH & 155 LPH and 190 LPH ratings

Part #
1526 – 1986-96 5.0 liter EFI Mustang 110 LPH (liters per hour)
1527 – 1986-96 5.0 liter EFI Mustang 155 LPH (liters per hour)
1606 – 1986-96 5.0 liter EFI Mustang 190 LPH (liters per hour)



190 LPH Pump Kit Now Available



Supered Coupe

Attention to airflow and a set of gears put this SC into the 13s

text and photography by Rod Short

For some enthusiasts, the idea of non-V8 performance intrudes into their comfort zone. However, Bill Hull of Charlottesville, Virginia, challenges that notion with his 3.8 liter V6 1991 Super Coupe. With elapsed times in the mid-13s, this daily driver shows it doesn't always take eight cylinders to fly.

"I had always considered a car with less than eight cylinders as fit for only little old ladies and 97 lb weaklings," Hull recounted. "I went down to my local Ford dealership intent on ordering a '91 Mustang GT. One of the salesmen had a Super Coupe and, while I'd always liked the car's looks, I still didn't care for the V6. However, I went on and drove it, found that the ride was fantastic and that it had decent power, so I just went on and ordered the Super Coupe."

It's too bad more folks didn't follow Bill's lead. Super Coupe production reached just 49,917 cars over a six-year lifespan, not enough to keep the combination going. The last version smoked off the showroom floor rated at 230 hp and 330 lb ft of torque at 4000 rpm. This compares favorably, if there is any comparison, with the Thunderbird LX V8's 205 hp, 256 lb ft of torque at 4200 rpm with the smooth but slumbering modular 4.6 V8.

With 15 more lb ft of torque than the 5.0 HO engine, Super Coupes were already fun on the street with a great ride comfort and sophisticated handling from the MN12 chassis, but Hull couldn't resist tweaking his black 'Bird just a little bit.

"I've always liked a challenge and, with Mustangs being so popular, I wanted to see if I could get this 3800 lb car to run," Hull said with a smile. "But, I found out that no one knew anything about these cars and that high-performance shops didn't have time for folks like us, unless we had a Mustang. It was real frustrating. There was a guy in Florida, however, that had spent a lot of money to build one up professionally and had advertised everything for sale after throwing a rod in his engine. So, I went down there and brought it back in pieces. He had done a lot of the groundwork, but I added a lot of stuff of my own and probably spent a $1000 in phone calls getting ideas to put to use."

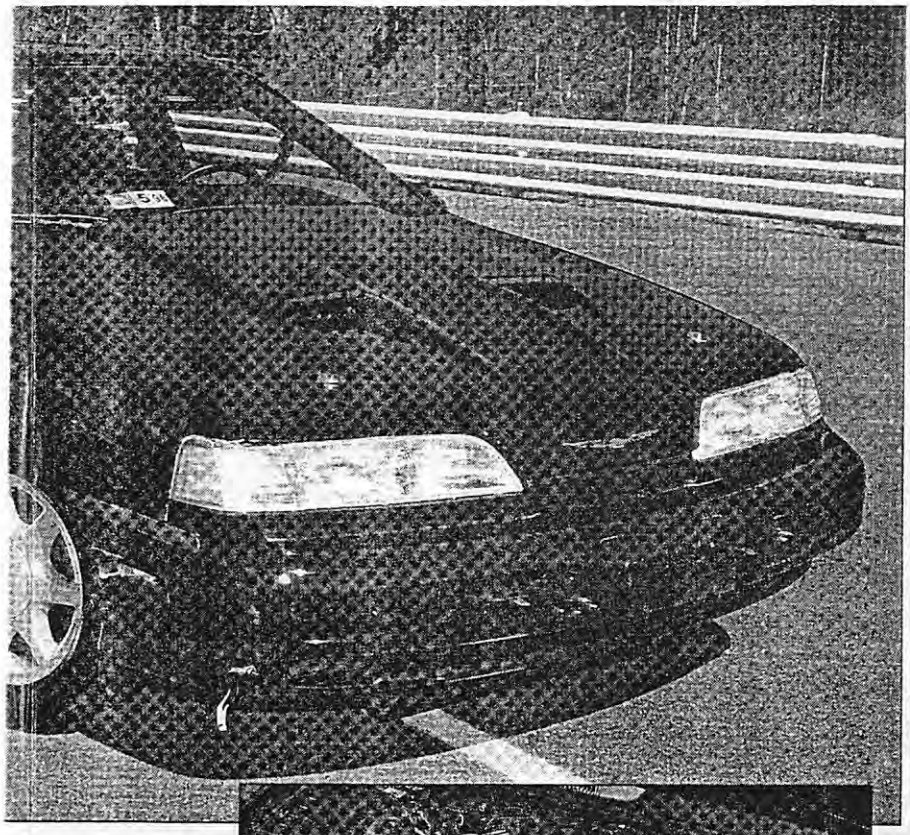
Bruce Baker of Express Automotive in Deland, Florida, did the machine work, opening the original 3.81-inch bore by .030-inch and O-ringing the block. Ronnie's Auto Service and Walker's Auto Parts & Machine, both of Charlottesville, Virginia, did the rest of the work with the pieces Hull brought home.

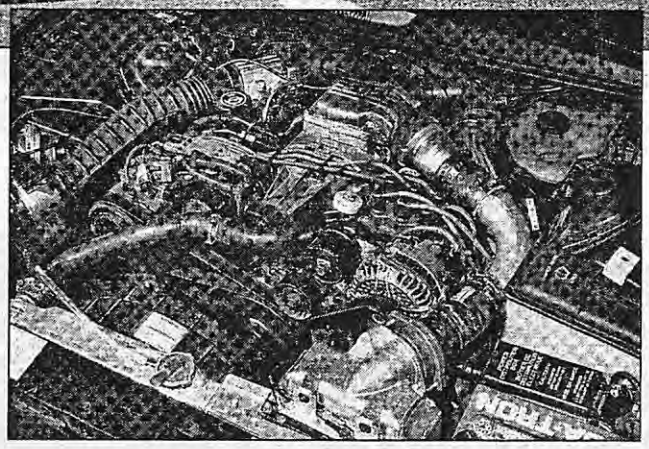
After some massaging, the bottom end was reassembled and mated to the stock cylinder heads, which had been ported. Stainless steel Manley 1.80 x 1.60-inch valves were used. The valvetrain is all-Crane, featuring a cam producing 206 degrees of duration at .050 inches of lift, .509 inches of valve lift via 1.73 ratio rockers, dual springs, titanium retainers and 5/16-inch pushrods. Hardened valve seats, bronze guides and hardened keepers provide extra durability.

The key to the Super Coupe's 3.8 liter performance is in the induction system and extra attention there made Bill's combination even better. The intake, manifold adapter and intercooler tube were Extrude Honed, gasket matched and joined with a set of Lucas 38 lb hr injectors, SVO 155 lph fuel pump, Cartech boost-controlled fuel management unit and BBK 70mm throttle body. Jerry Magnuson, who distributes Eaton superchargers, replaced the M-90 Roots blower with a 2.5:1 overdrive ratio S blower. This yields 13 lbs of boost. A Spearco intercooler and manually-switched electric fan keep a handle on cooling.

A key modification involved the supercharger adapter air outlet which was raised, enlarged and polished for better airflow. Switching to a slightly-raised Cervini fiberglass hood allowed this modification as the stock hood doesn't provide enough clearance, thus forcing a more restrictive design for the stock Super Coupe. Hull believes that not addressing this area makes any modification, in front of or behind this, much less effective.

Finishing touches include JBA 1 5/8-inch diameter Shorty headers and an MSD ignition. As for chassis and powertrain mods to accept the increased power, an AOD automatic, 4.10 gears in the 8.8-inch axle and Cougar alloy rims shod with BFGoodrich TAs help put the torque to pavement.

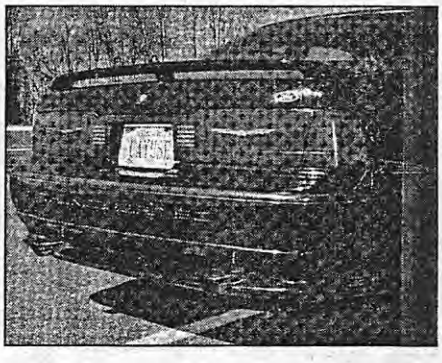




Whereas stock, automatic Super Coupes usually quarter mile around 16 flat at 89 mph, Hull's latest drag strip outing produced a 13.50 ET at 101 mph. This was at a hulking 4000 lbs with driver on street tires, which whiz-wheels out to 325 hp. Call it 1.4 hp/inch, or pretty good — the same efficiency would yield a 428 hp 302.

Hull's experience and enthusiasm for these cars led him to found the Super Coupe Club of America which has been stirring some interest. "All the people calling me about the club say the same thing, almost to a person," Hull remarked. "They love these cars but nobody, even the dealer, knows anything about them. People want to trade them because they think no one makes anything for these cars and because they can't even see the motor when they open the hood. When you get into it by taking the blower and intercooler off, you basically have just a V6. There are a lot of parts available, but it's just not commonly known."

While the Super Coupe is unfortunately now out of production, realization of their performance potential may long preserve their memory. *SF*



Sources:

Magnuson Products
3172 Bunsen Ave., # K
Ventura, CA 93003
(805) 642-8833

Spearco
14664 Titus St.
Panorama City, CA 91402
(818) 901-7851

Super Coupe Club of America
(804) 974-6659

SPARK PLUG WIRES

All Applications

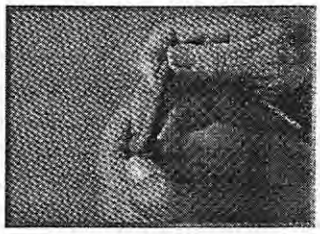
What Makes Jacobs Wires the Finest Available for General Use & Special Applications: Race, All Terrain, RV, Fleet, Marine, Import & Others

Energy Core sparkplug wires deliver immediate improvements in both mileage and power. Only Jacobs' offers: (1) metal core, with only 200 ohms per foot (lowest of any wire available), (2) **significantly reduces** radio noise, (3) teflon coating, (4) pure silicone insulation, and (5) Jacobs' unique boot vulcanization. Energy Core wires, whether Custom Fit, Pro-Fit, or Ultra-Fit, are **so well engineered, Jacobs will supply a set at no charge if any wire design matches these 10 benefits:**

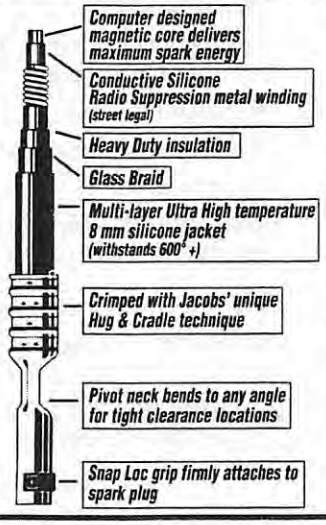
- **NOTICEABLE IMPROVEMENT IN ENGINE OPERATION-** Immediately after installation, noticeably quicker starts, extended mileage, and smoother running will result.
- **NO LEAKAGE OR CONTAMINATION REACHES THE SPARKPLUGS-** **Only** with Jacobs are the sparkplug boots "vulcanized" (fused together with the wires' own insulation) into **one pure silicone piece.**
- **WITHSTANDS HEAT FROM ANY ENGINE: RACING/HEADERS, RV,TRUCK, MARINE, AND ALL PASSENGER CARS-** Energy Cores are 100% pure silicone, the highest temperature, longest lasting material available. **Only** Jacobs marks "pure silicone" on its wires. Heat resistance tested at 65,000 volts at rated temperature of 600° for 1,000 hours.
- **GAS OIL, AND SOLVENT PROOF-** Jacobs is the **only** manufacturer that vacuum-deposits a Teflon coating evenly over the entire length of the wire. This improvement protects against such contaminants as oil and other caustic agents.
- **MORE CONDUCTIVITY THAN ANY OTHER STREET LEGAL WIRE-** Jacobs' true metal core wires **have superior radio noise suppression** while still conducting electricity 280% better than old-fashioned spiral cores. Demonstrably better than old-fashioned silicone fiber core wire (resistance rating: 200 ohms per foot or less vs 6,000 to 20,000 ohms for OEM wires).
- **ELIMINATION OF BURNED BOOTS-** The ability, at the time of installation, to hand-bend the angle of the sparkplug terminal (even into an "S") to assure **maximum** clearance between the sparkplug boot and the exhaust manifold or header to burned boots.
- **BOOTS WILL NEVER AGAIN ADHERE TO PLUGS**—With installation, the special factory-developed and installed Perma-Slip grease is forced into the boot's material, preventing the boot from ever sticking to the sparkplug porcelain.
- **PLUG TERMINALS WILL NEVER PULL OFF-** Jacobs' patented superior strength technique, known as "hug and cradle," involves three crimping steps, not just the normal one step. This technique leads to a 320% stronger termination! In addition, Jacobs uses far superior metal in the terminal itself (termination tensile strength 175,000 psi).
- **100% SILICONE SPARKPLUG AND DISTRIBUTOR BOOTS-** Eliminates all shocks, energy loss and cross fire by using only 100% pure silicone vulcanized boots. (Boots on Restoration style wires use original OEM EPDM material)
- **EACH WIRE INDIVIDUALLY CHECKED-** No wire set is approved for delivery unless **each and every lead** is individually tested and lives up to Jacobs' high quality standards of conductivity.

Jacobs Ignition wires are the highest quality and strongest commercially available.

Energy Core Wires For All Domestic Vehicles

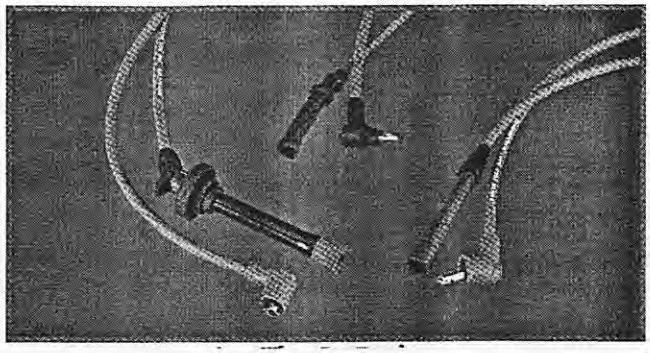


Only Jacobs spark plug boots are "vulcanized" (fused together with the wires' own insulation into one pure silicone insulation). With ALL other wire sets, spark plug boots are separate from wire insulation.



TECHNICAL SPECIFICATIONS

CONDUCTOR: 200 ohms or less per foot. Metal core.
BOOTS: 600° for 1000 hrs.
INSULATION: 600° for 1000 hrs. 65,000 Volts at rated temperature.
SPARK PLUG TERMINALS: Bendable to maintain up to 105° from straight.
TENSILE STRENGTH BEFORE RUPTURE: 280 lbs.
VULCANIZING TENSILE STRENGTH: 320 lbs.
VULCANIZING MOISTURE RESISTANCE: 1000 hrs. submerged in salt water.
MEETS OR EXCEEDS: All FCC regulations for street legal radio noise suppression.



JACOBS ELECTRONICS

Magnecor KV85 V5. and R-100 V2. Ignition Cables Specifications

OVERALL LEAD ASSEMBLY

Outside Diameter of Cables	8.5mm (KV85) and 10mm (R-100)
Colour	Red
Boot/terminal Configuration	Various - to suit different domestic and foreign applications as well as customer special requirements
Country of Manufacture	USA

CABLE

Construction Type	One piece, no cost saving layers used
Insulating Jacket Material	Extreme heat resistant TC-1500-HS high strength aerospace silicone rubber formulated to dissipate heat away from section exposed to high temperatures
Heat Resistance	KV85: 600°F (320°C) service temp. 1,000°F (540°C) short burst 3 minutes, R-100: 700°F (380°C) service temp. 1,200°F (650°C) short burst 3 minutes. Insulation remains intact if overexposed
Dielectric Strength	8.5mm: 60 kV, 10mm: 80 kV at 260°C
Flexibility and Tear Strength	Extremely strong and flexible, 8.5mm can be fitted into OEM 7mm separators. R-100 may need holes in separators enlarged to at least 8.5mm if large hole separators are not available

CONDUCTOR

Conductor Size	2.5mm diameter
Conductor Type	Magnecor Metallic Inductance EMI and RFI Suppressed
Core	Ferrimagnetic base
Windings	200 (KV85) 153 (R-100) turns per inch
Windings Material	Stainless steel
Capacity	80 kV, 2kVA. KV85 limited by jacket thickness to 60kV unless spaced

TERMINALS

Spark Plug	Stainless steel snap-lock straight (bendable) and snap-lock 90° styles
Distributor and Coil	Brass and stainless steel snap-lock 180° and 90° styles

PROTECTIVE BOOTS

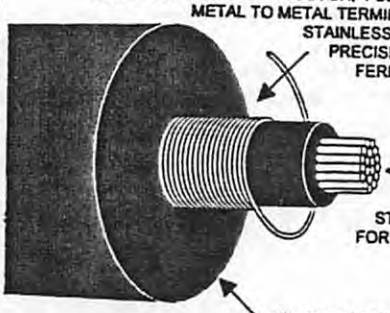
Spark Plug	Silicone 600°F (320°C) - selection of straight, 45° and 90° styles where applicable - special connector assemblies for some applications
Distributor and Coil	EPDM - selection of normal and HEI styles where applicable

AVAILABILITY

Available in sets to fit race and modified street engines in popular demand, sets made to customer specifications (at no extra cost), universal sets, individual leads for race engine and street use, sets for racing made to OEM engine lengths, sets for foreign vehicle race and street engines, sets for marine and motor cycle race and street engines - as well as severe service commercial engines. Magnecor Ignition Cables can be purchased loose (wound on spools), together with OEM and specialty boots, terminals and assembly tools. A catalog is available.

MAGNECOR

KV85 and R-100
METALLIC INDUCTANCE EMI SUPPRESSED CONDUCTOR



RECOMMENDED USAGE:

Magnecor KV85 and R-100 Ignition Cables are primarily designed to eliminate both EMI and RFI suppression problems resulting from the use of solid and "mag" style conductor ignition leads on vehicles utilizing high-output ignition systems together with sensitive on board electronic devices, including fuel, ignition and engine management systems, as well as radio and TV equipment. Used with high-output ignitions, exceptional ignition performance can be expected from domestic and foreign built race and modified engines using fuel injection, turbo-charging, super-charging and/or exotic fuels.

Magnecor KV85 and R-100 Ignition Cables can also be used to advantage on engines fitted with exhaust emission controls, as well as marine engines, and severe load commercial vehicle engines - particularly those using alternative fuels such as propane and natural gas with a history of persistent ignition lead failure. These engines will benefit from the ability of Magnecor Ignition Cables to conduct a high spark current at above and below normal operating temperatures.

Unless deliberately severed, Magnecor's Metallic Inductance Suppressed conductors will provide full conductance indefinitely

The Leader In AOD Technology

For Mustangs equipped with superchargers, turbos, or nitrous–Art Carr has the answer.

- 9 & 10" non-lockup converter.
- 1-piece input shaft™ (300M).
- Hi-Tech valve body kit™.
- Super rebuild kit.
- Heavy-Duty bands.
- Eight-clutch 3rd gear packs.
- Third gear 8-Pack drum assy.
- AOD aluminum finned pan.
- Art Carr Trans-Coolers.
- Special flex plates for 28.2 and 50 gr. balanced engines.

Gain .5 sec + 2 mph over any lock-up style converter

Heavy Duty Input Shaft

Full Throttle Overdrive
2.74 1st Gear, 1.57 2nd gear
Rated to over 700 horsepower
Art Carr 200 4R Conversion Kit.

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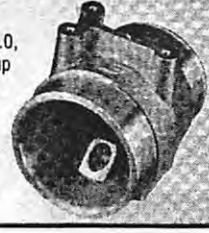
Some products legal in CA only for racing vehicles which may never be used on a public highway.

C&L PERFORMANCE

C&L Performance is proud to announce that we are the 1995 NMCA EFI World Champions. To everyone's surprise, our 3370 lb. coupe ran in the 9's at 137 mph with only 304 cubic inches! This vehicle is a true street car with a passenger side mounted Mondo supercharger and the full complement of serpentine driven accessories including power steering. "MaxFlow" is the only NMCA EFI class legal car ever to run in the 9s. If you've got the racing bug, we can build you a record beating combination as well! Special thanks to Art Carr and Borla.

Available for your 5.0 Mustang, Thunderbird SC & 5.0, Taurus SHO and Explorer/Ranger 4.0 vehicles. Good for up to 15 extra horsepower on some stock applications, with enough flow capacity for up to 600 horsepower $199.95. For applications beyond 600 Hp, we offer the 80mm MaxFlow, designed for supercharged applications utilizing race blowers with inlets greater than 3" in diameter. $249.95



MaxFlow 73mm Mass Airflow unit. Manufactured by Vortech. Winner: Best Engineered New Product at SEMA.

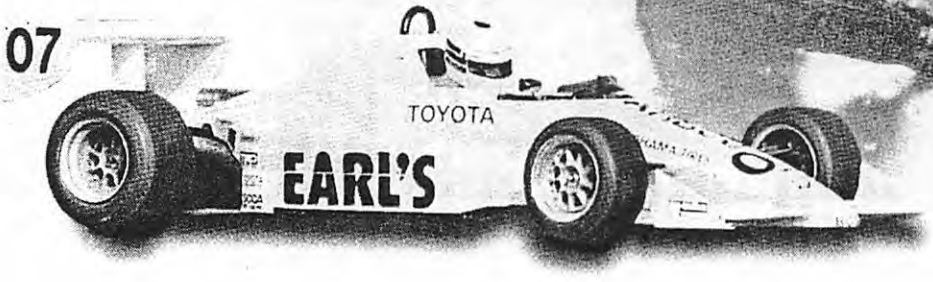
"After years of aftermarket engine fastener hype and dubious products, someone is finally doing it right".

Carroll Smith, Author of: Nuts, Bolts, Fasteners and Plumbing Handbook

When the author of *"design to win, Prepare to win* and *Engineer to win"* speak out, thousands of loyal readers—enthusiasts and professionals alike listen. The listen and follow the advise of this famed engineer and constructor, because the manager of Shelby American's, Ford GT40 race team is known for his straight talk and proven expertise. Smith's latest book is about our most favorite subject. Nuts, Bolts and Fasteners. His words about ARP are generous and totally unsolicited.

"ARP manufacturers and markets a comprehensive and righteous line of threaded fasteners for high performance engines.
These folks know what they are doing and are doing it without compromise.
Their designs are right,
their metallurgy is right,
their heat treat is right
and their manufacturing processes are right.
These are the only automotive aftermarket fasteners that I can wholeheartedly recommend."

Carroll Smith,
author, engineer, racer



PREMIUM PERFORMANCE

TOKICO Premium Performance shock absorbers have a number of features not found in other shock absorbers. These features allow TOKICO shock absorbers to provide a superior combination of handling, stability, and ride quality.

Piston rod seal.

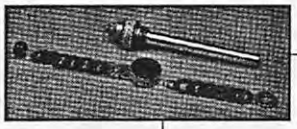
Piston rod guide with Teflon® coated bushing for minimal dynamic friction and good piston rod life.

Hardened, chrome plated, and micro polished piston rod for long seal life and smooth operation.

Nitrogen gas to pressurize the oil and eliminate the effects of cavitation (foaming).

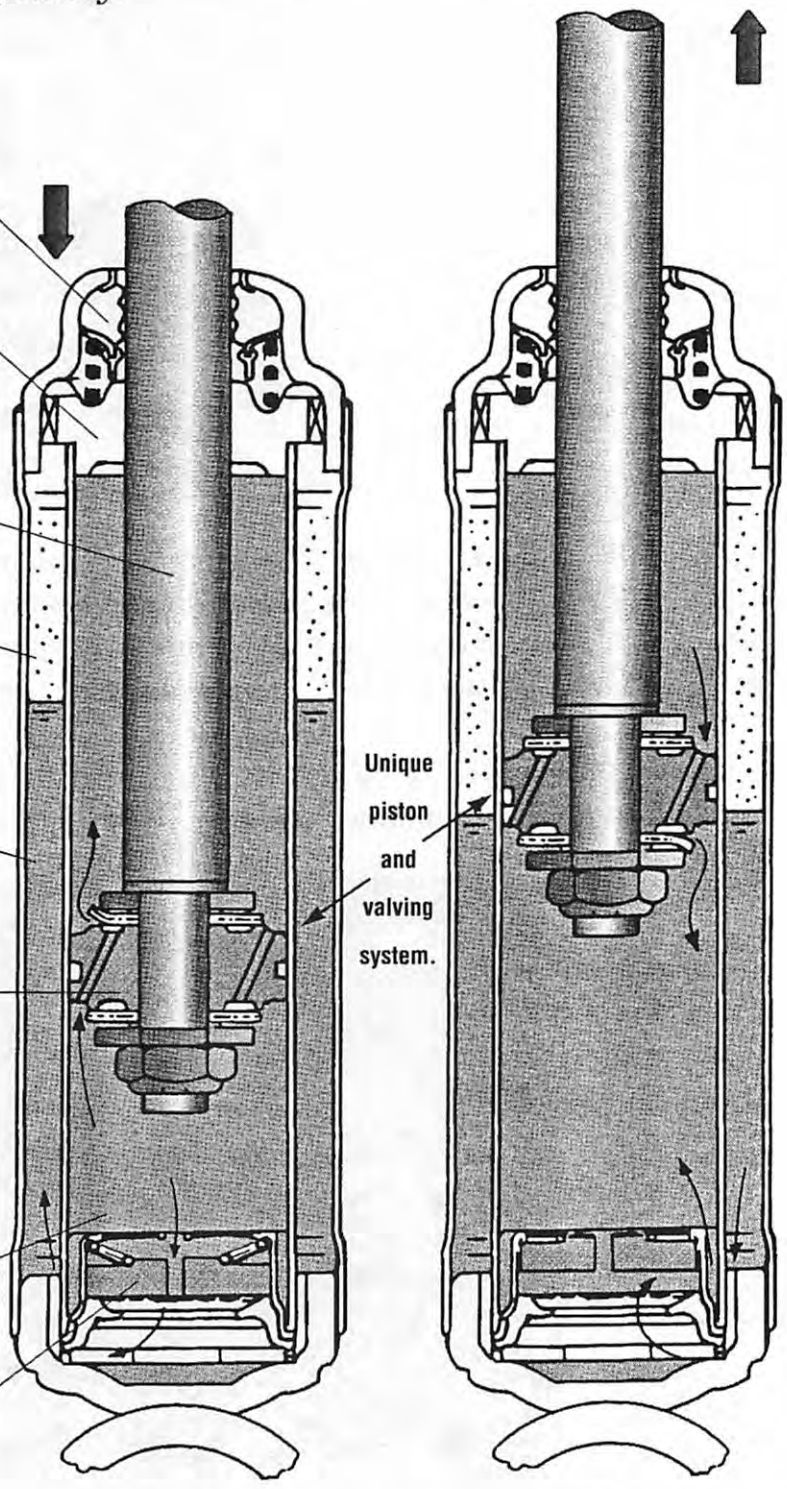
Twice drawn over mandrel pressure tube. Concentricity provides good sealing and minimal dynamic friction (drag).

The heart of TOKICO's shock absorber is our unique piston design. The multi-stage variable aperture sandwich valve system with its precision plates and precise orifice control, allows a flexibility of damping control not found in other shocks.



The oil is specially compounded for resistance to breakdown and minimal viscosity change regardless of temperature.

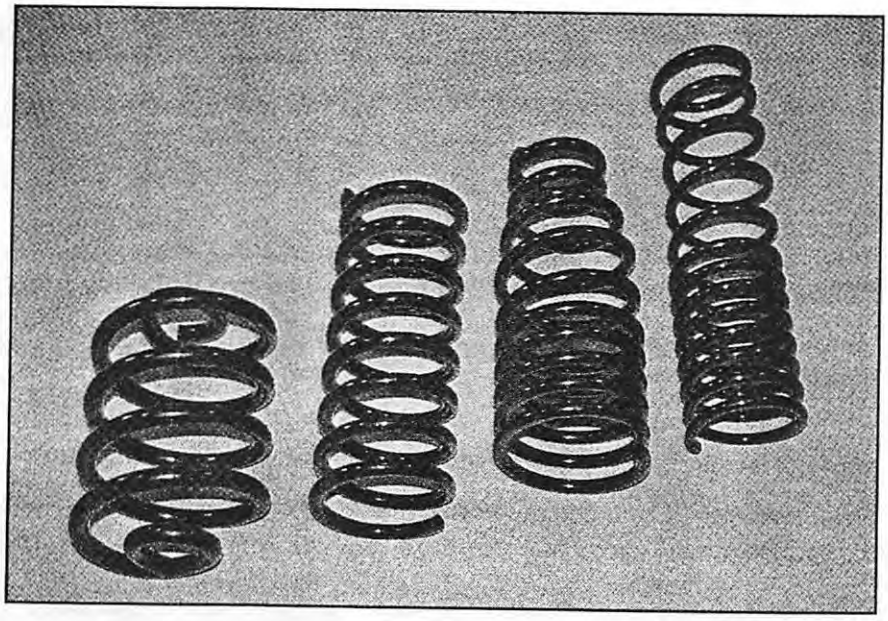
The bottom valve helps the working piston by helping to control oil flow during compression.



PERFORMANCE SPRINGS

For those who want to improve their vehicle's handling and get that "lower" look, TOKICO offers performance springs.

Springs are a critical part of the suspension, so it is extremely important that they be properly designed and manufactured with quality material.

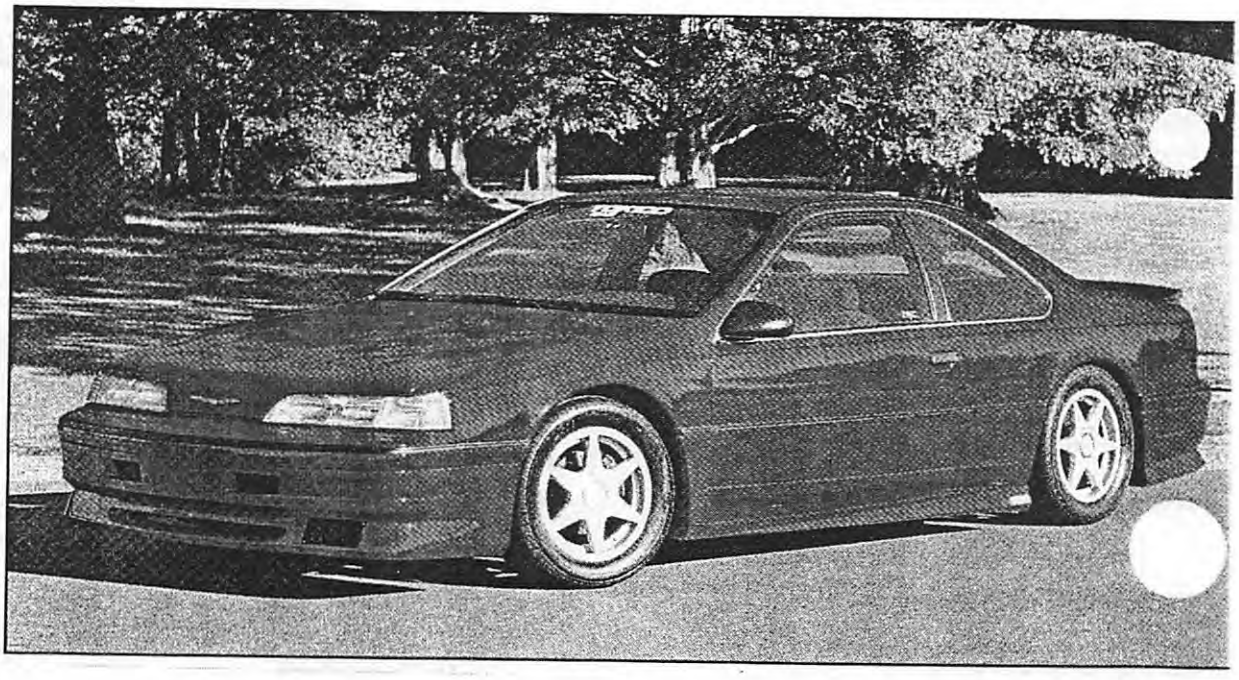


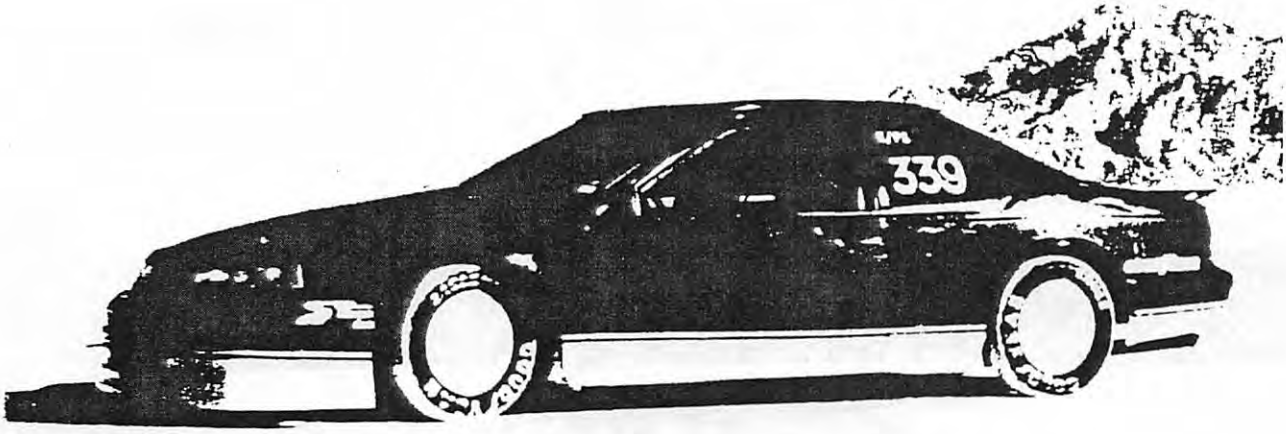
Lowering a vehicle properly can improve both handling and appearance. Lowering a vehicle too far will cause a harsh bumpy ride and will usually damage shock absorbers and other components. These types of problems can hurt your vehicle's value.

TOKICO springs are designed for proper lowering and are built with fine alloy spring wire such as chrome silicone. Even though the cost is higher the quality and reliability justify the cost.

The amount of lowering and spring rate varies, and depends upon the manufacturer and vehicle model. TOKICO springs are designed to improve handling and appearance, however, since they reduce travel and increase spring rate, people who must drive on very rough roads may be wise to maintain stock ride height.

When installing lower, higher rate springs, it is important to take measurements before and after installation. It is also important to use a performance shock absorber like TOKICO. Original shock absorbers rarely have enough damping force to properly control performance springs.





THUNDERBIRD SC 205.1 mph

1992 "World of Speed"	Bonneville Salt Flats	September 26, 1992
Land Speed Authority	Stock Bodied Sedan Class II	Record - 202.281
Utah Salt Flat Racers Assoc.	E-Production Supercharged	Record - 201.261

On September 25 & 26, 1992 a modified Thunderbird SC set two new land speed records at the Bonneville Salt Flats. Both classes are for production Sedans with Supercharged or Turbocharged engines. All cars must retain the stock bodywork and the original engine although some engine modifications are allowed. Class records are based on the average of two runs in opposite directions. The fastest one way speed was 205.1 MPH.

Some of the pertinent vehicle specifications are:

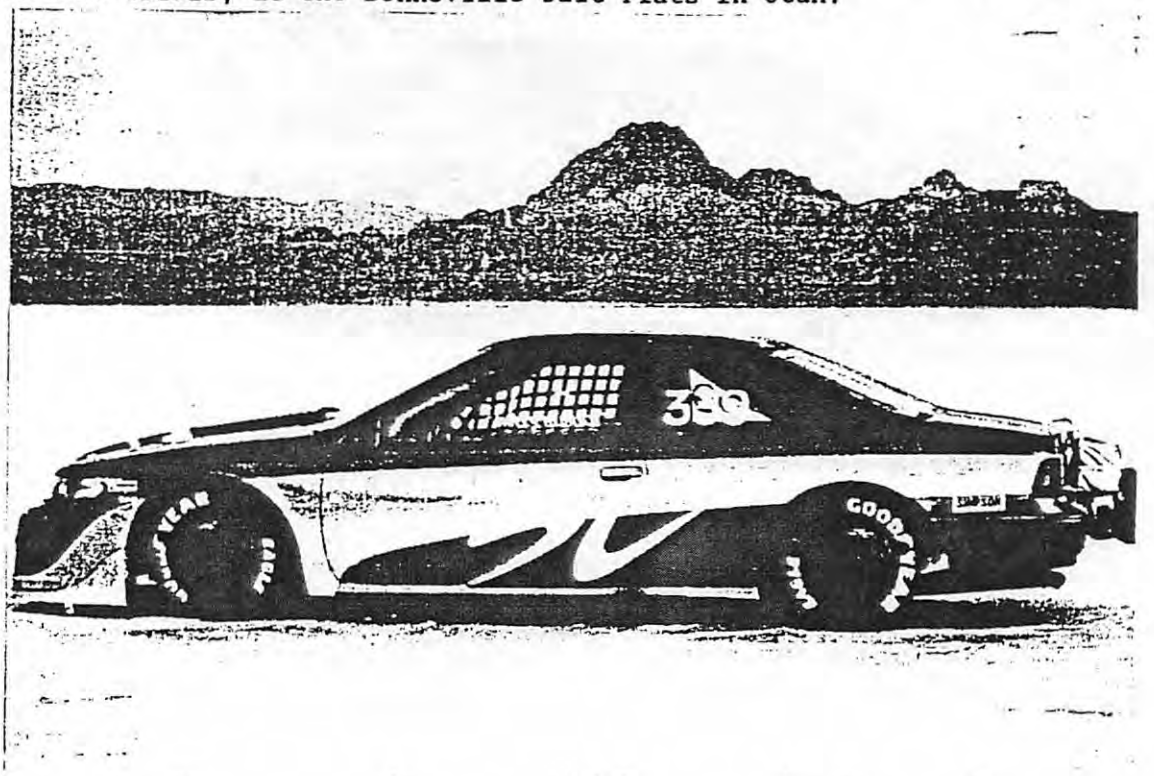
Production T'Bird SC with Supercharged V-6 Engine
Production Engine, Transmission, and Axle
Prototype Supercharger
Revised Camshaft and Valvetrain
Larger Air to Air Intercooler
Ported Cylinder Heads and Modified Intake Manifold
Headers and Open Exhaust
Revised Ford EECIV Engine Control System
Ford SVO Front Facia
Roll Cage, Drag Chute, Halon Fire System, 5 Point Safety Belts

This Thunderbird was a project of the T'Bird/Mark Development Department Ford Motor Company in conjunction with Sports Car International Magazine. This project would not have been a success without the cooperation of the following groups within Ford and our Supplier Organizations.

3.8L Design Group - E.P.M.E. Ford Motor Co.: Engine Components & Advice.
R.W.D. Powertrain Dev., Fo. Mo. Co.: Engine Calibration & Data Acquisition.
Axle & D/L Engrg & Sterling Axle Plant, Fo. Mo. Co.: Axles & Driveshafts.
Aerodynamics Department, N.A.D., Fo. Mo. Co.: Aerodynamics Advice.

Goodyear Tire & Rubber: Bonneville Racing Tires
Gates Rubber Co.: Prototype Supercharger Drive Belts
Eaton Corp.: Prototype Supercharger
Watson Engineering: Exhaust System
Intelligent Controls Inc.: Intercooler System
Roush Technologies: Engine Build and Vehicle Preparation
Luk Corporation: Prototype Clutch
Professional Flow Technologies: Mass Air Flow Sensor

On August 24, 1990 the Record books were rewritten at the Bonneville National Speedweek Trials, at the Bonneville Salt Flats in Utah.

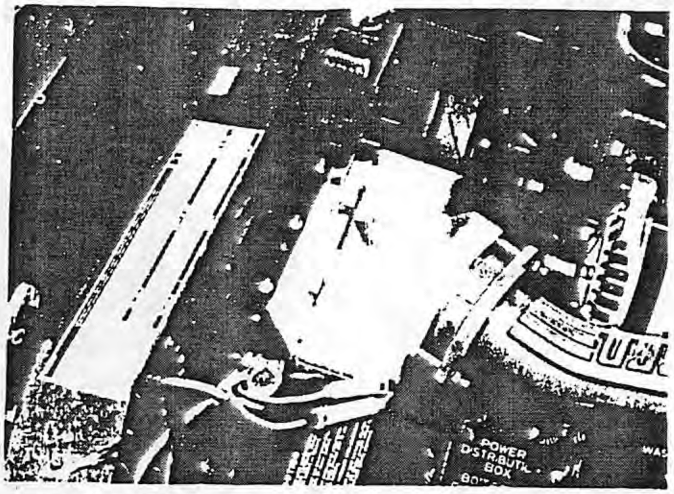


194.631 mph *Thunderbird SC*

Powered by a modified production supercharged V6 engine, this Thunderbird SC set a new record at the 1990 Bonneville National Speedweek Trials. Running in the Production Supercharged class, not only did it set a new record in its own engine displacement category, but it came within 0.4 mph of breaking the record set for the next larger engine displacement category. Having essentially stock body panels, and using production suspension and steering components, this can truly be stated as being the fastest production based Thunderbird SC in the world.

This Thunderbird SC has been specially built to be utilized as an Engineering Development Test Vehicle. To help study the effects of high speed conditions on production components, a 26-channel data recorder is mounted on board and used during test runs. Temperatures, pressures, vehicle speed, component RPM's, and elapse time of run, are recorded during each trial run and later analyzed to determine how each effects the vehicles overall performance. Adjustments, component changes, and calibration variations can also be quickly analyzed with back to back data runs to determine their overall effect on the change in performance. A Vehicle Ground Speed Analyzer is mounted inside the car and measures the actual speed relative to the traction surface (ground). Combining this data with the Indicated Vehicle Speed calculated from the on board computer, an analysis of wheel slip can be studied for each trial run. All data and information collected is combined together to help develop optimum horsepower for the most efficient way of producing maximum speed.

This Thunderbird SC was sponsored at Bonneville by Specialty Car Development of Ford Motor and Sports Car International Magazine. But, without the help and support of all participating organizations of Ford Motor involved with the Thunderbird platform, this accomplishment would not have been possible.



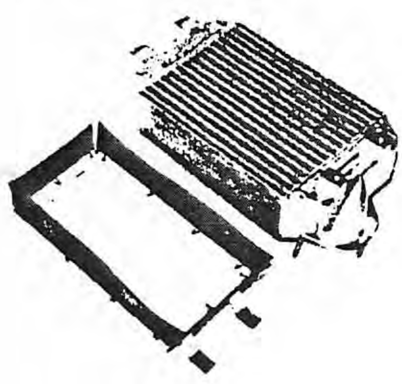
INTERCOOLER UP-GRADE SYSTEM 3.8L T-BIRD SUPER COUPE

Get a quick 7% increase in maximum power at 5,000rpm and as much as an 11% increase at 3,500 rpm with this new intercooler and inlet air duct assembly from Spearco. The components are easily installed in about two hours with simple hand tools. This presents by far the easiest, quickest and most cost-effective method of power improvement for this vehicle with no increase in boost pressure. This system provides cooler air charge which reduces thermal load on the engine and eliminates detonation.

This intercooler core assembly and special air duct is a drop-in replacement for the small Ford unit. The core has a 22% larger face area and 48% more mass area or cubic size. In addition to being much more effective than the stock unit, it weighs about 3 lbs. more, which contributes to improved heat sink characteristics.

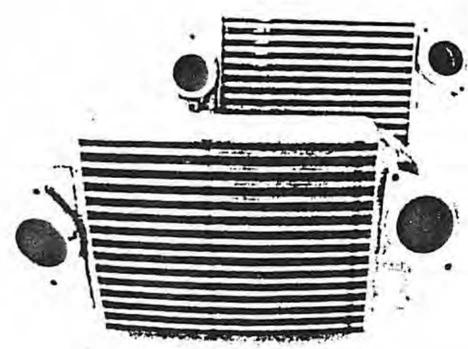
All of this is accomplished with a 9% reduction in charge pressure drop. During testing, at 10PSI boost, we measured compressor discharge temperature as high as 310° which makes a high performance intercooler very important at stock boost levels and essential at higher boost levels when the compressor is speeded up or a high capacity supercharger is installed . In these cases, compressor discharge temperatures can reach as high as 375° and the use of this high efficiency intercooler is even more beneficial.

Part Number 2-425 $649.00



Left: Spearco Intercooler Assembly and Air Duct.

Right: Comparison of Spearco core assembly to stock core assembly.



SPEARCO
PERFORMANCE PRODUCTS, INC.
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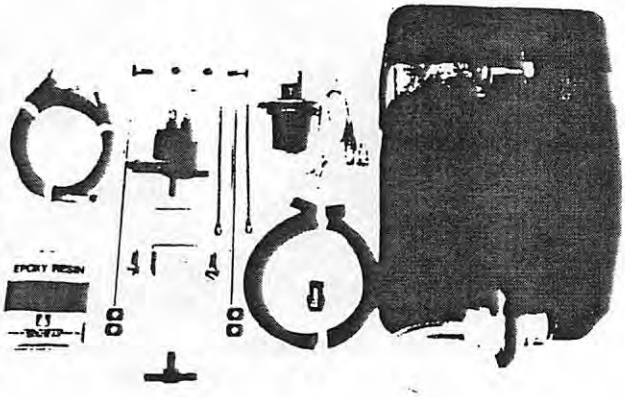
SPEARCO

INTERCOOLER OPTIMIZER — Spray Cooling System for Intercoolers



SPEARCO'S proven, 16 year technology in water injection has now been focused on an evaporation cooling spray system to greatly improve the cooling performance of any intercooler system. Injecting a controlled quantity of water into the air entering an engine results in charge air cooling as the water is evaporated and flashes to vapor. The same is true as water is sprayed over the ambient air side of an intercooler. Technically, the cooling takes place by evaporation and convection. The cooling effect can be very pronounced on a hot, dry day and basic physics shows us that for every pound of water evaporated, approximately 1,050 B TU of heat is absorbed. Since our reservoir holds .95 gallon or approximately 8.2 pounds, this equals 8,610 BTU!!

For comparison, lets look at a typical 2.5L turbo, intercooled engine. At maximum rpm and load the intercooler will be rejecting approximately 900 to 1,100 BTU/Minute. It is then easy to see that, even if we get less than ideal spray and coverage of the intercooler, we can anticipate increased intercooler performance during these periods of maximum power by 25% to 35%. Depending on charge temperature and other factors, this can reduce the charge temperature another 45° to 65° F. A large reduction with a resulting power increase!!!

This system features a small, 12V pump and motor which supplies water at 19PSI to a special, wide-angle spray nozzle for maximum intercooler coverage. This pump and a solenoid valve are triggered by a boost pressure switch and the solenoid valve prevents drip or loss of water if the reservoir is mounted above the level of the nozzle.

Part Number 2-2200

Complete system includes detailed instructions applicable to all intercooled vehicles with the choice of four different spray nozzle mounting methods.

Part Number 2-2200 Intercooler Optimizer **$120.00**

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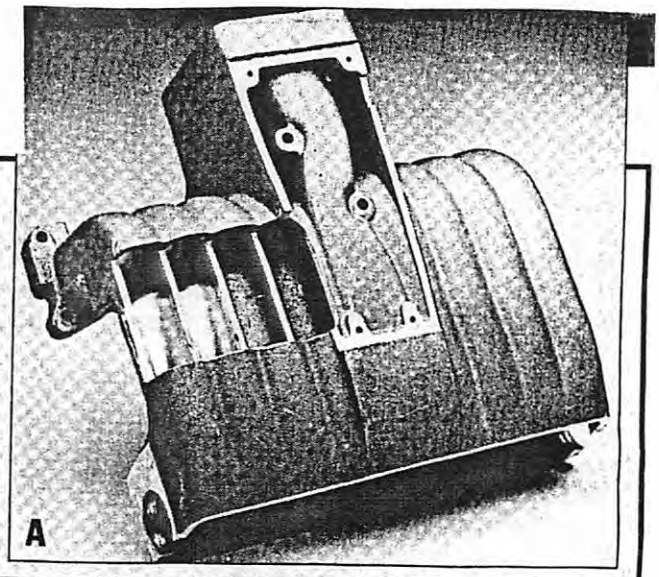
Extrude Honing To Improve Flow

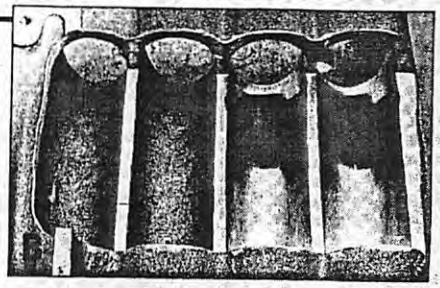
The major modification made to the 5.0-liter V8 was to Extrude Hone the upper and lower portions of the intake manifold. If you're unfamiliar with Extrude Honing, it's a process that forces an abrasive media through channels to polish the surface *(photo A)* and/or enlarge *(photos B&C)* the cross section. The process dramatically improved the flow rate and matched runner-to-runner flow *(see chart)*. This is crucial for improving engine power in the T-Bird because the manifold dimensions are more compact than those of the Mustang to compensate for the lower hood line.

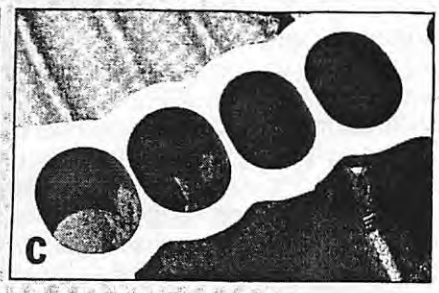
The result is that throttle response is more crisp and the engine is smoother at low rpm than when stock, unusual because (generally speaking) a larger runner cross section tends to trade off low-end torque for power on the top end. Since this manifold is more compact than the units fit to the Mustang, opening up the runners a small amount appears to have put the engine right in the middle of the "torque window."


A

Runner Flow Chart

Runner	Stock	Extrude Honed
1	146	241
2	167	236
3	167	233
4	173	230
5	152	233
6	167	236
7	164	241
8	173	236
Variance:	27	11




C

EATON CORPORATION APPOINTS MAGNUSON PRODUCTS AS IT'S ONLY OFFICIAL REPRESENTATIVE OF EATON SUPERCHARGERS FOR SALES, SERVICE AND AFTERMARKET APPLICATIONS

Magnuson Products has been appointed by Eaton Corporation as the only official rebuilder of Eaton supercharger products in North America. Eaton Corporation is a major OEM supplier of superchargers as evidenced by their use on Ford Thunderbird, Mercury Cougar XR-7, Buick Park Avenue and Riviera, Oldsmobile 98, Pontiac Bonneville, Aston Martin Vantage, and DB-7. Eaton has been developing superchargers for the original equipment markets since 1982 and selling them in that market since 1988.

Additionally, Magnuson Products has been appointed as the sole distributor for promoting and distributing Eaton superchargers and supercharger components to the aftermarket in North America. Working independently and with other qualified aftermarket organizations, Magnuson Products will continue the work begun by Eaton. In this new position, Magnuson Products will supply Eaton superchargers and supercharger components to and assist others in packaging the Eaton supercharger for aftermarket applications.

Jerry Magnuson (former Magnacharger Designer/Builder) brings 30 years of supercharging experience to these ventures and will be available to assist you in your applications. Magnuson Products will initially offer four sizes of Eaton superchargers (M45, M62, M90 & M112) that will be appropriate for engine sizes 50 cu. in. to 400 cu. in. Parts and service will be available on a one or two day turnaround.

For more information on sales and service, please contact Magnuson Products, 3172 Bunsen #K, Ventura, CA 93003 (Tel. 805-642-8833).

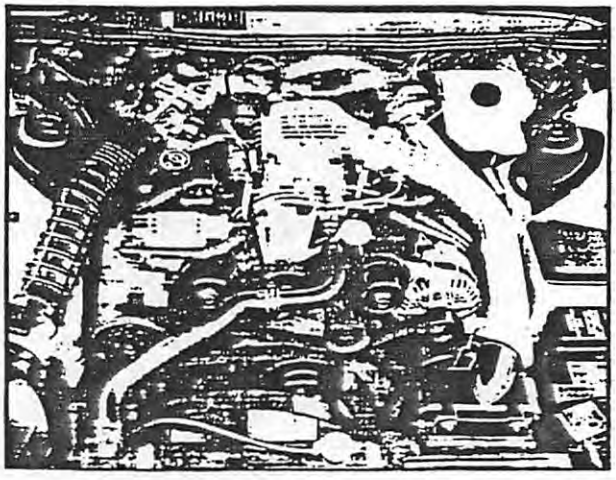
Our first business responsibility is service on all Eaton Supercharger products, including by-pass valves, manifolds and other support items.

We service all the assemblies separately and can supply them that way, or as complete superchargers. Complete means the front cover assembly (nose drive), rotating groups (rotors, gears, bearing plate, bearings and seals timed up) and rotor case (case with rear bearings). All rebuilds reflect the newest Eaton technology as far as parts are concerned. For instance, all rotor groups starting in 1994 have coated rotors, so if we service a 1989 SC Thunderbird supercharger, it will have the upgraded coated rotors.

Ford has used the Eaton M90 supercharger on Thunderbird SC models since 1989. Note: 1989 through 1993, first generation. . . 1994 through 1995, second generation.

GM - Buick 3.8 V6 has been using an M62 Eaton Supercharger since 1992 on special models, first generation. It was upgraded in 1994, second generation.

Note To Thunderbird SC Owners: We have special trade in allowances on your old superchargers. Ask us about upgrades and special equipment. Call us for details. Telephone number: (805) 642-8833.



EATON SUPERCHARGERS

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For Service - New Sales - New Application R&D

ALSO AVAILABLE THROUGH SUPER COUPE CLUB OF AMERICA

"We Drive and Race What We Sell"

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Why an Eaton Supercharger?

1. How does a supercharger work? A supercharger is a positive displacement pump. Its purpose is to supply an excess volume of intake air to the engine by increasing air pressure and density in the intake manifold. The supercharger is matched to the engine by its displacement and belt ratio, and can provide excess airflow at any engine speed. This concentrated charge of air provided by the supercharger results in a more powerful combustion stroke in the engine's cylinders.

2. How is a supercharger different from a turbocharger? A supercharger is connected directly to the crankshaft by a belt unlike a turbocharger which is driven by exhaust gases. The improved horsepower and torque, at lower engine rpm's, is obtained by pumping extra air into the engine in direct relationship to crankshaft speed. The positive connection yields instant response, in contrast to turbochargers, which must overcome inertia and spin up to speed as the flow of exhaust gas increases. The supercharger is a way to get around "turbo lag". The lubrication system also differs in that, the supercharger is self-contained whereas the turbocharger requires engine oil.

3. How did Eaton become involved in supercharging? In 1949, Eaton toyed with a helical rotor supercharger and even built a 75-cubic inch displacement prototype. This supercharger was "temporarily" set aside since improved performance was achieved through larger displacement engines. The late 70's spurred new interest in supercharging since gasoline prices were driven up due to the energy crisis. Eaton continued to improve its design and addressed issues such as noise and durability. It was through these many design improvements and an eye toward manufacturing that allowed Eaton to begin working with Ford on the 3.8L engine in 1984. Vehicle demonstrations, durability and noise were refined as well as a cost effective manufacturing process which allow the Eaton supercharger to be installed on the first production supercharged vehicle since 1957. The 1989 Ford Thunderbird SC was awarded the Motor Trend Car of the Year award. In addition, three engineers were also recognized for their work on the supercharger having been awarded the Society of Automotive Engineer's first Henry Ford II Award for Engineering Excellence.

4. The roots supercharger has been around for a long time. How is the Eaton supercharger different? The Eaton supercharger is essentially a Roots blower pump, with one substantial design wrinkle: Each rotor has been twisted 60 degrees to form a helix. The two counter rotating rotors have three lobes, which intermesh during operation. These twisted rotors, along with specially designed inlet and outlet port geometry, help to reduce pressure variations resulting in a smooth discharge of air and a low level of noise during operation.

5. How long has Eaton been manufacturing superchargers? Production for Ford Motor Company began in 1989 with General Motors production beginning in 1992.

6. Are there other supercharger manufacturers? Other than the aftermarket, there are currently no other supercharger manufacturers in the United States.

7. What are the benefits of the Eaton supercharger? 1) Patented technology to reduce noise, 2) Proven manufacturing capability, 3) Packaging flexibility, i.e. reduced package size, 4) Self-contained lubrication, i.e. no external oil connections to the engine, 5) Bypass system used for controlling non-boosted conditions resulting in better fuel economy, 6) Competitive pricing.

8. How much power does the supercharger add? This is dependent on the size of the supercharger and also the size of the engine. Typical power improvements in the range of 25% to 50% are not uncommon.

9. How efficient is the Eaton Supercharger? Typically, the volumetric efficiencies are around 90%. (Performance curves, including Volumetric efficiency, are available upon request.)

10. Can all engines be supercharged? Yes, supercharging is very compatible with all engines whether the engine be two or four valves/cylinder, gasoline, diesel or 2 stroke.

11. Are special engine modifications required for installing the supercharger? This is dependent on the level of power increase desired and the given engine design.

12. Are superchargers noisy? The Eaton supercharger system incorporates a specially designed bypass valve, which is actuated by a vacuum motor near the throttle body and recirculates the supercharger air flow when boost is not required. During typical driving conditions, the engine is under boost around 5% of the time, which means the remaining 95% of the time the engine is under vacuum, allowing for better fuel economy and a quieter ride. In addition, the helix angled rotors, along with specially designed inlet and outlet port geometry, also reduce pressure variations resulting in a smooth discharge flow and a lower level of noise during operation. Careful attention to the techniques used in installing the supercharger also plays a major role in reducing the noise emitted by the supercharger.

13. Is the product durable, safe? The durability of the Eaton Supercharger was the first criteria which was addressed during the designing of the supercharger. Dedicated engineers with backgrounds in compressors, gearing, tribology and metallurgy, as well as thermal and structural analysis enabled Eaton to find solutions to many durability concerns. In addition, customer durability testing employed strict criteria for increments of torque and speed. Successful completion of numerous 500 hour durability tests established a firm grasp on achieving a durable product. In addition, numerous vehicles have successfully completed 100,000 mile, OEM, vehicle durability. Improvements in bearing and seal designs also aided in a product which meets all OEM durability criteria. Safety, in turn, follows suit once durability is achieved. The OEM criteria for safety must be designed into the product prior to supplying any manufactured component.

14. Is the Eaton Supercharger easy to service? The supercharger is serviced as two units, the nose drive and the supercharger itself. The rotors are supported by ball bearings in front and needle bearings at the rear. The drive gears are pressed into place and require precise timing to achieve proper rotor to rotor clearances. Therefore, the supercharger is replaced as a unit, and is not serviceable. The supercharger also has a self-contained oiling system that does not require a fluid change for the life of the vehicle.

15. What type of fuel is required? What about fuel economy and flexible fuels? Supercharging is compatible with all types of fuels including flexible fuels. Fuel economy is not compromised, as described above in item #12, when utilizing the bypass system in conjunction with the supercharger.

16. Is the supercharger recyclable? How does supercharging affect the environment? All supercharger components are recyclable.

17. What is the cost of a supercharger? This is dependent on the size of the supercharger required and annual volumes.

18. Does Eaton see supercharging in the future? With the continued interest in performance and the desire to maintain fuel economy, supercharging could be the ideal product of the future. Using a supercharger to increase power on a smaller displacement engine, in turn achieving the performance of a larger engine, but not compromising fuel economy seems too good to be true — but that is what the Eaton supercharger provides.

19. Is the supercharger available for aftermarket applications? To date the Eaton supercharger has been designed for specific OEM applications. This is due to the fact that each engine application has unique hardware installation requirements and the design criteria of the supercharger is matched to the specific engine. Recent interest has been shown in this market and has resulted in four sizes of Eaton Superchargers being offered by Magnuson Products.

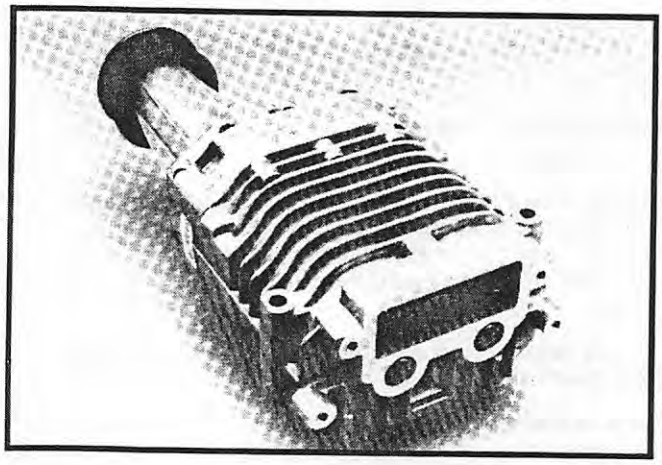
"S" MODEL SUPERCHARGERS

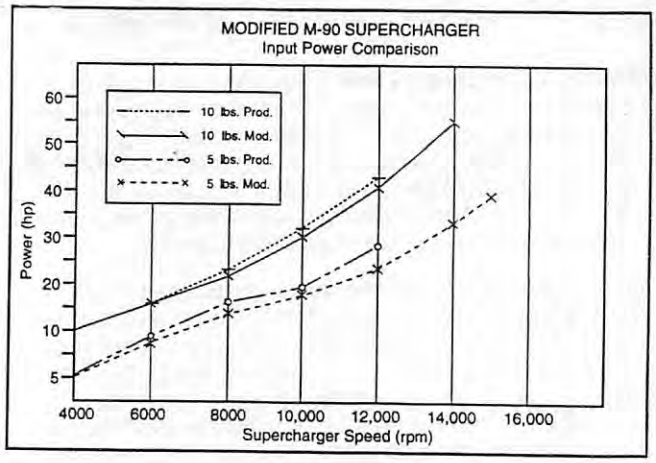
FOR THE PERFORMANCE MINDED ENTHUSIAST

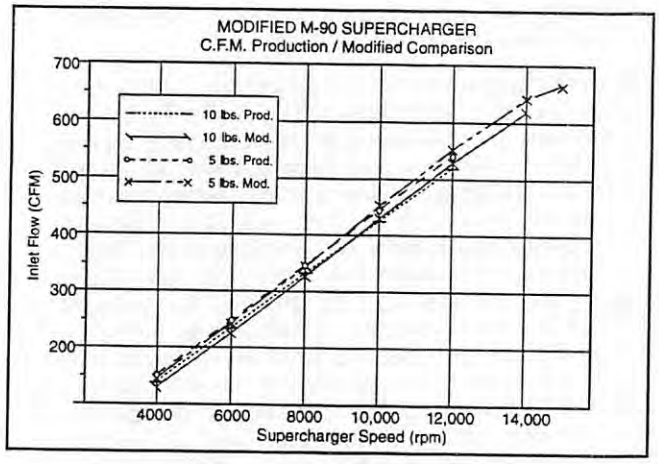
Try our high flow case with super modifications that gives better flow and higher output. For Ford product we take a '94-'95 high flow housing, massage all the flow areas of the inlet and outlet, and get more C.F.M. and blower speed than stock while the temperature and input horsepower come down. This all leads to better overall efficiency.

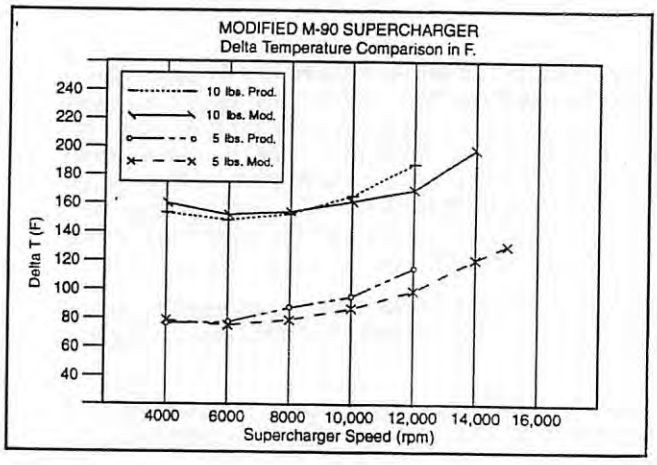
Ford and Mercury owners, with '89-'93 models wanting more power, may take advantage of upgrading their units by bolting on a '94-'95 high flow case and intake manifold. This gives about 18 h.p. Combine this with an "S" modification and you are looking at 25 to 30 h.p.

"S" modifications may be made to all Eaton Superchargers on the outlet side. Intake modifications are selected as to "type" on all others. Call for pricing on this super improvement.









WARRANTY

Magnuson Products warrants and will repair or replace, at our option and after inspection in our facility, any new Eaton manufactured product found defective by means of material and/or workmanship for a period of one year from invoice date. This warranty does not cover products which fail because of accident, alteration, misuse, neglect, racing, improper installation, abuse, or when used in applications for which they were not designed or approved. Removal, installation, transportation, labor, inconvenience, damage of other components, personal damage or injury and/or any injury or liability to other persons or property are not covered under this warranty. Magnuson Products shall not be liable for any and all consequential damages occasioned by the breach of any written or implied warranty pertaining to this sale in excess of the purchase price of the product sold.

EATON SUPERCHARGERS

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