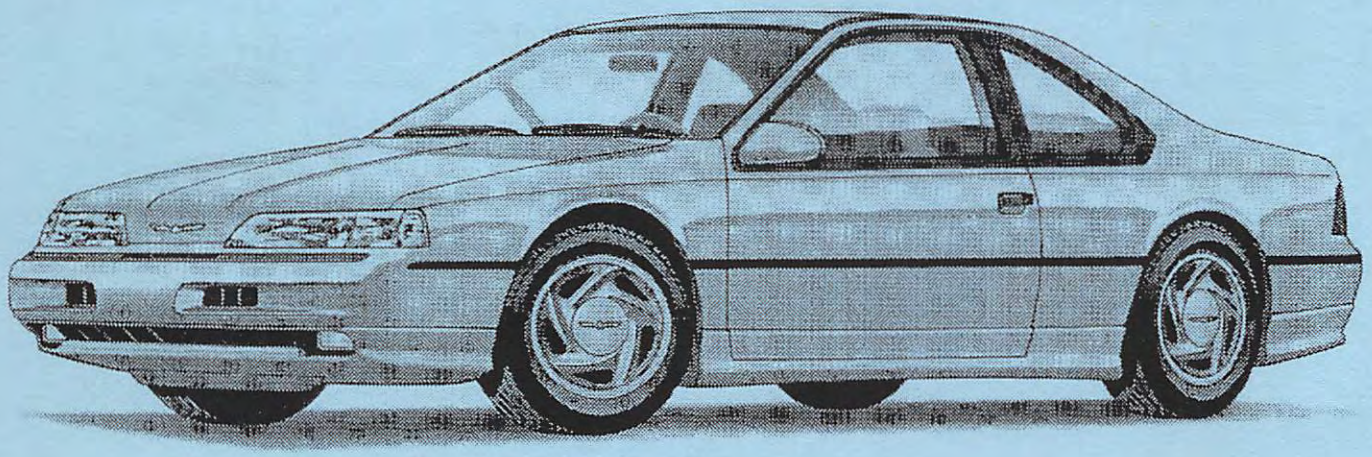
CHARGIN' THUNDER

VOLUME II (TOO LATE IN '98) DEC. 1997

THE OFFICIAL NEWSLETTER OF THE SUPER COUPE CLUB OF AMERICA



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

Bill Hull
President & Editor

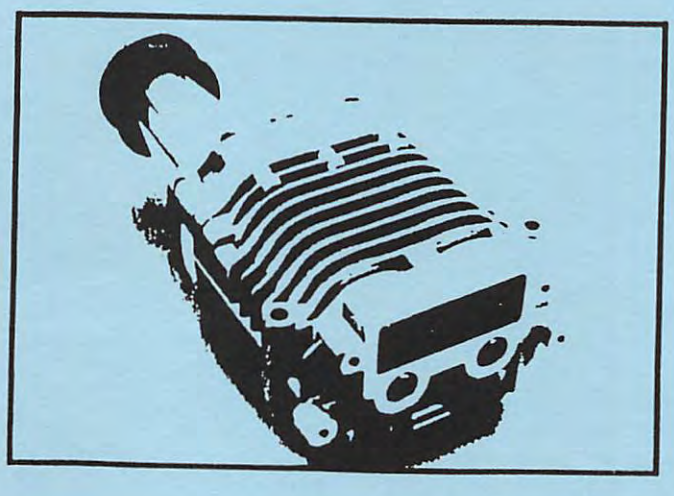
"S" MODEL SUPERCHARGERS

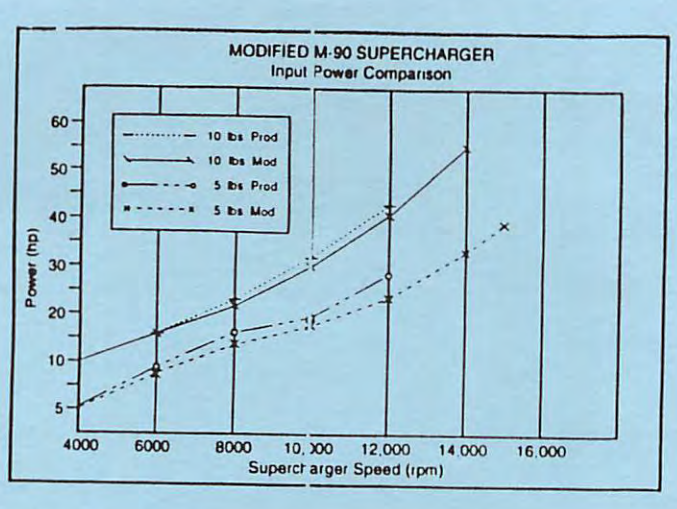
FOR THE PERFORMANCE MINDED ENTHUSIAST

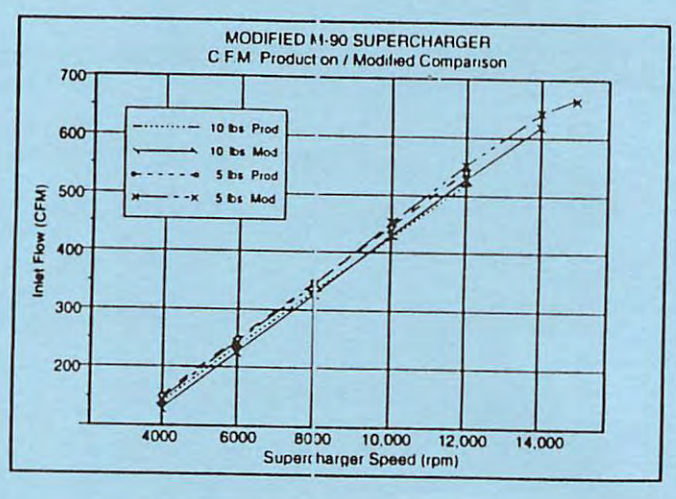
Try our high flow case with super modifications that gives better flow and higher output. For Ford product we take a '94-'95 high flow housing, massage all the flow areas of the inlet and outlet, and get more C.F.M. and blower speed than stock while the temperature and input horsepower come down. This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

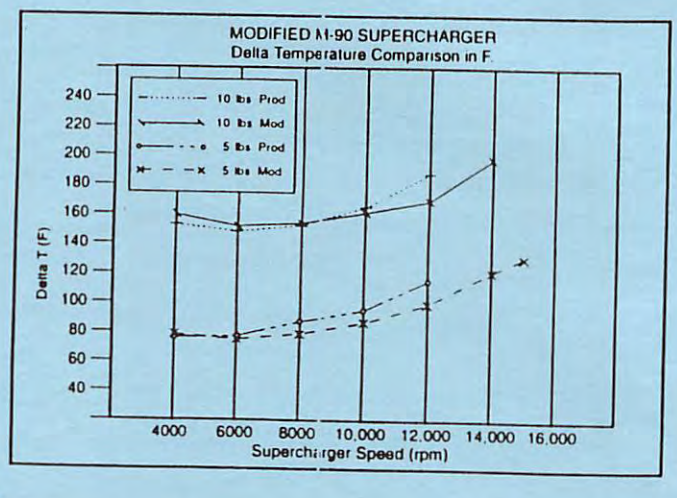
Ford and Mercury owners, with '89-'93 models wanting more power, may take advantage of upgrading their units by bolting on a '94-'95 high flow case and intake manifold. This gives about 18 h.p. Combine this with an "S" modification and you are looking at 25 to 30 h.p.

"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.









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

Finally, better late than never, Dec. 97 Chargin' Thunder has arrived! Everyone can quit holding their breath now - the long wait is over! I did it, I actually did it! Two issues in less than one month! Is there any doubt that a bi-monthly can & will be done in 1998? This year is shaping up as the big break-out year for the SCCoA! Coy Miller is already so backed-up working on 3.8L SC engines & heads, he is actually turning down work by telling people there is a 4 month waiting list for his Stage 1 & Stage 2 monsters. However, help is on the way! Your dedicated President is soon to become Coy Miller's new office manager, sales & marketing rep., & back-up machinist/engine builder! That's Right - this Club has driven my poor, long-suffering, wife to the point of asking me to leave (24-hour/phone calls, etc). Can't say that I can blame her - this Club, as my wife tells me, has become my LIFE! I no longer have the spare time to do the things we used to do together, but I am in too deep to give up the Club, so I am moving the Club to Harrisonburg, VA, in a couple of months, to be closer to Coy Miller's shop (also the SCCoA header factory which is in the same general vacinity). My pending separation from my wife is going to be very amicable, no one is angry at the other, it just seems to be the right thing to do, for both of us.

Anyway, I have always wanted to learn how to re-build hi-po engines the right way, & now I have the chance of a lifetime! While I run Coy Miller's office, he will have much more time to work on SC engine building (which he much prefers doing, as opposed to talking on the phone 6 hours per day). In my spare time & on week-ends, Coy will teach me how to operate all of his hi-tech machinery - soon I will be able to do complete re-builds on my own! As Coy is already turning down stock re-build work, he is to the point where his available time will be about 75% SC dedicated, with just enough time left over to do an occassional big-block Bow-Tie or Blue-Oval race engine! With everything concerning Super Coupe's all combined in one location, don't be surprised to see SCCoA headquarters displayed on Road Atlas' "important places of interest" in the future!

As this issue of Chargin' Thunder finally completes the 97 SCCoA calendar year (Mar thru Mar), 1998 dues, for those of you who wish to continue your membership, are due anytime between now & the March 98 newsletter. Dues remain at $40, but will include 6 newsletters for '98, & the format will remain much the same as this issue (including several SCCoA web-site postings per issue). I did not include the parts price list in this issue as it has not really changed since the last, & besides, this computer has erased my master copy from Cyberspace. SCCoA member Joe Sarcona's engine goes on the dyno this week, complete with a 100HP nitrous kit! Results will be available for the March '98 issue! Get those checks & letters in the mail folks, so as not to miss even a single, exciting issue of your SC dedicated newsletter!

Kenny Holcomb has reserved a separate area for the SCCoA for the up-coming "5.0L Civil Wars Shoot-Out" at Rockingham, NC, in April. I am going to try to have a SC only reserved area at the World Ford Challenge in Bowling Green, KY in May also, so we can all line up our SCs together. More info on this May bash will be forth-coming in March '98 C.T. As most of you know, we already have a reserved parking area in Carlisle, PA for our annual SC convention in June. I have reserved my usual vender space (3 adjoining units) under the big oak tree again for this year, so interested SC owners can actually see & feel all the go-goodies once again!

Well, to all of you (now) 690+ members, keep the faith! I just about have my 1990 SC ready to hit the road again - my 450HP Coy Miller engine goes on the dyno in about two weeks - then into my 1991 SC, just in time to avoid my impeachment!

Bill Hull, editor

BIRDS OF A FEATHER - Letters to the Editor....SCCoA Web-Site Postings, etc.

From: Spiros Gounaropoulos
Chantilly, Va.

Subject: Coy Miller heads & cam - SCCoA bolt-on's

As I am the first SCCoA member to have actually put the stage 2 Coy Miller heads & cam (w/ most of the SCCoA bolt on's) on the road - thought I would pass on some info to the rest of the Club. I own a 92 SC 5-speed, 3.55 gears, with most of the bolt-on's except up-graded intercooler - still using my stock old-style blower w/ stock pulley! After installation problems (because of third-rate mechanics), which have nothing to do with the quality of the Coy Miller or SCCoA parts, my SC has been transformed into an absolute "Road-Rocket"! Like Bill Hull warned me in advance - these cars can be DANGEROUS if they fall into the wrong hands! Even though my SC still has the stock bottom-end (soon to go to Coy Miller for the Stage 2 short block treatment), we estimate my engine is making 400+ HP, & 450+ lb/ft of TORK! NO CHIP! Bill Hull recommended I keep my shift points at 5500rpm (because of the stock bottom-end), but this engine wants to rev to 6000+ so bad & it spins up so quickly, I must keep my eye glued to the tach! Even with the stage 2 camshaft, it is very docile on the street (18" of vacuum at idle), 800rpm idle w/ 75mm BBK T.B, has a slight lope (which I love), but as soon as I "drop the hammer", it absolutely screams! Where-as before the engine was pretty much done making power by 4500rpm, it now just wants to rev & rev! WHAT A BLAST!

Shortly after getting my SC back on the road, it developed an erratic idle. Not knowing the cause, I called up Bill Hull. He told me if I would make the 2 hour drive down to SCCoA headquarters, he would be more than glad to try to help me out. By the time I got there, 2 other SCCoA members were already there - shortly there-after, the "Hangin' Judge", Dick Adams arrived after making the 3 hour drive up from Roanoke Rapids, NC. While David "The Pocket-Rocket" Glista was installing some SCCoA parts on new member Jim Early's SC, Bill immediately found my problem - a loose collar nut on my SCCoA modified top. Bingo! Back in business! Everyone there got a chance to drive my transformed "Red Road Rocket" & all were amazed at the abundant power & quick revving engine!

As if there was any previous doubt in my mind about these mods - I can say one thing. THIS STUFF WORKS BIG-TIME! Thanks Bill, for making these parts available & for finding out about Coy Miller!

Spiros Gounaropoulos

To: All SCCoA members
From: Dick Adams - The Hangin' Judge

I was also at SCCoA headquarters on Saturday, Jan. 24, and had the opportunity to drive Spiro's car. I can tell you all firsthand that this car truly is a "ROCKETSHIP". Anyone who doubts the effectiveness of SCCoA bolt-on's & Coy Miller head & cam work should drive this car. Great job Spiros - I'm jealous! Later.....'DA JUDGE!.

To: SCCoA Members
From: Rich Thomson, V.P., SCCoA

Everyone,

I was not able to make the SCCoA "mini-meet" on Jan. 24, but as I live very close to Spiros, & have helped him with his SC on several occassions, I have driven this car also. I can say, for a fact, it is a real "Screamin' Demon"! His engine revs so fast, expecially above 4000rpm, when the cam & heads really "come together", I told Bill that this car should have a rev limiter installed on it! Of course, it already comes from the factory with one (6200rpm), but I felt the need for one set for 5500rpm, as this engine just doesn't know when to quit! I also confirm that this 92 red SC is truly a BLAST to drive!

Rich Thomson, V.P.
SCCoA member for life!

THUNDERBIRD SAFETY

Posted on: **Sunday, January 18, 1998, at 1:49 p.m.**

Posted by: **Kenneth W. Miller Jr.** [1995 LX -- 3.8 EFI]

I'm not sure how many of you are aware that you are driving the safeest car on the roads today. This information is accurate for the 94 - 97 models, I'm not sure about previous years as that information was not available. Out of all the automobiles tested by the government each year, a score called the Injury Index is giving to each car that puts a numerical value on it's frontal 35 MPH crash. Out of all the competitors, domestic and import, big and small, the Thunderbird / Cougar / Mark VIII have been rated at 1632, the best in the industry. The a lower number is better, as most other cars rate around 2500 tp 4000, while many are even over 5000.
To continue, it is determined what percentage the driver and passenger have of obtaining a life threatening injury in a 35 MPH crash into an object that would stop them completely at the point of impact, (like a concrete wall, what they use to crash the cars tested). It's rating is "Very Good", while the driver has an 8% chance of death, and the passenger has a 7% chance of death in a similar accident. The only car I found that was better in any way is the Ford Probe / Mazda MX-6 have a 5% chance of death on the driver, but has 12% on the passenger while it's injury index was up at 2026. The only car near the Thunderbird was the Crown Vic /Grand Marquis duo rate at 8% driver and 8% passenger with an injury index of 1678. It seems all the majority of the safest cars are Ford products, or is it just me. Most of the automobiles rated in the 20% to 40% area for chance of death to driver & passenger, while some are even higher, much higher.
Also, I noticed that the SC that Motor Trend tested a few years ago had a 60 MPH to 0 MPH stopping distance of 120 ft., an that is better than any stock Mustang , Camaro, Firebird, etc. that I have ever seen, despite it's extra weight.

Re: ATTN: Bill Hull

Posted on: **02/08/98 at 09:42:21**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]
Charlottesville, VA

In response to: **Re: ATTN: Bill Hull**

Posted by: **Jeff F.** -- 02/07/98 at 05:20:11

> Yes, you can do it for less _I_F_ you know what your
> doing(sorry Bill, you know I luv ya) What you're buying
> from the SSCCoA is trial and error, research, know-how,
> investment in equipment, testing, etc.....development isn't
> cheap. If you don't know what your doing, you'll end up
> spending more w/multiple attempts..and maybe less in the
> end product.

> Read the Judges response....he's correct.

Jeff,

When people purchase the SCCoA modified SC top they are paying for much more than just "trial & error(as we never admit to making mistakes), research, know-how, investment in equipment, testing, etc". They are buying a complete stock SC top ($275 from Ford), plus extensive machine shop work: 1. CNC laser-cut 3/4" aluminum spacer/flange, 2. sand-blasting off the original paint lest it "cooks" while, 3. welding the 3/4" flange to the base of the stock top & welding substantial material around the circumference of the stock out-let throat, to enable them to 4. make four CNC guided mill-cuts - 3 different angle-cuts to "hog-out" the inside of the throat allowing double the air-flow out of the blower, & removal of the weld-bead which joins the flange to the stock-top (Stealth versions), 5. redrilling the 4 mounting bolts holes thru the new flange, & 6. finally, re-surfacing the bottom of the SC top to ensure an air-tight sealing surface. Cost to me $175 each!

Then the fun really begins! I spend over 4 hours porting & polishing these babies (using various air powered carbide cutters & roll-sanders), then repainting them using five separate coats of hi-heat primer & enamel - baking them in an oven between each coat. Then, I kiss each of these treasures for "good luck" before carefully packaging them for shipment to club members wise enough to recognize these "power-adders" for the bargain they are.

I have sold two of these SC tops to members just as I receive them from the machine shop - in a word - "ROUGH"!
Both of these members told me they spent over 9 hours doing what takes me only 4 hours to do (above). I do have an advantage as I do 5 or more at a time (semi-mass production), and have done over 120 of these tops & therefore have picked up a few "tricks" to expedite the process. It is still a nasty job however! I figure I make about $25 per hour for my work, but hey, it is for a good cause - Faster Super Coupes!

Bill Hull, MP&P - Master Porter & Polisher
Graduate & Alumnus - Hard Knocks Univ. class of '68

Re: Header Installation

Posted on: **02/09/98 at 17:22:05**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]
Charlottesville,, VA

In response to: **Re: Header Installation**

Posted by: **Ken Seegers** -- 02/09/98 at 15:45:14

>
Yesterday, I said I was going to stay off this site for a week or so, in order to dedicate my time to finishing the next issue of Chargin' Thunder - as well as the 30-40 daily phone calls I receive, plus porting SC tops, inlet plenums, intake manifolds, etc. plus packaging parts for UPS, etc. Anyway, I did not say I would not take a peek at the web site, and I feel the need to respond to the SCCoA header installation questions.

The SCCoA headers have been improved & up-dated since Watson quit making them back in June '96. Now that we are making them locally, I have more control over quality, etc. These new, improved versions have a larger collector I.D - up from 2.25" to 2.4". In addition, the #5 primary tube, which had previously been the source of burnt plug boots & dip-stick re-installation problems has been extended out further from the header flange, not only improving flow, but more importantly allowing more room for the dip-stick & plenty of clearance for the #5 plug boot.
Also, after much searching, I have found a source for grade 9 8mmX1.25 thread X 25mmL header bolts with a built-in shoulder washer, & a "starter tit" on the end to facilitate the thread match with the heads. These new bolts have a 10mm head on them, like the factory studs, which allows the use of a 10mm socket on several (not all) of the bolts. Another option, which I did on my '90 SC, was to install studs into the heads, allowing me to simply slip the gasket & header over these studs, and install separate lock washers & 13mm nuts. It's about 6 of one - half-dozen of another, but I will probably be removing my headers much more often than any of you, so I figured the studs to be a good idea for any future fiddling around I may want to do.

No one has ever before complained about the O/2 sensor not fitting, as the bung in the D.S. header & P.S. down-tube is in almost the exact position as the factory manifold. The steering rod on most years simply unbolts (1 bolt & nut) and "telescopes" back into the firewall out of the way. On 94-95 SC's the steering rod does not telescope out of the way, but can be worked around without much problem.

The oil cooler coolant lines will work even with the enlarged diameter primary tubes (1-3/4" O.D.). What I did was split the bracket so it would reach around the tubes, & re-installed in the factory location.

As in most everything, the first time is always the hardest. I have done this installation so many times that by now it is a six hour operation (R&R). The mechanics I now have working on SC's can do the complete R&R in three hours (2 men) as they have also done this deal several times - know all the "tricks" & have all the correct tools.

Hope this is of some help! Feel free to call if need be - 804-974-6659

Bill Hull

Re: Who has a 180 Thermostat, does it help?

Gentlemen'

Allow me to throw out some info on this subject. The stock SC radiator, because of the location of the intercooler, is only 2/3 the width of the 5.0l T-bird'S raditor. Also,because it is only 2" thick, it is marginal at best even for a stock SC. As it requires heat energy to produce HP, increasing your HP also increases the amount of heat which the cooling system must be able to handle, easily exceeding the capacity of the stock SC cooling system. The Griffin radiator is 3" thick, an increase of 50%, is of race quality, & very effective (although admittedly not in-expensive).
Some cheaper solutions which work with either the stock or Griffin radiators: 1. Use a good 180 stat in summer (or all year around, depending on climate). The degree rating of a stat refers to it's opening temp - 180 opens @ 180, is fully open @ 205; the factory 197 isn't full open until 222, the factory fan comes on shortly thereafter - too high - not enough safty margin.
The 160 is not fully open until 185 - and can present drivability problems as the factory computer does not go into the fully warm mode until 178 degrees. If allowed to run below this temp, the EEC continues a rich fuel mixture (like leaving a carb choke partially on) which can cause poor performance, economy, even excessive engine wear due to fuel washing of the cylinder walls.
One other thing to remember - the stat measures water temp as it flows by the stat itself, located in the exit neck of the intake - coolant temps around the critical cylinder & especially head water jackets; (& head temps themselves) are much higher! The difference in head water jackets temps vs. stat temps under 15 seconds of full boost may be 100 degrees or more! The difference
in head water jackets temps between a 180 & 197 stat is much greater than their 17 degree difference in opening temp- maybe 60-80 degrees under full boost! Lowering head temps greatly reduces the chance of damaging detonation, allowing you to safely produce more HP!
2. Using an adjustable engine fan thermostat can be very benificial - allows YOU to decide when your fan comes on - not your EEC.
3. Using a "water-wetter" like Red-Line or the SCCoA's "Cool&Clean" can also help alot. These products change the ph of the coolant, help fight harmful corrosion, deposits, acidic action & electrolysis on metal parts, & actually coat your water jackets, improving the coolant's heat transfer properties.
4. Use a 25%-75% coolant/distilled water solution (when tempereatures allow it)instead of 50-50, as water has over twice the heat transfer properties of anti-freeze alone.
5. Install an SCCoA pressure-release radiator cap - the most important & effective $10 a SC owner can spend! Both of my SC's have always trapped an enormous amount of air inside the cooling system whenever I have drained/changed/or refilled even my raditor! The overflow tube, which extends up from the base of the stat housing is useless for expelling trapped air,(which I think was it's intended purpose). When on level ground, the top level of this tube & the top level of the radiator filler neck are the same (as water seeks it's own level). Using a PR cap allows you to "belch" the radiator after refilling with new coolant, & as the car is warming up, allowing this hot,steamy, air to escape into the overflow canister; preventing hot spots (due to trapped air) around the water jackets which can cause possible detonation & blown gaskets! Hope this helps!

Bill Hull

Responses

- **Re: Fuel pressure regulator question for Bill Hull**
  Mitch -- *02/04/98 at 20:16:54*

The job of the FPR is to hold RELATIVE fuel pressure constant. Relative fuel pressure is the difference between fuel rail pressure pushing the fuel out of the injector, and manifold pressure pushing back at the injector tip. Manifold pressure & therefore pressure at the injector tip changes with throttle opening. If the fuel rail pressure were constant for all manifold pressures, then at low engine loads, with the throttle partly closed, reduced manifold absolute pressure would increase fuel delivery when it is not needed. To keep that relative pressure constant as the throttle is opened and closed, the FPR is connected to the intake manifold by a hose. Manifold pressure acts on the diaphragm to hold the relative pressure constant. Manifold absolute pressure is different from barometric (or atmospheric) pressure - 14.7psi at sea level. Your fuel pressure gauge reads "guage pressure" - that is, fuel pressure above barometric, & is so calibrated. Hope this helps.

Bill Hull

Re: Will 16x9s fit in the rear???? more...

Posted on: **02/10/98 at 02:43:21**

Posted by: **Ken Roberts** [1993 LX -- 5.0 HO]
Las Vegas, NV

In response to: **Will 16x9s fit in the rear???? more...**

Posted by: **91 Bird** -- 02/06/98 at 13:38:55

I have 8.5 x 17 inch wheels front and rear. They are ROH ZR6 style that look nearly identical to the Impala SS wheels. I have 255/40s on the front and 275/40s on the rear. Yes, 275/40. When looking for tires I was lucky to find a very helpful Discount Tire assistant Manager who wal willing to let me try on several sizes once I promised I would buy a set from them. The wheels I had bought at Group A Autotrend which advertises in several magazines. They have several wheels that are configured exactly for our car. I was very surprised to speak to someone there who knew exactly what our car took for offset and size. For instance he knew that the proper offset for our car is 39 mm and the 8.5 x 17 would fit. The front is the perfect width, but I they are too short. Get at least a 45 section tire. The 275s on the rear are the maximum that will fit in the wheel well at least on the 8.5 inch wheel. I know because I had to very slightly tap a small portion of fender lip that was protruding about 1/8 inch into the wheel well. That small 1/8 inch made the difference. The rear tires are very very close to both the inner and outer metal in the wheel well. I don't think it would take a 280 width. An option that I may try for my next tires is the 255/50x17 BFG Compt TA ZR4. It is taller and would fill up the wheel wells much better. So to answer your question, I think a 16x9 wheel will fit provided the tire is not wider than 255 or 265. Hope this helps. I love my wide tires especially because they are all underneath the car. They are just a little to short in the 40 section size.

Re: 350 HP - Bolt-on Power ?

Posted on: **02/02/98 at 09:03:30**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]
Charlottesville, VA

In response to: **350 HP - Bolt-on Power ?**

Posted by: **Colin Smith** -- 02/01/98 at 13:31:49

> Hello everybody :)
> As I was scanning thru my email this morning I noted
> a response sent by
> Bill Hull saying that I can get 350HP(!!!) out of my
> SC without popping a valve cover.
> What do I need to do this right the FIRST time?
> Please provide a list of recommended pieces that will
> work well together.

> Thanks in advance,
> Colin Smith
>

Colin,

The proper build-up should start with the up-graded exhaust, as has been stated in our newsletters since Mar 96, as well as on this web site. To be able to compare all years of SC's on an equal footing, lets assume all years have an S-model Magnuson/Eaton blower - thus we all start at at least 240HP. Add headers & duals - +minimum 50 HP- total 290HP. A modified SC top +min.25HP - total 315 HP. Upgraded mass-air, 70mm BBK TB w/port-matched plenum, + 25HP total - 340HP. Add under-drive pulleys & I/C fan - + 10HP - total 350HP! These figures are conservative & certifiable by extensive drag-strip experience & dyno pulls. I built my 91 SC up to this power level mostly one piece at a time - and used the drag strip as a test lab. Torque figures at this power level easily exceed 400+lb/ft - BIG-BLOCK POWER!

Making this level of power is easy, although not in-expensive! Additional parts which will be needed will be a 190lph fuel pump & 38lb/hr injectors, and of course, better tires to harness these beasts! (An increase in life & medical insurance would not be a bad idea either!) At this power level, these cars can be truly dangerous (although a blast to drive!), if they happen to fall into the wrong hands (like a loaded hand-gun - make sure you are pointed in the right direction before you pull the trigger!).

At the 350HP level, you have gone from a lowly .38 special to a .357 Magnum. If you get BORED (no pun intended) with this level of performance, and want to graduate to the .44 Magnum level, have Coy Miller build you a bullet-proof 425HP MONSTER, complete with hi-performance cam & heads, light-weight forged pistons & billet-steel rods w/ARP bolts, cross-drilled-balanced crank assembly, main support girdle w/ARP main & head studs & Comp Cam chrome/moly roller rockers, etc., all blue-printed to NASCAR quality specs! I know this is not cheap, so as I have already recommended to SCCoA club members, WIN THE LOTTO, ROB A BANK, MORTGAGE THE FARM, or HOCK THE FAMILY JEWELS! Go fast while you are still young enough to enjoy it - GO FOR THE GUSTO - YOU ONLY LIVE ONCE!

Hope you find this info helpful!

Bill Hull

Re: Coy Miller engine?

Gentlemen'

The diffences between my 325hp engine & the Coy Miller "super street" engines are great. The bottom-end in my engine was bone-stock, except for the Crane cam. Coy Miller replaces virtually every component in his 3.8L's with stronger-lighter-more durable pieces; in addition, much hand labor is involved. Coy has invested over $300,000 in hi-tech machinery & tools alone!

Coy Miller engines, while not inexpensive, represent a great value. Coy does not even pretend that his hi-po re-builds are for everyone - only for those who care & can afford to go first class. Anyone who is familiar with hi-po engine work knows what it cost to go fast - even week-end bracket racers & dirt-track racers routinely spend $15,000 - $20,000+ just for their engines! Nascar engines cost $50,000+!

In addition, it is really easier to build a full-blown race engine with no compromises, than it is to build a "race-quality" engine for street duty, as Coy is doing for the SC's. Coy has spent literally hundreds of hours on the flow-bench, computer-simulater, & dyno to develop a powerful but also reliable & streetable 3.8L for the SCCoA. Coy could have built a 500HP 3.8L much easier, but it would not be streetable nor would it run on pump gas alone! Finding just the right combination of compression, air-flow, cam, etc doesn't just "happen", but is critical!

For "inquiring minds" that REALLY want to know, let me invite you to join the SCCoA, where we discuss these subjects in every issue of Chargin' Thunder, our quarterly newsletter/tech magazine.

Bill Hull

Re: Heads, worth it?

Posted on: **Friday, January 23, 1998, at 6:03 a.m.**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]

In response to: **Heads, worth it?**

Posted by: **Travis** -- Thursday, January 22, 1998, at 4:48 a.m.

>
> I have already modified my 89 SC to the point were the base
> engine is all thats left. I have plans to run the coy miller
> heads but 2000+ is alot of money to spend on head work. There
> is a local shop that will do the valve work and the flow benching
> for around 800-900 bucks. I know that this shop will not have
> the expirience with the SC that miller does but is the benifits
> from them worth the extra cost? I am just finding it hard to
> spend so much cash for just head work.

Travis'

Coy Miller is into the SC engine program for the long run, knowing he will have many SC 3.8L engines to build in the future. He has, therefore, invested literally hundreds of hours in R&D on 3.8 heads alone! His prices must reflect this enormous R&D & Coy realizes that many people just won't be able afford to go first class. Coy is a perfectionist, does Nascar quality work, uses only top-grade components, & has over $300,000 invested in machinery alone!
This does not mean that any "home-town" machine shop cannot do a decent job on 3.8L heads. It just depends on how dedicated & knowledgeable they are. I personally feel that Coy's prices are a bargain, considering what he does. I can understand how many people who have never been involved in hi-po engine work could be surprised
at the cost - actually Coy charges less than many competitive shops in our area - but remember approx. 1/2 of the cost of head/engine work is parts alone.

Bill Hull

Pro-M vs. C&L re-visited

Posted on: **02/05/98 at 06:15:28**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]
Charlottesville, VA

The function of the mass air meter is to measure the weight, or mass, of air entering the engine. This info is sent to the engine control computer (EEC box). The computer uses this info to adjust the fuel volume (injector pulse width or on time) & spark timing.
Ford mass air meters are cold/hot-wire designs (located inside the stock or after market sampling tubes), which sends a voltage signal to the EEC, which infers the mass of air going into the engine from it. This voltage varies from about .8V at idle to just under 5V at full throttle. When the MAF voltage signal arrives at the EEC computer, the computer uses it in a mathematical formula (predetermined fuel & spark tables calibrated by Ford for each particular application). Other factors in the formula are provided by the TPS, charge air temp, MAP sensor, etc. The EEC uses these inputs to determine engine load & "consults" these predetermined load tables, then sends commands to the fuel injectors & ignition system. As Ford factory electronics are calibrated for injector size INSIDE the EEC computer, NOT at the air meter itself, ALL AFTER-MARKET MAF'S MUST "TRICK" THE COMPUTER INTO "THINKING" THE ENGINE US USING STOCK INJECTORS. When re-calibrating ANY after-market MAF for non-stock injector sizes, any variance from stock voltage readings can cause bad manners, poor performance, even engine damage.

Different after-market suppliers use their own methods of "tricking" the EEC. Pro-M reworks the electronic air meter signals by sawing off the top of the SEALED black MAF module which attaches to the top of the MAF housing. Then they use resistors to alter the voltage signal sent to the EEC They claim, of course, more precise calibrations than C&L, which uses mechanical sampling tubes of differing sizes to re-calibrate the voltage signal. Auto Specialties uses an adjustable screw in their MAF to re-calibrate. They are all basically trying to do the same thing (trick the computer), although by different means

Which system works the best? We may never know the answer unless someone does a dyno test on SCs, using all 3 meters under controlled, scientific conditions. However, let me quote from several

Super Ford Magazines, in which, by the way, C&L no longer advertises.

In July 96 SF, after throughly testing all of the stock & aftermarket MAFs, SF reports on the Pro-M 77mm unit ($575)- "From a power standpoint, we were a bit surprised to see this old favorite DROP 5lb of torque from its own Bullet stablemate". The $225 Pro-M 75mm Bullet actually out-flowed its larger & much more expensive "big brother" - 768cfm to only 471cfm for the 77mm. The C&L 73mm flowed 746cfm. Further comments on the Pro-M MAFs - "Doug noted the 75mm Bullet made "lots of funny noises" and was suspected as being turbulent even though it passed plenty of air, the SVO plastic 70mm, C&L Vortech 73mm and Cobra sounded especially good. The 77mm Pro-M made a low moaning whistle like an old Coke bottle, and Doug suspected the 90-degree turn at the end of the tapered plastic tube (part of the 77mm package, my note)was choking the flow".

In May 96 SF mag, when dyno-testing a 5.0L Mustang in varying states of modification for Steeda Autosports, a dedicated Pro-M distributor, SF reports on both the 75mm Bullet & 77mm Pro-M. After doing some basic mods, Quote - "At this point, we tried two Pro-M mass air meters, a 75mm & a 77mm. NEITHER showed an improvement with our minor mods, so we re-installed the STOCK meter & decided to try the Pro-M's again after making exhaust changes" After installing headers & hi-flo exhaust on this 5.0L, SF reports - " the 75mm Bullet picked up 3.2HP, the 77mm Pro-m LOST a couple of HP"! "The 75mm Bullet consistantly out-performed its' big brother through these tests". Even after installing GT-40 aluminum heads & GT-40 intake, vastly increasing air-flow, they went back to the bigger 77mm Pro-m "thinking the increased airflow potential would allow it to work. IT DIDN'T! - losing horsepower across the entire rpm band! Perhaps the 77mm piece should be reserved for blowers!" (end of quote from SF)

Conversely, in Oct 97 SF mag, when dyno testing a blown 5.0L engine, they reported a 18.8hp & 11.1 lb/ft torque increase after installing a C&L 73mm MAF. Quote - "I'm surprised about the air meter (C&L). I didn't think it would pick up that much with the stock K&N air cleaner, but it really helped a lot better when we had the exhaust on there"

Now the logical question is - If the Pro-M method of calilbration is so far superior to the C&L., then why does the C&L out perform them in test after test? Why does Pro-M's smaller, less expensive Bullet out perform its $575 Big Brother? If anyone can explain this to me, I will stand up at the next SCCoA meet & sing Yankee-Doodle-Dandy - and remember I'm Southern born & bred!

Pro-M rarely advertises,& is part of Best Products, I believe.
They have never owned a dyno, nor ever sponsored a race car or team (to my knowledge). Lee Bender of C&L Products owns his own modern Dynojet chassis dyno, & has tested his products on & off the track. Lee holds or has set 8 NMCA records & has won a NMCA class championship in his blown Mustang using, of course, a C&L MAF & stock (no chip) EEC box.

As previously mentioned on this web site, I have sold over 80 C&L MAFs to SCCoA members, with various degrees of mods, injector sizes, etc. I have yet to have received any complaints from any of these over 80 members complaining about problems associated with their C&L purchase! NONE! I have personally used a C&L 73mm for over 4 years, have changed sampling tubes 3 different times for stock 30, then 36 & 38 lb/hr injectors - I have never had a problem with the C&L MAF- NEVER! Believe me, I can't prove which meter is the best choice, but if I thought the C&L was so inferior, or if I received complaints from SCCoA members, I would not continue selling them - it would just be bad business & I don't need the head-aches!

Any comments on this subject are WELCOME! All opinions are valid & equal!

2-1-98

Mr. Hull,

It is truly an honor to be a member of your club. I mean, our club. I am only 19 years old, but I already know what I want to be driving for the rest of my life. I learned a valuable lesson with my first sports car. I learned that a car has to not only look good, but run good. When I was in the market for a new ride I must say that I was sold on the Mustang. Looks, power, price, and performance options. My father and uncle had leaned on the Fords and my friends were starting to also. So that was it. In this world packed full of Camaro's, I would be a Ford man. I know that there are a lot of Mustangs out there as well, but hey on a limited budget what can a kid do?

Being '6"8, my options are somewhat limited, however, I did miraculously fit in a Mustang. And it was a pretty decent fit. So I kept my eyes pealed for a good deal on a 87-93 Mustang. Now you know how a mother can be. Through out my entire search I heard, "You should be looking at a Thunderbird. Those Thunderbirds have nice leg room." Whatever?! Thunderbirds are nice, but I would get smoked in one. True, they are rear wheel drive and sport a V-8, which is admirable, but it is no race car. So I fight this battle. I want a Mustang. She wants a Thunderbird. Back and forth.

Finally one day my father says to me, "Micah. I'm going to look at this kids Thunderbird, are you interested in coming?" Of course I shudder at the fact that he wants me to get a Thunderbird as well, but since I love cars in general and never pass up a chance to drive something new, I give him a chance to tell me the info about it. He went on to say that it was a 1989 Thunderbird SC. What the hell is an SC? I never heard of one. He then said that it had ground effects, 16 inch rims, kinda low profile tires, spoiler, blacked out windows, and a FIVE SPEED. Now in my list of requirements for a new car, it had to be rear wheel drive, have manual tranny, and have some balls. Now I was interested. He then said that it had a supercharged V-6. This is good seeing as how I had a turbo before. I have a thing for forced induction. So I checked it out.

It was Titanium with grey cloth interior and only had 60,000 miles. No rust, never wrecked, and a few dings that I could live with. As far as acceleration goes, I was impressed. That is until both 3rd and 5th gear ripped on out of it, but the SC as a whole was a nice car. It had a better ride, more room, sleeker lines, and more uniqueness than the Mustang. A couple of weeks later (I was now keeping my eyes pealed for Mustangs and SC's), the kid that owned the SC called me back and said, "Hey, I got the tranny rebuilt and put a new clutch in it. Are you still interested?" So I figured his previous price of $7500 would go a good grand higher and I went on to confirm that. He said that with a thousand dollars worth of work, his new price was $7500 FIRM! Wow! Can't argue with that. Bear in mind this was two years ago. So I bought it. Had it totally paid off in about a year.

I loved the car dearly, but up until last year or so I was wishing I had a Mustang. There is just no room for improvement in a Thunderbird SC. No magazines, parts, or even info. I hated losing races. If only I had some options, remember I had previously learned that there is more to a car than looks. I was just about ready to fire bomb the FF & MM headquarters until I stumbled upon the SCCoA. YES! FINALLY! No more searching. There is hope. Ever since then I have never again regretted buying my SC. In fact, my next car will be an SC too. I just payed the membership a few weeks ago and now I am proudly #665. All my money will be saved for the next few months and I will indulge myself in your (our) parts catalogue.

I just wanted to take the time to personally thank you. Many of us realize the burden that a club can be. It takes time. A lot of it! I have a feeling, though, that every one of us that are members feel the same relief and appreciation. You have started something great. Maybe a little greater that first anticipated, but nevertheless, great. The SC is not the fastest car in the world, but now we can make people think twice before they pass judgement. Like people in their new Corvettes, TA's, GN's, and yes Mustangs. This is all because of YOU, and no matter what happens that will never be forgotten. I wish you and the SCCoA the best of luck!

Sincerely,

Micah Miller #665

file:///C|/sccoa/fivestar/fivestar.htm

David Weaver
Assistant Parts Manager
7100 East McDowell Road
Scottsdale, AZ 85257
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Five Star Ford maintains a large inventory of parts to satisfy most of your needs. We use the latest computer technology, linking us to Ford Parts Depots and other Ford Dealers' parts inventories across the country. So if we don't have it we'll find it! We carry a full line of accessories for your Ford. We are also a Ford Motorsport Performance Center, so we stock high performance parts and chrome accesssories. We also carry Ford apparel like jackets, shirts and hats. We would love to here from you, so if you need information about a Ford part just contact David Weaver in the Parts department at Five Star Ford.

Special Offer to SCCoA members

Super Coupe Club members now have a source for "OEM Ford parts" or "Ford Authorized Rebuilt parts" or Ford Motorsports parts". David Weaver of Five Star Ford is extending a BIG discount to all SCCoA members. Five Star parts policy requires that parts shipped out of town be prepaid by check, money order, COD, or cash.

January 29, 1998

Bill Hull
President, SCCoA

Dear Bill,

I just wanted to thank you for printing my letter in the last CT. I've tryed numerous times to get info from the major Ford magazines and have come up empty. SCCoA is really something special. Enclosed is my credit card number and expiration date. I would like to order one of your new fresh air induction systems. While I have fabricated a "ram air" kit for my car, I feel really uneasy taking it to my local Ford dealer for service with it's "jimmy-rigged" appearance. Yours probably looks alot cleaner. I also have the scoop located below the bumper which I knew was a bad idea from the begining..

I've enclosed a page from a catalog by Keystone Automotive. After seeing Calvin Kinard's letter, I knew that I had found SC bumper covers cheaper. I work as a parts consultant for, don't hate me, a Chevy Dealer. (Any Ford dealers hiring?) We purchase products off of Keystone on a regular basis and their quality and fit are very good for reman parts. I inquired at my local Ford dealer and the SC cover lists for over $700.00. If you don't have some sort of phobia concerning reman parts, Keystone is a good alternative. They also have reman rims at a great price.

I have a few questions and comments for you concerning the ongoing Ford horsepower conspiracy...the SC exhaust. As I'm sure you know, the exhaust on 94-95 manual tranny cars is the same exhaust used on the V8's and not previous SC's. This is why most catalogs carring Flowmaster exhaust suggest you consult Flowmaster's master catalog for 94-95 applications. What's the deal here? Also, to stop other members from making the same mistake I made, if you have a 94-95 manual equiped car, and for some strange reason you still want Flowmasters after seeing all the great exhaust packages offered by SCCoA (I wasn't a member at the time of my purchase), <u>don't buy the resonator/adapter kit</u> (#15100). There is an adapter pipe included in the main kit (#17111) that will take the place of the stock resonator, as on V8 applications, and everything else goes together nicely. If any member with an older SC wants a Flowmaster resonator kit really cheap, drop me a line.

Even though my Flowmaster exhaust is only a year old, I'm considering an SCCoA system, especially with the blower pulley I use. Will there be problem with fit considering I have a different stock exhaust set-up?

Just in case you wanted to know, rumor in GM suggests that with all new Monte Carlo Z34's having the 3800 V6, the Pontiac supercharged engine isn't too far behind. Hey, they only missed the boat by a decade or so on that one. Been there, done that.

One last question. How in depth can you get as far as production figures for 1994. I wasn't a member at the time of the Sept. '96 CT. My car is a five speed with moodlight blue exterior on mocha leather. While I'm sure there are others, I have yet to see any 1994 with these three options.

If possible could you send me info on how to register for the summer event at Carlisle? Also, I never received a membership number with my membership package. Could you let me know what it is?

Finally, in response to your survey questionaire, I've always believed Lynch Mob justice had it's place in America. Yet, seeing as you are the guardian angel of all SC's and their owners, I believe a full pardon is in order. And besides, we all know there's only so many hours in a day.

Well, we've got a nice, sunny break in this cold Pennsylvania winter. Time to give the ol' SC a bath. Keep on Flyin',

Dave Ward
"The Fastest Bird in an all Horse Town"

Dear Bill,

Just got your club package and I was very impressed! From what I've read I'm about the 655th person (member number) to express many thanks for all that you have accomplished. You have really done your homework. This is very important to me because I have been hoping and banking (literally) for this time to come.

In 1990 I saw my first SC in real life. A dealership in Kinston N.C. had one displayed in their showroom. It was the sexiest thing to hit the highway since the Porsche 911(my second love) , A brand-new 35th anniversary edition. I was there to pick up my 1987 Plymouth Sundance...bummer! I made myself a promise then, that I would own one someday.

Someday finally came in 1993 but guess what, not an anniversary to be found. I did however find my new baby, a 1991 red SC-loaded,-not an anniversary, but definitely a cherry! This one really got me hooked. As the miles clicked by the love affair grew stronger. Soon I found a good buy on a midnight blue 1989 SC. It had plenty of miles, but was a solid car. Every one asked, "Why two Thunderbirds?" Well, you know how it goes, "It's a Supercoupe" ect, yada-yada, in one ear and out the other. Yep, this guy IS nuts!

In February '96 the insanity grew. I finally found an anniversary still in excellent condition , and after all, I had to keep my promise! Needless to say, I drove it home! By this time my own family is questioning my mental stability! I didn't have the heart to part with any of the other two, s guess what everyone is thinking by now! By now I had met several friends that shared my interest in these cars, most of whom owned one. Well a little over a year has gone by and I have loved every moment of the ownership of these three fine examples of the best automobile ever built by Ford. "Maybe he really should seek help!" But, anyway ,by now even the casual observer is compelled to take a second look, often remembering reading or hearing something about the cars.

If no one else in the world can understand the thrill of owning my own collection of supercoupes, surely other enthusiast will. Up until a couple of weeks ago I was pretty much satisfied. I was out tooling around in my red SC (ironically the one that started it all.) when I happen to cruise up on another 35th anniversary edition, a little rough around the edges, but nothing a little TLC couldn't fix. Well you know how the story goes from there! Storage is now a real concern so I'm taking the day off to move into a nearby aircraft hanger ,(my second job is in general aviation...how convenient!) and maybe after that I'll go check out this clinic my family keeps talking about!

Until next time, keep'em clean and we'll see you in Rockingham!

Shane Kilpatrick
Seven Springs N.C.
919-658-6992

ANDERSON
FORD/MERCURY, INC

Why does the 5.0 HO have a 60mm throttle body and just a 55mm mass air? I get asked this question at least 3 times a week. What the consumer doesn't understand is that throttle bodies and mass air meters are sized by diameter which does not account for any obstructions such as throttle body plates or air tubes. The following are the flow characteristics of some of the most popular throttle bodies and mass air meters. All of the mass air meters were flowed with the air tube between the throttle body and mass air with K&N pod filters.

	CFMs
Stock 60mm throttle body	495
BBK 65mm throttle body	630
BBK 70mm throttle body	675
BBK 75mm throttle body	765
Stock mass air - 55mm	550 — 5*1-90 5C 5
Stock mass air bored to 59.5	590
Stock Cobra mass air - 70mm	555 — 91-95 5C 5
C & L mass - 73mm	695
Pro-M mass air - 77mm (with standard elbow)	580
Pro-M mass air - 77mm (with modified elbow)	725

As you can tell, a bigger diameter does not always mean more CFMs. For example, the mass air meter on the Cobra Mustang has a 70mm diameter with a 19mm obstruction through the venture for the air pickup for the sensor which decreases flow to 550 CFM and hinders performance (considering the 65mm throttle body is capable of flowing up to 75 CFMs more than this).

One more thing you have to watch out for is the tube between the mass air and throttle body. An example of this is the Pro-M 77mm which is a very good meter - it flows big numbers but the standard black plastic elbow reduces to 65mm at the bend which reduces flow to 580 CFM, but by modifying the bend to just 70.9 the flow is increased to 725 CFMs which is plenty for a 70mm throttle body. Hopefully, this explanation helps provide a clearer understanding of how the throttle body and mass air meter work together.

Rick Anderson, Anderson Ford Motorsport

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DYNO TESTING MASS AIR METERS
BY B.J. THAYER

Ron Anderson of Ron Anderson Performance in Lexington, Illinois has been spending his free time testing... Dyno testing that is. He put several different combinations together using his Superflow 901T on a 5.0 H.O. engine and while doing that, decided that it would be the perfect time to test a few of the different mass air meters currently on the market.

A K&N cone filter was used on the mass air meters- a standard K&N on the Pro-Ms, and a new K&N by Anderson Ford Motorsport was used on the rest because of it's greater flow capabilities over the stock air box with a K&N replacement. This new replacement is a 12X6 filter and fits in the stock location. Ron's testing had already shown that this filter is good for a 5 hp increase over the stock K&N replacement. For his first series of testing, he used a stock engine equipped with MAC equal length headers ran open, BBK 65mm throttle body, stock lower intake ported by Ron Anderson Performance and an upper Car Tech bread box. The results of this test with a stock M.A.F. was a 235.7 hp average and a peak of 247.9 hp at 4900 rpm. With the 71mm Auto Specialty M.A.F, the average was 239.2 hp with a peak of 248.6 hp at 5100 rpm. The 73mm C&L had an average of 249.2 hp and peaked at 263.9 hp at 5100 rpm. And finally, the 77mm Pro-M with an average of 246.3 hp and a peak hp figure of 259.5 at 4900 rpm. The C&L and Pro-M clearly made the difference in this series of testing.

A stock short block with stock heads ported by Ron Anderson Performance, a R.A.P. cam, a stock intake ported by Ron Anderson Performance, a 65mm throttle body, 24 lb/hr injectors, and again, MAC equal length headers ran open was used for this next series of tests.

Because an engine with this much horsepower required the use of 24 lb/hr injectors, only two of the mass air meters had the capacity to be tested. The 73mm C&L and 77mm Pro-M. The others are not available calibrated for 24 lb/hr injectors. The C&L averaged 305.8 hp and peaked at 315.8 hp at 5400 rpm. The Pro-M averaged 303.7 hp and peaked at 314.2 hp at 5500 rpm.

The findings of these tests show that there is horsepower to be gained from the mass air meter when used with the right engine and modifications. The two M.A.F.s that seem to stand out from the rest are the C&L and the Pro-M. The comparisons between these two are so close that through his testing, Ron feels that there is no substantial difference between them.

Many thanks go out to Ron Anderson of R.A.P. for his experience and quality of information. He insured that all of the results were 100% correct and repeatable, as his testing session of this engine lasted for over 20 days.

Look for more interesting information to come from this testing session in other upcoming articles.

Re: ?? Questions for Bill Hull ??

Posted on: **02/14/98 at 06:41:15**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]
C'ville,, VA

In response to: **?? Questions for Bill Hull ??**

Posted by: **Brian Swenson** -- 02/13/98 at 20:43:59

> Hello, ive got a couple of questions. I read an message
> earlier posted about 350hp bolt on Hp. (exhaust, intake,
> TB, MAS) I was wondering with the proper gearing (3.27,
> or 3.55 for me) with a 5-speed, what the car should run
> in the 1/4? also what would the top speed increase to? do
> you know the the Cd (coefficient of drag) is on the SC?
> one more question, Im also interested in the SCCOA camshaft,
> along with the other 350hp bolt on mods what do you think
> the power would jump to? I like to have a car fully designed
> in my head before I start (made that mistake on my Mustang
> already)

> Thanks Bill..

> P.S. I hope we drop a bomb on Saddam, so I can come
> the hell home and drive my SC :)

> Brian..USAF
> Kuwait City, Kuwait.
>

Brian,

Ten-Four! on the "Bomb-Saddamm" comment! I think your wish will be granted shortly - about the bombing, that is - not the coming home part! Seriously, being an ex 11/40 Bravo "Buck-Sargeant" in the U.S. Army infantry from the Vietnam era (69-71) (although I was a company clerk for 19 months - imagine that!), I really appreciate all our full & part time military personnel, expecially with this present administration. Imagine having to salute this present "Commander-In-Chief", ole Slick Willy himself, this weak-knee-ed, military-distaining, draft-dodging, visiting-Moscow/war protesting, pot-smoking/non-inhaling, two-faced, stone-walling, sex-crazed, egotistical, wanna-be somebody, so-called President! What a FARCE! Not to mention his "stand-by-your-man" wife, Tammy Wynette,... I mean, ole' "Tree-Trunks-For-Legs" Hillary - what a SHAM! Anyway.....

After installing the 350HP bolt-on's, a good cam & head package is worth an additional 75+ HP, minimum, as the cam is the "brain" of any engine, & head work is & always has been the real "key" to unleashing big HP numbers. Air-flow equals HP - & all the engine air must pass thru, among other things, - the valves.

1/4 mile top speeds approx. - 350 HP = 105 mph; 400 HP = 110 mph; 450 HP = 115 mph

Top speed is a function of cd (approx. .32 on SC's), available HP, & gear ratio, among other things. One factor that many people do not realize is that going to a higher(numerical)gear ratio can actually increase your top speed, (as well as acceleration), not reduce it. I am asked this question on a daily basis "Won't I loose top-speed if I go to a 3.55 (5-speed) or a 3.73 (AOD's). Even though rpm's will go up at any given speed vs. stock gear ratios, real (not theoretical, as few street cars can rpm-out in O.D), top speeds may actually increase due to the engine's new ability to stay in a more favorable "power-band". Example: I have read several Mustang & T-Bird road tests where these cars go no faster in O.D. than they do in 4th gear - as in O.D rpm's with stock gear ratios drop off so dramatically, the engine is no longer in a power-band which allows it to make sufficient enough HP to fight the ever increasing effect of wind resistance! Remember, wind resistance increases at the square X speed - It is four times greater at 120mph as it is at 60mph! So are impact forces - so be careful! Re: gear ratios - one must remember - all SCs have O.D. - & this must be factored in the equation. In O.D. OVER-ALL final drive ratios are approx.- w/3.73's - only 2.50 to 1; even 4.10's - only 2.75 to 1. Remember also, an engine is generally more efficient when it is allowed to run at it's torque peak, in stock SCs approx. 2600-3000rpm - so fuel mileage may even go UP, not down, with stiffer gears!(depending on many factors - driving style/conditions, terrain, etc.)

Hope this answers your questions. Let me remind you & others that most of the questions posted on this web-site have been discussed & answered (by not only my-self, but other members' contributing articles & tests), in our SCCoA quarterly newsletter/tech-magazine, Chargin' Thunder. These magazines (some members called them books) average over 50 pages each, with one issue (Mar '97) actually being a 130 page spiral-bound note-book! All SC dedicated!

Bill Hull

Everyone,

I know the purpose of this web-site is for "gear-head gab", not political discussion. However, this site does make a "bully-pulpit" & after reading my comments about "Slick-Willy" Clinton in my previous post, I feel the "burning desire" to expand a little. Those of you who do not agree or don't care can feel free to respond or just skip this & go to another post.

How can this President stand up before God & everybody & deny his illegal/illicit activities, when they are so obvious to anyone with an open mind. In addition, how can HE stand before TV cameras' & take ALL the credit for the surging economy, balancing the budget, welfare reform, Medicare reform, Social Security guarantees (what a joke - THEIR AIN'T NO S.S."TRUST FUND" - NEVER WAS - NEVER WILL BE! for old goats like myself) when these issues had to be practically crammed down his throat (with HIM kicking & screaming) by the now Republican- controlled Congress? These initiatives were all part of Newt Gingrich's "Contract with America" in 1994 - all Republican concerns - not Slick Willys! This President obviously cannot even spell conscience, much less possess one! If HE really cared about our military readiness, missile-defense, etc. as much as he does about his out-of-control-"Arkansas-trouser-missile" - we would all be much better off (especially our female population)! As much as I dis-respect this present President, the only worse-case senario I can think of would be for Slick-Willy to be impeached, resulting in Al "everything should be GREEN" Gore being installed in the White House - in which case, he would probably OUTLAW automibiles nation-wide, except, of course, for his 3mpg bullet-proof STRETCH-LIMO!

Although Clinton is surely aware of the enormous blood-sacrifice borne by our fore-fathers to ensure our freedom, he may as well go to the Vietman-War Memorial & lift up his leg like a common dog & take a WHIZZ! Come to think of it, HE probably would not even blush, as he seems to have a penchant for "dropping his drawers" anytime, anyplace!

Off Soap-box!

Bill Hull

Everyone,

As after-market computer-chip modules seem to be the second hottest topic of discussion on this web site (after exhaust questions), & because I have been accused of being ignorant of such devices (& therefore unqualified to speak on the subject), & unnecessarily "bashing" same, I feel the need to "take off the gloves", & thus unfettered, to forth-with re-enter the fray!

Following, word for word, are two different sales brochures published by Superchips, Inc. re: the SC 3.8L:

1. FORD THUNDERBIRD SUPER COUPE - This car has the 3.8 litre supercharged engine developing 210 HP in stock trim. The car is powerful but heavy and this spoils the performance and takes the edge from the driving pleasure. As with all pressure fed engines increasing the power output is easy. Simply increase the pressure! This is achieved by fitting a smaller pulley to the supercharger which increases the pressure to 15 PSI. This combined with significant fuelling and timing tuning to take full advantage of 92 octane gas gives an increase in power of 35 HP to 245 HP

The comparatively small increase in HP belies a massive increase in torque at the lower end. This is because horsepower is developed at higher RPM's and in supercharged cars the boost pressure is tailing off at high RPM's. This does work to our advantage because when the engine is turning fast, there is little time to inject the fuel into the cylinder between piston strokes. But, because the boost pressure is higher in the 3000 to 4000 RPM range, there is more time to inject the fuel and so a higher boost pressure can be used. This means that although the power developed at 5250 RPM is only 16% over stock, the increase in torque at 3000 RPM is nearer 35% and it is over 25% from 1500 RPM to 4500 RPM.

This suddenly livens up this heavy car and makes it into a very quick car. 0-60 times will drop by around a second and the quarter mile times will drop by nearly that much as well. The top speed will only increase by 5 MPH due to the drop off in boost at high RPM's. The car feels as if it wants to go and it makes passing other vehicles so much easier and safer. There is no down side, the slow running and cold starting remain exactly the same as stock. Gas mileage will suffer by about 1 MPG but it depends upon how hard you drive the car.

The kit consists of a new pulley and a chip which plugs into the back of the computer. We need to know the computer number when you order. The kit can be fitted in about 1 hour and a new belt is not needed for the supercharger. This kit is available from us or through any of our local dealers who will be pleased to fit it for you as well.

SUPERCHIPS Inc
1958 North County Rd 427
Longwood, FL 32750
Tel: 407-260-0838 - FAX 407-260-9106

2. From a more recent Superchips, Inc sales brochure - again, WORD FOR WORD - given to me personally by Mike Troyer - National Sales Manager, & professed (to me) writer of ALL Superchips, Inc. sales literature.

The T-bird Super Coupe is the only supercharged car Ford manufactures, and increasing the power in this vehicle is accomplished by reducing the supercharger pulley size, and then programming a chip to match the new boost pressures. Because of the dynamics of the supercharger, and to protect the engine, we increase the boost at the bottom of the rev range and through the middle, easing away as the revs get higher. This gives an increase of 40 horsepower. The torque at the bottom and middle of the rev range increases by 25%, giving a large increase in acceleration right where it is needed, in the bottom and middle of the performance curve, and easing away as the engine gets into the high stress areas of high rpms. This looks after the engine and ensures a long life for it. The kit comes with a new pulley designed

to raise the boost pressure to 15 PSI, and a chip which matches the computer. The standard supercharger belt does not need to be changed.

I have found many in-accuracies, false-hoods, & even self-conflicting data in both of these sales brochures. In addition, there are at least three important (I believe, intentional - but maybe from ignorance) related DELETIONS which are not contained in either of these brochures. Anyway, those of you who can find at least 5 (don't worry, they are in there!) errors in either or both of these brochures will receive a free one year's membership to the SCCoA (a $40 value). Those of you who can discover at least 2 important DELETIONS, in addition to the 5 errors, will receive, in addition to the one year free membership, a SCCoA 24-gold plated pen & pencil set, another $40 value! (picture on SCCoA home-page.

This offer is not available to current SCCoA members, as this info has already been published & discussed (bashed?!) in at least 5 previous issues of Chargin' Thunder. To help out those who may be less informed or well-read (also therefore, who may be easier "prey" to "unscrupulous" dealers) I offer a couple of hints. 1. When all of the "frenzy", ego, prejudice, & B.S. is removed from the equation - and, when the smoke & mirrors are allowed to dissipate, one fact remains true - Engines are basically "air-pumps" - that is, in order to make torque & especially horsepower gains, you must increase the volume of air flow into & out of an engine. It is really as simple as that. Of course, you must have properly calibrated fuel & spark timing in order to realize these gains, - this has always been the case, even back in the carburator/point-type distributer days. Remember this formula - to find corresponding torque or HP values at ANY RPM- HP = Torque X RPM divided by 5252. Engine & chassis dynos' measure torque values, then, by using this formula, come up with HP values. At 5252 RPM, - HP & torque values are identical!

As to my knowledge, or lack of it, whatever the case may be - I freely admit to knowing little about electronics, computers, fuel & spark tables, etc. The great thing is, I trust Ford ,who has billions available for R & D, & can therefore afford to hire & pay for the best experts available in this field. Remember, Ford had much more at stake than these aftermarket chip "marketeers" when they designed & produced the EEC-IV, EEC-V, & OBDII systems - Ford had to meet ever more stringent EPA, CAFE, & warranty requirements before they could install these systems in their many millions of vehicles sold each year!

During a recent phone conversation with Mike Troyer, he stated that Superchips, Inc. had previously dyno-tested quote: "dozens & dozens" of Super Coupes. My response was - "with all these "dozens & dozens" of test sessions to draw on for info - are these two sales brochures the BEST you all can come with?, & in addition, if having already tested "dozens & dozens" of SCs, why the need to RE-TEST 2 more SCs, AS THEY ARE PREPARING TO DO??? I BELIEVE THESE ARE LOGICAL QUESTIONS!

Bill Hull, C.C.B. (Chief Chip Basher)
SCCoA

Everyone,

I highly recommend purchasing & reading "How to Understand, Service,& Modify Ford Fuel Injection & Electronic Engine Control", by Charles O. Probst, SAE. Robet Bentley, Publishers, tel: 800-423-4595, price $30. It has become my "bible" re: all things EEV-IV, etc.

To continue our discussion on after-market chip-modules - We have on our SCCoA membership list several FOMOCO Engineers - one who works in the Ford engine Dyno lab. None of these Ford engineers are using nor do they feel the need for any after-market chip for their SCs! To quote one Ford engineer from the above mentioned book - "The factory module is designed to give you performance, economy, drivability, emmission control, & more. It provides air-fuel ratios to prevent destructive detonation, and limits engine speed to 6250 rpm to help prevent other kinds of damage. Unfortunately, it is difficult to hold an after-market computer chip-module or "black-box" in your hand & be able to tell what it can and cannot do, or what the tradeoffs or undesirable effects might be. The word is that some chips are "smoke & mirrors" - There is plenty of opportunity for a small gain in one area - full-throttle acceleration, for example - at the expense of driveability, fuel economy, & exhaust emmissions.

Bill Evanoff, one of our Engineer members, did an extremely well researched, documented, & written article on chip-modules for our Sept 96 issue of Chargin' Thunder - his summary statement - "Buyer Beware"!

Vortech, Inc., who themselves market an after-market chip-module for primarily Mustangs, strongly cautions against the use of any after-market chip when installing one of their centrifugal superchargers! They state that "because of the many variables between seemingly identical vehicles, & the increased stresses placed upon any engine w/forced induction, any arbitrary timing & fuel changes via any chip, could be very dangerous, even to the point of severe engine damage, ie: as in BLOWN-UP! This is not my "bashing" - you can read it for yourself in their catolog!

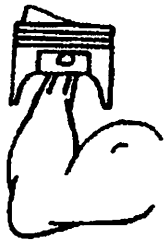
Further, most, if not all, of these chip "marketeers", if not honest enough to include this statement in their sales brochures, will finally admit, under pointed questioning, that their chips are for only stock or near stock vehicles! When installing other after-market bolt-ons, to increase volumetric efficiency (air-flow improvements), they realize the increased HP gains are coupled with increased engine stress, ie: greater heat out-put, dynamic compression/spark requirment/detonation thresholds etc, & fuel delivery needs. So, it seems, you can spend $200-$300 on a chip-module & limit yourself to an otherwise stock SC, or you can save this $200-$300, & spend it better elsewhere - on a SCCoA modified SC top, for instance. I will guarantee a greater performance increase (with no associated dangers - actually LESS engine stress due decreased supercharger out-let air temperature - see Charles Warner's modified SC top test on this very home page) with one of these SCCoA exclusives than with any chip-module ever made!

As previously posted on this web-site, Coy Miller is now able to make 450HP at 5800 rpm & close to 500 lb/ft of Torque & 3800 rpm
on his dyno 3.8L SC super-street engines, with a stock EEC-IV box & harness - NO CHIP!

As also previously stated on this site - Lee Bender of C&L fame has set or holds 8 NMCA class records & has won one NMCA class National Championship, & finished second the next year with his 800+ HP Vortech Mondo blown Mustang - running 42 lb/hr injectors controlled by a STOCK EEC-IV computer-box, PLUS, 8 secondary 30lb/hr Bosch injectors (total under full-boost - 72 lb/hr worth of injectors) with NO AFTER-MARKET CHIP!

Because the SC engine control system is much different than the stock Mustangs, (because of the boost factor) street Mustangs which install after-market blowers do need major changes in their spark timing/fuel delivery needs etc, but as stated above by Vortech, these needs can be met better, more safely & effectively by other means, which, because I don't feel qualified to discuss these items, will leave that discussion to others more knowledgeable than I.

Bill Hull



COY MILLER RACE ENGINES

3.8 FORD SC STAGE 1 ENGINE PROGRAM

The CMRE Stage 1 engine package is a simpler version of our Stage 2 engine, as to cut the cost to a more affordable price range for the enthusiast that has a milder performance goal. The components are the same hi quality as in the Stage 2 except that Stage 1 engines use a street grade valve and steel retainers.We also resize the stock connecting rods & install ARP rod bolts instead of using the Stage 2 aftermarket rods, so that we can keep the cost down. These components will work just fine as long as the engine is used in it's intended design range. Stage 1 porting consist of reworking the short turn radius, bowl cleanup,and gasket match of the intake side. The exhaust side includes reworking the short turn radius, bowl cleanup, and runner porting & polishing The chambers are reworked for valve unshrouding and seat blending. The Stage 1 engine package also uses bolt down rocker arms that will work fine with it's smaller camshaft. The following components and labor are included in the Stage 1 package.

Components:

*Block, Customer supplied
*Crankshaft, Customer supplied 3.39 stroke
*Pistons, BRC or Wiseco, custom reverse dome, 3.831 bore, 1.5595 comp ht.
*Ring package, plasma top, zero gap sec, SS 50 U oil
*Main bearings, Cleveite 77
*Rod bearings, Cleveite 77
*Cam bearings, Sealed Power
*Oil pump, Melling rebuild kit
*Oil pan, Customer supplied or CMRE custom fabricated
*Oil pick up, Customer supplied
*Camshaft, CMRE custom grind - Stage 1 computer compatible, hyd. roller, customer supplied core.
*Lifters, CMRE hyd roller
*Timing set, CMRE wide link
*Timing chain tensioner
*Heads, Customer supplied
*Valve guides, phosphor bronze
*Valves int., stainless steel, 1.785
*Valves ex., stainless steel, 1.6
*Springs, Comp. dual assemblies
*Retainers, Comp. 4140 chromemoly
*Spring cups
*Locks, Comp. 10 degree
*Valve seals, positive type, teflon
*Rocker arms, bolt down type
*Pushrods, custom CMRE 4130 seamless chromemoly
*Fasteners, ARP (Supplied thorough SCCoA)
*Gaskets, Felpro

(Continued from page 1)

Labor:

*Disassemble core engine
*Clean core engine
*Check line bore (Align hone if needed $100.00)
*Pressure test block
*Mill block & set deck clearance
*Bore & power hone block with torque plate
*Chamfer oil holes
*Polish crankshaft. (Regrind crankshaft if needed $72.00)
*Resize rods
*Balance assy.
*Disassemble heads
*Clean heads
*Pressure test heads
*Install valve guides
*Machine & install seats for oversize exhaust valves
*Competition valve job
*Port work & flow testing. Stage I
*Flat mill heads
*Machine spring seats for cups
*Install cam bearings
*Check piston to valve clearance
*Check piston to deck height
*Degree camshaft
*Set piston ring gap
*Check & set bearing clearance
*Clean block for finial assembly
*Assemble engine
*Dyno test & tune engine

The CMRE Stage I engine should dyno about 360 HP @ 5200 RPM (15 psi boost). 5500 shift point. Approximate torque 425 ft/lbs @ 3500RPM! The Stage I package will put the SUPER back in your Super Coup at a modest price thats not much more than a stock type rebuild.

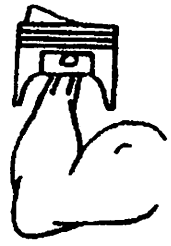
CMRE 3.8 Ford Super Coup Stage 1 Engine Package

$5626.00 Assembled & Dynoed

$4826.00 Engine Kit

COY MILLER RACE ENGINES

HARRISONBURG VA. 22802 Phone 540-433-0545



COY MILLER RACE ENGINES

3.8 FORD SC STAGE 2 ENGINE PROGRAM

The CMRE Stage 2 engine package is the result of hundreds of hours of extensive research and development, with countless hours of flow testing and Dyno testing. Stage 2 SC porting consist of bowls reworked and short turn radius recontoured on the intake & exhaust sides. Both the intake and exhaust runners receive full porting & polishing. The chambers receive taller over size valve seats and are reworked to promote low valve lift flow & minimize valve shrouding. The chambers are then highly polished to help retain heat. CMRE valve seats are formed on a Winona CMC 30 cylinder head machining center with 3 angles and two radius, with seat run out .001 or less, the valve seat heights are equalized to .002 and are fully blended.The valves are reworked to complement our seat design, as they too play a big part in air flow. All valve jobs are vacuum tested.Stage 2 SC heads are flow tested on our SuperFlow 600 computerized flow bench @ 28" H20 to ensure that they will flow the air required to make the 475 ft/ lbs of torque and 440 plus HP. The following components and labor are included in the Stage 2 SC package.

Components:

*Block, Customer supplied
*Crankshaft, Customer supplied 3.39 stroke
*Pistons, BRC or Wiseco, custom reverse dome, 3.831 bore, 1.5595 comp ht.
*Ring package, plasma top, zero gap sec, SS 50 U oil
*Rods, Eagle 3D 4340 steel 5.956" with 8740 cap screw, 705 grams
*Main bearings, Cleveite 77
*Rod bearings, Cleveite 77
*Cam bearings, Sealed Power
*Oil pump, Melling rebuild kit
*Oil pan, Customer supplied or CMRE custom fabricated
*Oil pick up, Customer supplied
*Camshaft, CMRE custom grind - Stage 2 computer compatible, hyd. roller, customer supplied core.
*Lifters, CMRE hyd roller
*Timing set, CMRE wide link
*Timing chain tensioner
*Heads, Customer supplied
*Valve guides, phosphor bronze
*Valves int., stainless steel, 1.85, NK 842 material
*Valves ex., stainless steel, 1.625, XH 426 material
*Springs, Comp, dual assemblies
*Retainers, Comp, Titanium
*Spring cups
*Locks, Comp, 10 degree
*Valve seals, positive type, teflon
*Rocker arms, CMRE Hi Tech stainless
*Pushrods, custom CMRE 4130 seamless chromemoly
*Rocker arm studs, CMRE
*Guide plates, CMRE custom
*Fasteners, ARP (Supplied thorough SCCoA)
*Gaskets, Felpro

XH428 & NK844 valves can be substituted for approximately $267.50 more for NOS applications.

(Continued from page 1)

Labor:

*Disassemble core engine
*Clean core engine
*Check line bore (Align hone if needed $100.00)
*Pressure test block
*Mill block & set deck clearance
*Machine for O rings
*Bore & power hone block with torque plate
*Cross drill crankshaft
*Machine rear crank hole & install plug
*Chamfer oil holes
*Polish crankshaft. (Regrind crankshaft if needed $72.00)
*Balance assy.
*Disassemble heads
*Clean heads
*Pressure test heads
*Install valve guides
*Machine & install seats for oversize valves
*Competition valve job
*Port work & flow testing. Stage 2
*Flat mill heads
*Machine & install screw in studs
*Machine spring seats for cups
*Install cam bearings
*Check piston to valve clearance
*Check piston to deck height
*Degree camshaft
*Set piston ring gap
*Machine rod bearing chamfer
*Check & set bearing clearance
*Clean block for finial assembly
*Assemble engine
*Dyno test & tune engine

The engine described above should dyno about 440 horsepower @ 5500 RPM (15 psi boost),6000 shift point. Approximate torque 475 ft/lbs @ 3500 RPM! This bullet-proof assembly will be durable enough to support a properly applied 100 HP nitrous system if desired (O-ringed block recommend). More importantly, this engine will "live" at this power level, and remain perfectly streetable, and will still provide excellent fuel economy (depending on driving habits).

CMRE 3.8 Ford Super Coup Stage 2 Engine Package

$6994.00

COY MILLER RACE ENGINES

HARRISONBURG VA. 22802 Phone 540-433-0545

Engine Analyzer Pro v2.1 | Performance Trends (C) 1997 | Date: 02-12-1998
Eng: 231SCF-0.SPC | COY MILLER RACE ENGINES | Time: 12:01:41 am
Calculated Test Results | 540-433-0545 | Page: 1

Projected Performance

Engine RPM	1800	2200	2600	3000	3400	3800	4200	4600	5000	5400	5800	6200	6600
Brk Tq, ft-lbs	465	469	472	476	482	481	482	470	454	435	394	323	227
Brake HP	159	196	234	272	312	348	385	411	432	447	436	382	285
Exh Pres, PSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Boost, PSI	15.0	15.0	15.0	15.0	15.2	15.0	15.1	15.0	14.9	14.8	14.7	14.7	15.0
Vol Eff, %	160.3	160.9	162.6	163.6	167.2	168.1	170.3	169.1	167.0	164.7	161.7	157.3	152.9
Actual CFM	196	240	287	333	386	433	485	528	567	603	636	662	685
Fuel Flow, lb/hr	71.6	87.8	105	122	141	158	177	193	207	221	233	242	250
Nitrous, lb/hr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ntrs Fuel, lb/hr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BMEP, PSI	299	301	304	306	310	310	310	302	292	280	254	208	146
A/F Mxtr Qlty, %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
BSFC, lb/HP-hr	0.444	0.442	0.443	0.443	0.447	0.450	0.455	0.463	0.473	0.487	0.527	0.623	0.857
Thermal Eff, %	35.6	35.8	35.7	35.9	35.7	35.6	35.4	35.1	34.8	34.3	32.7	29.2	24.0
IMEP, PSI	356	359	363	366	373	374	377	371	363	353	330	287	229
Frctn Tq, ft-lbs	19.2	21.3	23.4	25.5	27.8	30.0	32.3	34.7	37.1	39.6	42.1	44.7	47.3
Frctn HP	6.6	8.9	11.6	14.6	18.0	21.7	25.8	30.4	35.3	40.7	46.5	52.8	59.5
FMEP, PSI	12.4	13.7	15.0	16.4	17.8	19.3	20.8	22.3	23.9	25.5	27.1	28.7	30.4
Mech Eff, %	85.0	84.9	84.7	84.4	84.1	83.7	83.2	82.4	81.4	80.2	78.0	73.7	65.3
Motoring HP	22.7	28.5	35.1	42.4	51.4	61.7	74.5	88.0	104	122	143	165	189
Pumpng Work, HP	5.8	6.9	7.7	8.3	8.3	6.8	4.4	1.0	-3.8	-10.4	-18.5	-26.6	-33.7
Residual Exh, %	2.5	2.6	2.5	2.6	2.4	2.2	2.1	2.4	2.5	2.4	2.3	2.4	3.2
Shrt Circuit, %	0.7	0.5	0.4	0.3	0.2	0.1	0.2	0.2	0.1	0.1	0.0	0.1	0.1
Exh Temp, deg F	1414	1419	1429	1429	1432	1444	1450	1454	1467	1475	1443	1331	1156
Mx Cyl Pres, PSI	1695	1696	1704	1711	1745	1752	1770	1763	1734	1706	1631	1490	1294
Mx Cyl Tmp, deg F	4937	4916	4905	4903	4900	4913	4920	4907	4904	4902	4775	4442	3890
In Port Tmp, deg F	145	143	141	140	140	139	139	139	140	142	144	148	154
Piston Spd, ft/min	1017	1243	1469	1695	1921	2147	2373	2599	2825	3051	3277	3503	3729
Piston Gs @ TDC	200	300	420	560	710	890	1090	1310	1540	1800	2080	2380	2690
Coolant HP	49.2	57.8	67.1	76.8	87.2	99.0	111	124	138	152	161	162	153
Blow By, CFM	2.4	2.4	2.4	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.4	2.3	2.1
In Tun Pres, PSI	0.0	0.0	0.1	0.2	0.3	0.5	0.8	1.1	1.5	1.8	2.1	2.3	2.5
Avg In Vel, ft/sec	79	97	114	132	150	167	185	202	220	238	255	273	290
Avg Ex Vel, ft/sec	101	123	145	168	190	213	235	257	280	302	324	347	369
Mach #	0.173	0.211	0.250	0.288	0.327	0.365	0.404	0.442	0.481	0.519	0.558	0.596	0.634
Act In FlowArea,%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Act Ex FlowArea,%	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Valve Toss										PmpUp	PmpUp	PmpUp	PmpUp
Knock Index	4.8	4.1	3.5	3.1	2.9	2.6	2.5	2.3	2.1	1.9	1.6	1.2	0.7
Spark Advnc, deg	15.3	16.2	16.9	17.5	17.9	18.4	18.9	19.5	20.1	20.6	21.0	21.6	22.3
Injctr Dty Cyc, %													
Inj Plse Wdth, ms													
Calc Error	0	0	0	0	0	0	0	0	0	0	0	0	0
Compressor Eff, %	73.9	75.6	76.8	77.4	77.9	77.3	76.5	74.8	72.5	69.5	66.0	61.8	57.1
Cmprssr Pres Ratio	2.03	2.03	2.03	2.04	2.06	2.05	2.07	2.07	2.07	2.07	2.07	2.07	2.10
Compressor HP	21.9	26.5	31.3	36.1	41.7	46.8	53.0	58.6	64.5	70.9	77.9	85.4	95.5
Compressor RPM	4680	5720	6760	7800	8840	9880	10920	11960	13000	14040	15080	16120	17160
Roots Vol Eff, %	82.6	83.1	84.1	84.8	86.9	87.7	89.2	88.9	88.1	87.1	85.9	83.8	81.6
Turbo Wastegt, %													
Turbo Surge, %													

PkTq=482@3400 Avg=433
PkHP=447@5400 Avg=331

COY MILLER RACE ENGINES

3.8 FORD S.C. STAGE 1 CYLINDER HEAD PACKAGE

PUTS

THE SUPER IN YOUR SUPER COUPE

FOR ONLY $1495.00

COMPONENTS:

Customer supplied cores.
Phosphor bronze guides.
Stainless steel, 1 piece chrome stem, hardened tip, 1.6 exh. valve.
Stainless steel, 1 piece chrome stem, hardened tip, 1.785 int. valve.
Dual valve spring assemblies.
4140 chromemoly steel retainers.
10 degree locks.
Positive type, TEFLON valve seals.
Valve spring cups.

LABOR:

Disassemble heads.
Clean heads.
Pressure test heads.
Install valve guides.
Machine & install exh. valve seats for over size valves.
Competition valve job.
Stage 1 port work & flow testing.
Flat mill heads.
Machine spring seats for cups.
Assemble heads.

Stage 1 porting consist of reworking short turn radius, bowl cleanup, and gasket match of the intake side. The exhaust side includes reworking short turn radius, bowl cleanup, and runner porting & polish. The chambers are reworked for valve unshrouding and seat blending. All heads are flow tested on our computerized SuperFlow 600 to make sure they put the SUPER in your Super Coupe.

Stage 1 heads will work with the stock camshaft, although our Stage 1 camshaft will result in added POWER!

COY MILLER RACE ENGINES

3.8 FORD S.C. STAGE 2 CYLINDER HEAD PACKAGE

425 PLUS HP POTENTIAL @ $ 2,341.00

COMPONENTS

Customer supplied cores.
Phosphor bronze guides.
XH 426 stainless steel, 1 piece, 1.625 exh. valve.
NK 842 stainless steel, 1 piece, 1.85 int. valve.
Dual valve spring assemblies.
Titanium retainers.
10 degree locks.
Positive type, TEFLON valve seals.
Valve spring cups.
Custom CMRE 4130 seamless chromemoly pushrods.
CMRE custom guide plates.
CMRE rocker arm studs.
Hi tech stainless rocker arms.

LABOR

Disassemble heads.
Clean heads.
Pressure test heads.
Install valve guides.
Machine & install valve seats for over size valves.
Competition valve job.
Stage 2 port work & flow testing.
Flat mill heads.
Machine & install screw in studs.
Machine spring seats for cups.
Assemble heads.

Stage 2 SC porting consist of bowls reworked and short turn radius recontoured on the intake & exhaust sides. Both the intake and exhaust runners receive full porting & polishing plus the center intake runner is reworked. The chambers receive taller over size valve seats and are reworked to promote low lift valve flow & minimize valve shrouding. The chambers are then highly polished to help retain heat. CMRE valve seats are formed on a Winona CMC 30 cylinder head machining center with 3 angles and two radius, with seat run out .001 or less, the valve seat heights are equalized to .002 and are fully blended. The valves are reworked to complement our seat design, as they too play a big part in air flow. All valve jobs are vacuum tested. Stage 2 S.C. heads are flow tested on our SuperFlow 600 computerized flow bench at 28" H2O to ensure that your heads are as good as the ones we bolt on our 425 plus HP stage 2 S.C. engines.

CMRE Stage 2 camshaft should be used with CMRE Stage 2 heads

COY MILLER RACE ENGINES

1046 Moore Street
Harrisonburg VA. 22802
540-433-0545

FLOW TEST REPORT

Date : 2/4/98 Job No.: 10357 Test Operator: Coy
Customer: Joe Sarcona Cylinder Head Type: 231 Ford SC
Test Description: CMRE Stage 2 - Wide Exh.
Intake: Valve: 1.85X.343 Int. Valve Area: 2.60 Radiused Inlet
Exhaust: Valve: 1.625X.343 Exh. Valve Area: 1.98 Short Dyno Header
Test Pressure: 28" Leakage: 0 Test Port Number: 2

Test Number Int.	1	2	3	4	5	6	7	8	9	10	11
Int. Valve Lift	.025	.050	.093	.185	.278	.370	.463	.555	.648		
Flow Range	1	1	2	3	4	4	4	4	4		
Flow Meter	.420	.808	.706	.704	.515	.640	.700	.690	.685		
Test CFM	14.8	28.4	50.5	105.2	154.5	192.0	210.0	207.0	205.6		
Leakage	None										
Corr. CFM	Same As Test										
Avg. CFM	129.8										

Test Num. Exh.	1	2	3	4	5	6	7	8	9	10	11
Exh. Valve Lift	.025	.050	.081	.163	.244	.325	.406	.488	.569		
Flow Range	1	1	2	3	3	3	4	4	4		
Flow Meter	.31	.645	.535	.565	.790	.941	.505	.530	.540		
Test CFM	11.5	23.9	40.9	88.9	124.4	148.2	161.5	169.5	172.7		
Leakage	None										
Corr. CFM	Same as Test										
Avg. CFM	104.6										

Exh. - Int. @ Peak Flow 82% Exh. - Int. @ Avg. Flow 80%

COY MILLER RACE ENGINES

1046 Moore Street
Harrisonburg VA. 22802
540-433-0545

FLOW TEST REPORT

Date : 2/4/98 Job No.: Test Operator: Coy
Customer: SCCoA Cylinder Head Type: 231 Ford SC
Test Description: Stock Head Baseline
Intake: Valve: 1.78X.343 Int. Valve Area: 2.40 Radiused inlet
Exhaust: Valve: 1.46X.343 Exh. Valve Area: 1.78 Short Dyno Header
Test Pressure: 28" Leakage: 0 Test Port Number: 4

Test Number Int.	1	2	3	4	5	6	7	8	9	10	11
Int. Valve Lift	.025	.050	.089	.178	.267	.356	.445	.534	.623		
Flow Range	1	1	2	3	3	3	3	4	4		
Flow Meter	.37	.755	.656	.52	.685	.885	.884	.51	.588		
Test CFM	13.0	26.5	46.9	77.7	102.4	132.3	132.1	153.0	176.4		
Leakage	None										
Corr. CFM	Same As Test										
Avg. CFM	95.6										

Test Num. Exh.	1	2	3	4	5	6	7	8	9	10	11
Exh. Valve Lift	.025	.050	.073	.146	.219	.292	.365	.438	.511		
Flow Range	1	1	1	2	2	3	3	3	3		
Flow Meter	.29	.54	.763	.731	.988	.58	.66	.71	.75		
Test CFM	10.8	20.0	28.4	55.9	75.6	91.3	103.9	111.8	118.1		
Leakage	None										
Corr. CFM	Same as Test										
Avg. CFM	68.4										

Exh. - Int. @ Peak Flow 66% Exh. - Int. @ Avg. Flow 71%

BEAK TO BEAK - Late Breaking News, & Other B.S.... Etc.

From: Rufus T. Fuzzbuster, CEO
R&D Enterprises
White Water, AR

To: President, SCCoA

Subject: The Origins of R&D

Hi Y'all,

As my brother Rufus has recently decided to "come out of the closet" by posting on the SCCoA web-site, I feel the need to do like-wise. The following story will both amaze & no doubt astonish you all, as this information has never been revealed before this day. First of all, until William Jefferson Clinton looted this fine state, (incl. a local savings & loan), & apparently ravished half of the female population in all of Arkansas, we never received any media attention. Secondly, as I will soon relate, most of our patent rights were sold with the understanding that we would remain silent about them, remember: "Loose Lips Sink Ships"!

Growing up as young lads in rural Arkansas, my older brother Rufus & I were fortunate enough to obtain a copy of Sir Isaac Newton's "Laws of Physics" - whose laws are all based on the basic premise that: "the apple never falls far from the tree". Having thus obtained a tremendous advantage over our local "school-chums", Rufus & I went on to un-imagineable scholastic heights - graduating tied for Magna Cum Laude from the Univ. Of Arkansas in 1942. Although we both were offered full scholarships to attend graduate school, Rufus & I decided to start our own business, apply our vast knowledge of Physics, & start making some money. There were never any two harder working people in the whole-wide world than the two Fuzzbuster brothers, Rufus & Dufus. We typically worked 18 hours a day, seven days a week - always experimenting..... & experimenting some more. Soon our labor began paying off. Our first invention was the 90mpg carburator, which we promptly sold to Standard Oil Company with the promise to never say a word to anybody. Next, Rufus & I invented the electronic fuel atomizer, then shortly thereafter, the magnetic fuel ionizer - both of which we promptly sold to General Motors, - again, our silence was guaranteed. Soon, however, the Fuzzbuster brothers were the "hush-hush" talk in corporate boardrooms all across America. To guard against leaks (lest their competitors find out about our inventions). Rufus & Dufus Fuzzbuster were soon refered to as simply "R&D". Although all of you have been raised up believing R&D stood for "Research & Development", and it does, ORIGINALLY, R&D stood for the little-known, but none-the-less famous Fuzzbuster brothers, Rufus & Dufus!

After Rufus & I made our first million bucks from Standard Oil Co. & GM, we could afford to travel the world & "see the sights". Rufus & I were the first & only scientists to ever implant a chip-module controlled device on the Loch-Ness monster, allowing us to receive radio signals & thus to monitor ol' Nessie. Further, Rufus & I installed a chip-controlled "tracking collar" on the mighty Yehti - more commonly known as "The Abominable Snowman"! The one we caught was more "Abdominable" than "Abominable", as he was old, had a big, pot-belly & therefore was slow enough for us to catch! Of course, our most famous invention, which was produced in response to over-whelming demand, was the "radar detector". Although many companies market this product under their own brand names, generically speaking, they are all referred to as "Fuzzbusters" to this very day!

The rest of my story will no doubt astound you all even more. Solar-powered chip-controlled computers were actually invented by the ancient Egyptians over 5000 years ago. Two commodities which were in plentiful supply in Egypt were 1. Sun-light, & 2. Sand (silicon). The Egyptians simply put "two & two"

together & came up with the first computers! How do I know, you ask? Well, how else could they have possibly designed & constructed the huge & magnificient pyramids & the Sphinz? Even modern day science, as advanced as it is, could not replicate these feats of the early Egyptians from 3000 B.C. Recently discovered papyrus writings & drawings clearly depict a computer-chip module looking "do-hicky" attached to several instruments of the day, incl. a decal stating "Super-Duper Chips, Inc - patent applied for from the local Pharoah"! Discoveries at other "dig" sites have virtually proven that computer chips allowed Moses to part the Red Sea, allowing the children of Israel to cross over on dry land. Other, later writings have proven that chip-modules assisted Julius Caesar in crossing the Rubicon river, Hannibal in crossing the Alps with his elephants, George Washington in crossing the Deleware, even, Napoleon in "meeting his Waterloo"! So why do so many of you doubt the effectivness of this technology for automotive applications? This is not NEW technology, it is 5000 years old. GET WITH THE PROGRAM, Y'ALL!! Unfortunately for the North, this technology was lost during the War Between The States, as every time the Union army crossed the Potomac River into Virginia (even Bull Run creek at Manasas, VA.) Gen. Bobby E. Lee & his bunch of rebels kicked their butts! But that's another story.....

Anyway, as this story is getting rather lengthy, I must draw to a close. Before I sign off, & at the fear of "letting the cat-out-of-the-bag, (or worse, being accused of Kenneth Starr-type "leaks") I will let you all in on our latest invention. Rufus & I have developed a top-secret substance we have named "Slick-Willy". When allowed to saturate a common stone, this Slick-Willy substance allows these stones to become impervious to anything, up to & including a depleted-uraninum armour-piercing shell! It is 100 times stronger than Kryptonite! Another amazing property of "Slick-Willy" is it's ability to repel any foreign object - much like two north poles of a magnet! Nothing will stick to it! We have named these impregnable stones "Clintonite", after our in-famous President! One bad side-effect of "Slick-Willy" if accidently taken internally - it has severe aphrodisiac qualities - Rufus tasted some one day & immediately ran out of the lab & started chasing the family sheep-herd!

Sincerely,

Dufus T. Fuzzbuster, CEO
R & D Enterprises, Inc. - member Hi-Tech Red-Neck Industrial Association

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From: Jamie "outta this world" Turvey, PhD, S.A.E., D.U.I., & D.O.A.
Chief Design Engineer, SCCoA!

To: All SCCoA members

Subject: New Product Development

For all of you SC owners who are fortunate enough to afford the Superchips, Inc. chip/pulley combo which promises 17psi of boost, plus increases of 40 peak HP & 25% in TORK @ 3000rpm (80lb/ft - from their latest SALES brochure), the SCCoA is offering a new, revised boost guage which reads to 20 psi. Just think! No more guessing, or interpolating/extrapolating! No more marking 16,17, or 18psi marks on your guage with magic marker or thin strips of tape! Now you can get a direct read-out - guaranteed accurate with-in + or - 10 kilopascals (kPa). In additon, the SCCoA & Superchips, Inc. are presently negotiating a "package deal", where-by a Fel-pro gasket set & ARP head studs are automatically included with each chip/pulley combo! WOW!

Even more important - for you Turbo Coupe owners who opt for the Super Chips, Inc. 350HP conversion (2.5HP per cubic inch!) w/23 psi of boost (incl. Chip & 43lb/hr injectors from a Porsche 944 Turbo), the SCCoA is offering a BLOW-PROOF engine cover incl. an armor plated hood - guaranteed to with-stand the 5 mega-ton blast which will surely ensue shortly after installation of this "dynamite" kit! As even their

"mild" 255HP conversion (18psi of boost w/chip) gives quote: "blistering performance" (question: "Who gets blistered"?). & their "Big Dog" 350HP conversion gives: quote "performance which will leave most other cars behind: Enjoy it while you can - for the "Grim Reaper" of all HUFFERHEADS is "waiting in the wings" to salvage your engine parts! The SCCoA is proto-typing a special rear-valence mounted all-metal-attracting magnet, complete w/ground-scraping parts collecter-bag (patent pending). & automatic oil-dry dispenser (so as not to make all of the cars you have "left behind" slip & slide in your freshly dumped oil!). a la James Bond (chip-controlled, of course!). Supply will be limited - GET 'EM WHILE YOU CAN!

Jamie"outta this world" Turvey, PhD, S.A.E., D.U.I, & D.O.A
Chief Design Engineer, SCCoA

From: Matt at Auburn Performance Equipment, Inc.

To: Anyone who will listen

Subject: New APE Chip for Thunderbird

Hello T-bird owners,

We have finally come out with an APE chip for the 4.6L T-birds. Preliminary testing shows increases of 13.8 HP & 19.2 ft/lb of torque! All the shift parameters are re-programmable as well. Please contact us for more info or visit our web-site!

From: Donald King, President
Donald King Enterprises, Inc.

To: Matt at APE, Mike Troyer, National Marketing Director, Superchips, Inc., and anyone who will listen:

Subject: Up-coming BATTLE ROYALE!

THE GUANLET HAS BEEN THROWN DOWN! LET THE DUAL BEGIN FORTHWITH!!
....In this "caw-nah".....dressed in pink w/ purple polka-dots, weighing in with Massive Tork & HP increases, is Superchips, Inc. - the current, undefeated, & reigning World Bantam-weight Champion of ALL things "chip-related"!.....Drum-roll, please!.....And, now, in the opposing "caw-nah"....the NEW challenger - Auburn Performance Equipment, wearing NOTHIN' but a new pair of Nike's & a SMILE! , also weighing in with MASSIVE INCREASES IN HP & TORK - plus re-programmable shift parameters! APE is the current & un-defeated SEMA "golden-gloves" bantam-weight champion of all things "chip-related",

This promises to be a grueling FIGHT TO THE FINISH - LAST CHIP LEFT STANDING WINS ALL! NO THREE KNOCK-DOWN RULES APPLY! This is going to be the "Mother of all chip module shoot-outs"! The Ultimate "Thrilla-in-Manila" - The supreme "Clash of the Titans"! - HOLY COW!! It's gonna be the "Star Wars of the Twentieth Century"!

What a Dilemma! Although my HEART belongs to Superchips, Inc., my MIND says - "go with the new, younger, hungrier challenger"! ZOUNDS, Ethel! What is this world coming to??

Donald King, Esquire

World-Reknown Fight Promoter

P.S. - As Jamie "outta-this-world" Turvey, D.U.I., D.O.A, recently Chief Engineer of Super-Duper Buffalo Chips, Inc. & now currently SCCoA Chief Design Engineer, is to be the referee. all side-bets must come thru Don King Enterprises!

The Day-toner Five-Hun-nert!

Posted on: **02/15/98 at 11:11:02**

Posted by: **Bill Hull** [1991 SC -- 3.8 SC - Auto]
C'ville,, VA

Wake Up People! It is late Sunday morning & it is almost time for the Nascar Showcase Race of the Year! - The Day-toner Five-Hun-nert! I sure hope a Ford Product wins this deal, even if it is a painted-on door-handles 4-door people-carrier Super Taurus! BUT, wouldn't it be nice to see one of those OLD-FASHIONED T-Birds cross victory lane in first place! I wouldn't even care if the winning Ford had a Superchips, Inc chip-module installed on it, by golly! On second thought, I don't remember ever seeing a Superchips, Inc. sponsor decal on any of these NASCAR BEASTS! Of course, they fly by so fast, maybe in my advanced state of Diabetes' Induced Senility, Insanity, & Blindness, I just haven't noticed! On third thought, what do these back-woods, Tar-heel state, hill-billies know about true, late-breaking hi-technology anyway?? - All they do each & every week is go out & make 750+HP (non-restrictor-plate, of course), at up to 9000rpm, for up to 500 miles, with-out blowing-up (for the most part)! HOLY COW! Just think what a Super-Duper Buffalo Chip could do for them! Is 250mph....even 300mph on the back-straight of Tallahdega just over the horizon?? QUICK ETHEL! GIMMEE MY BOTTLE OF GERITOL, I WANT TO HANG AROUND THIS WORLD JUST A LITTLE BIT LONGER TO SEE SUMMER & FALL TALLAHDEGA! AND CALL THAT DANG-ED HULL FELLA, - TELL HIM TO KICK ALL THAT B.S. ABOUT SUPER-DUPER CHIPS IN-EFFECTIVENESS OFF THE WEB-SITE & BACK INTO CYBERSPACE!
I HEARD MOST OF THEM-THERE NASCAR JOCKS SURF THE SCCOA WEB-SITE EVERY DAY & MIGHT FALL FOR ALL OF HULL'S ANTI-CHIP PROPAGANDA!

BUCKLE-UP MY WHEEL-CHAIR SEAT-BELT, ETHEL - I'M GONE!!

You know who!

SUPER COUPE CLUB OF AMERICA
"RULES AND BY-LAWS"

IF YOU THINK YOU ARE BEATEN, YOU ARE;

IF YOU THINK YOU DARE NOT, YOU DON'T.

IF YOU'D LIKE TO WIN BUT THINK YOU CAN'T, IT IS ALMOST A CINCH YOU WON'T.

IF YOU THINK YOU WILL LOSE, YOU'RE LOST;

FOR OUT IN THE WORLD WE FIND SUCCESS BEGINS WITH A PERSON'S WILL!

THEREFORE,

IF YOU THINK YOU WILL OUT-LAST, YOU WILL;

YOU'VE GOT TO THINK HIGH TO RISE,

YOU'VE GOT TO BE SURE OF YOURSELF BEFORE YOU CAN EVER WIN A PRIZE.

LIFE'S BATTLES DON'T ALWAYS GO TO THE STRONGEST OR FASTEST;

BUT SOONER OR LATER THE PERSON WHO WINS, IS THE PERSON WHO THINKS THEY CAN!