

CHARGIN' THUNDER

Super Coupe Club of America

Volume VII

June 2002



***Dedicated to the preservation & performance of the
1989 to '95 Thunderbird Super Coupe
and 1989/90 Cougar XR7***

God prepares great men for great tasks by great trials. J. K. Gressett

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Changes of Address

Address changes MUST be submitted in writing by the 25th of the month prior to a Chargin' Thunder (CT) printing. The CT is mailed each March, June, September, and December. This will give us time to change it in the computer prior to the next mailing. Address changes are not taken over the phone. They must be in writing via letter, or email (sccoa@usa.net) stating old address and new address. We cannot be responsible for "lost" issues due to late notice of address change. Replacement cost of any lost issue is \$5.00.

Mailing of Newsletters

The CT newsletter is mailed out quarterly in the third, sixth, ninth, and twelfth month of the year. All issues are mailed at the same time via Bulk Mail Postage, which the US Post Office DOES NOT forward to a member's new address. Because of this fact it is vitally important for all members to keep the club updated regarding address changes.

Problems & Complaints

Our highest priority is getting the CT newsletter mailed to you on a timely basis. Please let us know if you have ANY problem at all. Call or email us with your questions or concerns.

New Membership & Renewal

Membership and subscription to the CT newsletter is \$40 US per year. Dues for those outside the USA and Canada are \$50 per year. Each club year begins with the March issue and concludes with the December issue. Renewal slips are placed in each December issue for the upcoming club year. Each January brings a new club year. New members and late renewals receive issues of the CT back to the previous March (which is the month the first CT of the year is mailed) to keep them totally up to date and keep their yearly volume of issues complete.

Classifieds

Any member may place "car" or "used parts" ads for free in the CT. Send your ad to us via email or post card/letter and it will appear in the next issue. Include your member number with your request. Ads must be typed or printed legibly, please.

Businesses wishing to place an advertisement in a CT newsletter should contact the club at 513-697-6501

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John Nolan Ford is offering SCCoA members Ford original equipment replacement parts at **"wholesale" pricing** (+ shipping). **Contact Parts Manager Ron or Bob at 1-800-837-8114** and simply tell him you are a Super Coupe Club of America member.

John Nolan Ford, Inc.

3250 Highland Ave. at Ridge Road

Cincinnati, Ohio 45213

Local # 513-631-6965

Fax # 513-631-5344

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From The Bird's Nest

By Bill Evanoff

I recently spoke with long time SC owner, Phil Knox, from Florida. Phil shared a terrific story with me about how he has enjoyed driving his Super Coupe over 530,000 miles!

He has gone through three sets of shocks, and rebuilt his AOD transmission six times. Thankfully, five of those times were under warranty. He finally added some heavy-duty items to it the last rebuild and it is currently still going strong after 215,000 miles. Amazingly, his original head gaskets lasted till 230,000 miles and his original front suspension lasted over 280,000 miles. From Phil's experience, don't EVER let anyone tell you the SC is not a reliable car!

Carlisle Winners:

The Carlisle All Ford Nationals was another terrific show this year. The weather was superb and there was a record number of cars in attendance. The SCCoA even won a 3rd place award for club participation, for the second time.

The show classes were further broken up this year into four separate classes and here were the winners:

'89 SC

- 1st – George Davenport
- 2nd – Joe Baldazzi
- 3rd – Pat Ragozzino

'90 SC

- 1st – Devin Clark
- 2nd – Chris Lazzo
- 3rd – Brian Bitters

'91 to '93 SC

- 1st – Sam Lawson
- 2nd – David Hildesheim
- 3rd – Alex Baynard

'94 to '95 SC

- 1st – Dick Adams
- 2nd – Bryan Moore
- 3rd – Wally and Elly Tupper

What's Next?

The next big SC show this year will be the MN12 Nationals over Labor Day. Rob Whitt has written up an excellent summary (see page 35) of what you can expect in a few months at this MEGA Event.

I can foresee this event taking over the one that attracts the most SCs for several reasons. First, it will move around the country every year enabling almost everyone the opportunity to come to the outing that lives within a reasonable drive of the host city. Secondly, this is more of a "driving" event than just one where we all admire how pretty everyone's cars are. One can dyno their car, drag race, and possibly auto cross, or road race at future events. Super Coupes and XR7s are for driving...not just polishing to a gleaming shine and the Nationals gives everyone the chance to participate in these activities in a safe off-the-street environment.

This year's event is in Elkhart, Indiana and I know that a tremendous number of Midwest SC enthusiasts will be enjoying the activities. If you live out West or down South, hop on a plane and come without your car! I encourage everyone to make their plans to attend ASAP. Make your reservations now and be sure to bring your lead foot!

Vinyl Graphics

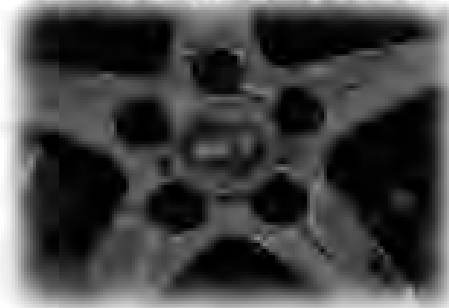
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- ***35th Anniversary Pin stripe***
- ***Bumper lettering***
- ***Custom window stickers***
- ***Car show display signs***



Contact : Chuck Carroll thirdsc@infinet.com or 419 797 4129 EST

SCCoA T-shirts

NEW Colors & Tie-Died Now Available!



The back of the shirt is shown. The front has a small chest print and the sleeve has the "Got Boost" logo.

The SCCoA shirts are now available in RED, BLUE, BLACK, WHITE & Blue/Gray TIE-DIED colors. Pricing is \$15 for Large and XL. \$18 for XXL. Tie-Died is \$3 extra for all sizes. Shipping on one shirt is \$4. Shipping for two or more shirts is \$5. Show your pride in your club, your love for these cars, and the fact that you've "GOT BOOST" under your hood! Email at sccoa@usa.net or call 513-697-6501 to inquire or order.

Guest Editorial

Why would Ford Motor Company choose to shoot itself in the foot?

Recently Ford introduced the 2002 Thunderbird, a retro T-Bird that does offer some styling and appeal. The problem, as I see it, is that the Super Coupe offered more bang for the buck and a better all around buy to more buyers.

Let's take a short look at both the past and the present. When introduced in 1989 the Thunderbird SC was a stylish automobile and its styling remains fresh and attractive even today.

The Super coupe took a large step forward in the fact that it offered the styling of the Lotus, the power and handling of the true sports car and a ride that compared to a luxury touring car.

It was, and still is, the best design to come out of Ford in the last 30 years. So, why abandon it? At best there was another 2 years remaining on this body style and with Ford's decision to cut the Lincoln line of the Mark VIII, there was an even greater opportunity for increased sales. You couple this with the fact that we're only 2 years away from a 50th anniversary model

Thunderbird and it's even more disappointing.

Sure, the retro Thunderbird will appeal to some, but to sacrifice a great design, to offer a limited vehicle to a select few and blow the opportunity to bring it into production as the 50th anniversary model is as dumb as a box of rocks.

My guess is that Bill Ford was at the golf course when this decision was made and the staff looked at the PT Cruiser and jumped the gun.

For whatever reason, what's next for a 50th anniversary model? Maybe we'll see a return to the square four-door model of 1958...what a joke! Or perhaps the suicide doors of the 60's. Ford needs to find a direction for the Thunderbird and stick to it!

In my opinion, Ford's market research, provided they have any, was at the train station when the ship came in. I'm in the Real Estate business and all I can say is "Thank goodness they don't build houses".

That's the way I see it and long live the Super Coupe...a TRUE Thunderbird for all!

John Kendall
Alexander City, Alabama

ALL FORD ROUND-UP

Soerens Ford, Brookfield, WI

By Joe Baldazzi

Last July was the first time the ALL FORD ROUND-UP in Brookfield, WI, had a Class Z – 1989-1997 Thunderbird/Cougar. A total of nine MN12 chassis cars showed up, 5 Super Coupes, 3 T-Bird LXs, and one lone Cougar XR7 (5.0 Liter H.O.). And despite the sweltering hot and humid Wisconsin weather followed by thunderstorms at the end of the day, most everyone had a good time.

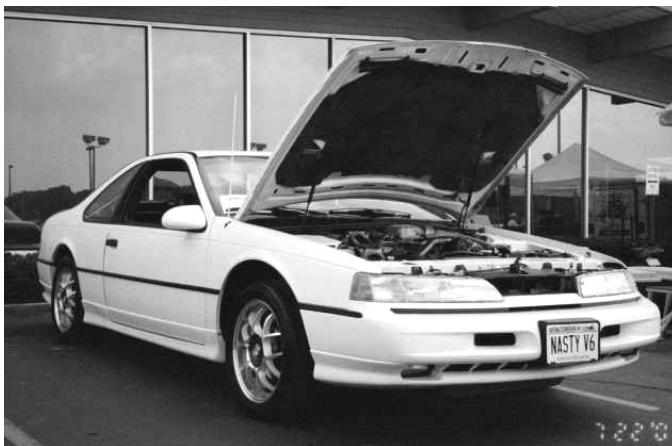
This was the twentieth annual ALL FORD ROUND-UP sponsored by Soerens Ford and the Wisconsin Super '60s Ford Club. It is Wisconsin's largest and longest running all Ford event. The show took place on Sunday, July 22, 2001 in the car lot of the Soerens Ford dealership at 18900 W. Capitol Drive in Brookfield, WI (a Milwaukee suburb).

There were plenty of nice Ford products in attendance including the following in Class Z. Andy Erickson from Janesville, WI showed his 1991 White SC Auto with plenty of HP producing mods, a Cobra R cowl induction style hood and 17" chrome Cobra R style wheels. Joe Guastella from Madison, WI showed his 1989 Turquoise SC 5-speed. Joe's T-Bird had chromed stock SC wheels, and a nice shade of metallic Turquoise paint (even though it was a Chevy color). But we won't hold that against him since it was that color when he purchased the car.



Joe Baldazzi from Brodhead, WI showed his 1989 Black SC 5-speed with 17" silver painted Cobra R style wheels. Joe arrived to the show with thousands of dead bugs plastered to the front of his car from the trip home from Road America in Elkart Lake, WI the night before. Nothing a little water, bug scrubbing sponge and plenty of elbow grease couldn't take care of. These three met for breakfast at Johnson Creek, WI before heading to the show. These three gentlemen did there best to represent the Wisconsin chapter of the SCCoA.

Also attending with their Super Coupes were Tony Serno from New Lenox, IL and Scott Bruhn from Hales Corner, WI. Tony showed his 1994 White SC Auto with plenty of go fast goodies, 17" chrome Cobra R style wheels, clear side marker lights, and a killer 1800 watt competition audio system – a very nice car all around. Scott showed his 1993 White SC Auto also with plenty of modifications including some unique multi spoke wheels. His license plates say it all..."NASTY V6."



**Scott Bruhn's white 1993 SC Auto
with a "NASTY V6"**

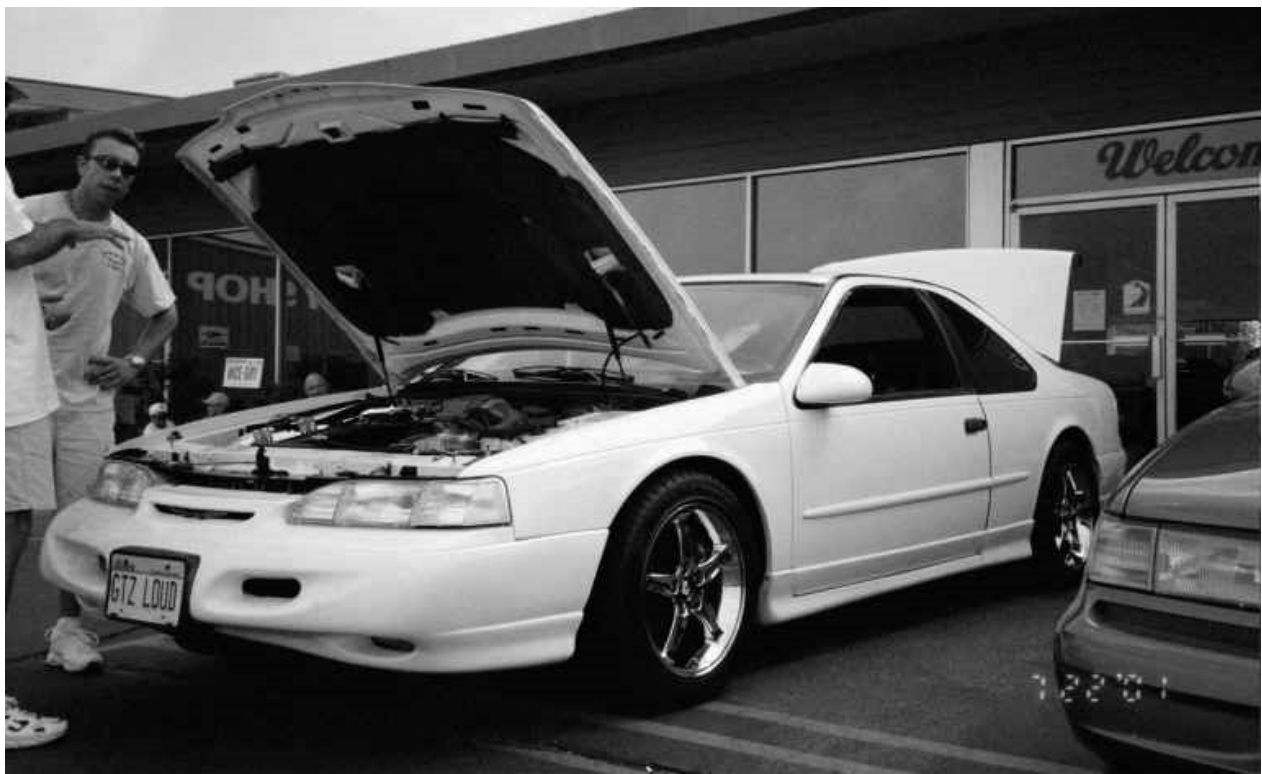
Awards for the show are based on participant voting. Trophies for Class Z went to Joe Baldazzi – 1st Place, Tony Serno – 2nd Place, and Andy Erickson – 3rd Place. Congratulations to all award winners and thanks to all participants for making the minimum number needed for our own class.

The twenty-first annual ALL FORD ROUND-UP happens again this year on Sunday, July 28th at Soerens Ford in Brookfield, WI. We can have our own class again provided we get a minimum of 8 pre-registered participants by July 10th. With a pre-registration fee of only \$5 (\$8 registration day of the show), free T-shirt to all pre-registered participants, and goodies bag with dash plaques to the first 250 entrants, why wouldn't you pre-register? The show happens rain or shine, and there are no passenger or spectator fees. A DJ, food and refreshments will be available to help make for an enjoyable day for everyone.

More information will be posted on the Events BBS at www.sccoa.com when available, or you can call (414) 541-5894 or (414) 425-4710. I plan to attend this show again this year, and would be more than interested in meeting up with others interested for breakfast before the show. We can decide when and where depending on where people are coming from. You contact me by email at sbalz@tds.net or by phone at (608) 862-1596.



Andy Erickson, Joe Guastella, & Tony Serno deciding what mods.Tony's engine needs next.



Tony Serno and his white 1994 Super Coupe Auto, license plates "GTZ LOUD" (Gets Loud). With 1800 watts (that's nearly 2-1/2 HP for those of you who prefer English units) of competition quality audio equipment, YES IT DOES!!!



Andy Erickson's white 1991 SC Auto.



Super Coupe Performance

Our 2nd annual OPEN HOUSE is scheduled for July 27th, 2002. Check out the SCP web site for all the details. DON'T MISS IT!!

FREE Lunch, Great Parts Deals, Dyno Testing, Group Cruise Around Cincinnati, Group Dinner, BIG Car Show on Sunday & MORE!

Plan NOW to come to Cinci. for the entire weekend. This is your chance to hang out with fellow enthusiasts, save some cash, and you know your car will love you for it.

What's NEW?

We now have numerous BIG BRAKE Packages available. We offer 13" or 14" Rotors, 2 Piston PBR / 4 Piston AP Racing / 6 Piston AP Racing Calipers, and Stainless Brake Lines. If you want dramatically improved braking capability...It's waiting for you at SCP!

Clear Cornering Lamps & NEW '89 to '93 T-Bird Headlamps

Indiglo Gage Faces

Stainless Steel Front Engine Dress Up Panels

"NO WAIT" MagnaPort II...Why wait 2 to 3 weeks to have your original blower converted/ported. Call today and install it tomorrow!

CHROME 3" Fresh Air System coming soon!

Call today for pricing, advice, or to order. Don't forget to make your plans NOW for the OPEN HOUSE. See you in July!

Tel. 513-697-6501, Fax 513-697-0580

<http://www.supercoupeperformance.com>

Griffin Radiator Installation How-To

By Bill Evanoff

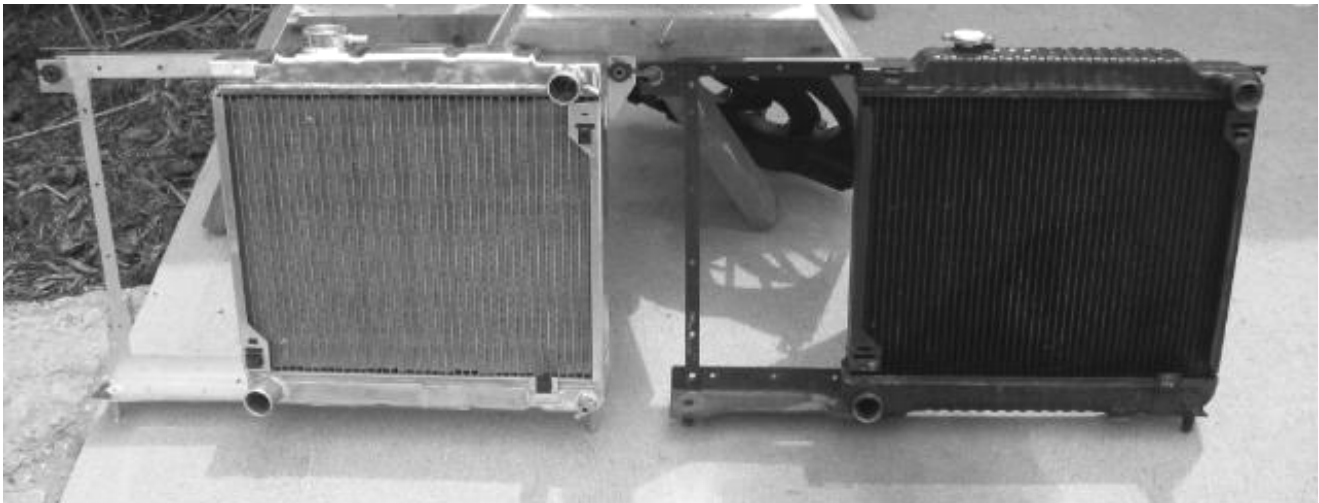


For years, I've always admired the great looks of the all aluminum Griffin radiators on other Super Coupes. When my radiator became suspect recently, I finally had an excuse to upgrade to this handsome bad boy. I had taken my old radiator out years ago when I installed my wider Spearco intercooler so I knew it was a pretty easy job. I figured this would be a good opportunity to share the installation with others and also put my new digital camera to good use.

Griffin is one of the finest aluminum radiator companies out there and they have been offering a direct replacement SC radiator for probably six or seven years. Bill Hull purchased a one-of-a-kind Griffin from a SC owner in Florida and he found out that Griffin had kept all the necessary tooling to make more units if desired. Needless to say, many more have

definitely been pumped out of their South Carolina factory. The SC radiator is a Griffin HP SERIES™. According to the Griffin product catalog, the HP Series features a high efficiency core, a serpentine fin, in-line tubes, and 1 ¼" tube diameters. The HP SERIES™ represents a high performance quality radiator that handles moderate to heavy cooling demands.

Griffin manufactures both aluminum and copper brass radiators. Each alloy has its own strengths and appropriate applications. Copper is a good heat conductor, but solder is required to bond the tubes to fins and creates an insulation point that prevents some heat transfer. Aluminum tubes are welded rather than soldered to aluminum tanks, providing a more efficient conductor for cooling efficiency.



The Griffin (left) includes the intercooler bracket and is a direct drop in.

The strength of materials is one difference between aluminum and copper. The copper tubes carrying the coolant must be very thin to keep a copper brass radiator cooling efficiently. Since copper is relatively weak, the tubes must be narrow in order to prevent internal pressure from swelling or exploding. Aluminum is much stronger, allowing the use of considerably wider tubes. Wider tubes allow more direct contact between the fins and the tube, increasing the radiator's capacity to dissipate heat away from the engine. Aluminum radiators are commonly recommended and preferred for the demands of high performance applications.

Another important benefit of aluminum is its resistance to damage. Griffin goes the extra mile to build a rugged, durable, high performance radiator. Every Griffin radiator is reinforced with a special high temperature epoxy, which provides additional tube to header strength and assists in the prevention of vibration failure. This process is Q1 approved by Ford Motor Company, one of the toughest

quality standards in the industry. (The last three paragraphs include excerpts from the Griffin Product Catalog)

Removal: The coolant will need to be drained. If the coolant is more than two years old, go with a new 50/50 mix of name brand coolant and distilled water (if available) when you fill the Griffin. Next, remove the accessory engine belt and upper and lower radiator hoses. Again, if your hoses are more than four years old, replace them! I prefer the Motorcraft brand or those made by Gates. Don't go with less expensive hoses as they have shown to be much thinner and may rupture more easily as they age.

Once the original unit is loose from its connections, 5-speed owners are almost ready for removal of the radiator and fan assembly. Just be sure to first unclip the fan harness and remove the two outer side bolts that hold the radiator to the front clip. The automatic transmission owners however, still have to remove the two transmission cooler lines. The assembly is a bit heavy but manageable.



Here is what everything looks like with the old radiator and fan removed.

Installation: The most difficult part of this job is removal of the few hardware pieces from your old radiator and their installation onto the Griffin. It would have been nice if Griffin just included these items, but I guess they assume it is not too much of a problem to swap these the hardware.

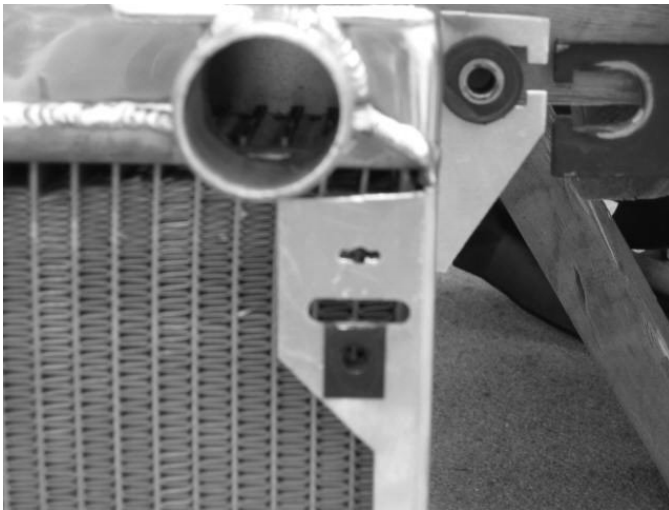
One must remove the two thread clips that go on the upper part of the radiator and install them onto the new one. These two clips are what the upper bolts thread into when attaching the fan. Secondly, one must remove and reinstall the lower spring clips. These hold the fan in place at the bottom of the radiator. I was able to use a screwdriver to carefully tap loose these clips from my original radiator. One little problem I did find on my unit was that one of the upper clips needed to be ground down approx. 1/16" to fit into its new home on the Griffin. A 30-second application of my grinder on the clip resolved this minor issue and allowed the clip to slide in place properly. I've talked to other Griffin owners and no others had this issue. These units are hand built and perhaps mine had a heavy weld in that spot compared to others.



This thread clip was the one that needed a little grinder persuasion to fit properly.



Here is one of the lower spring clips in place.



Here is the other upper thread clip that needs to be transferred from your old rad. Note also that I've installed the rubber/steel bushings on the outside mount.

The last item to remove from the original radiator is the outer rubber bushings with the steel sleeve inside. Slide these off and install into the same slots on the Griffin. Removal of all these clips goes quickly as long as you take care not to damage them.

Finally, you are ready to attach the fan to the new Griffin and install the assembly back into the car. Slide the lower part of the fan into the spring clips and then screw the upper part of the fan to the Griffin in two spots. I had to find a longer screw to attach one of the upper fan mounts because of some difference in the gap between the fan and tread clip but the other was a direct swap.

Reinstalling the assembly back into the car is a snap. Just lay the Griffin into the two holes that mount the radiator to the car and reinstall the two outer bolts, the new hoses, the transmission lines (if required), and plug the fan to its power source. Reattach the

accessory belt, fill the Griffin with new coolant and turn the key.

Prior to final installation, Chris Lazzo and I took the time to bring out a high polish to this particular unit. Thanks to Chris and his polishing skills, my Griffin has that show quality look that I was striving for. I even topped off the new unit with one of Griffins special radiator caps with a polished silver finish. These are available in many colors to add a custom touch to your ride.



The silver Griffin Radiator Cap adds a nice custom touch.

I've accumulated about a thousand miles since the installation and the car definitely runs cooler. Living in Ohio really does not tax the cooling system as much as other parts of the country but I have plans of road course racing the car in the future after I install my 13" front brake setup. I'm sure the extra capacity will be greatly appreciated on a hot day at the track or when the mercury rises over 100 degrees this summer. Overall, the Griffin looks are simply STUNNING and its performance has yet to be fully utilized but I know I'm prepared. Isn't that the reason we purchase aftermarket parts anyway...for their great looks and performance potential!

Alternative Ford & Co Performance

TBM

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Jesse Freeman III VP & Marketing 201-686-4288 • Bickonyas@yahoo.com
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There are NO membership dues! The only input needed is YOU & YOUR CAR! We welcome all EEC
Ford 83-'97 T-Birds, Cougars, & Mark 7/8, Merkurs, SHO's, SVT's, Capri's, Town Cars,
Continental's, Crown Vics, Marquis, Lightnings, etc. Base 3.8 V6, a Turbo 4, Sup'd V6 or hot rod V8!
We extend to all of the NJ-NY-PA Tri State area. Regional chapters still being established.



The SCCoA wins 3rd place for club participation at Carlisle this year!

BIRD # THREE

By Joisey Jim Pearce

A couple of issues ago I wrote an article about the three Super Coupes I've owned since 1990. This time I want to tell you a little bit about the latest model, my 1994 automatic. This is the one I saw "For Sale" in front of a shopping center up in Princeton, NJ when I was on my way back from taking my daughter to college.

A local cop who was going to keep it as a collector car owned it, but he needed the cash for an upcoming marriage (sounds familiar). This SC is pearl white, automatic, with gray leather interior and only had 15,000m on it back in the fall of '98. After a little bartering I got it for \$12,000. I was a bit apprehensive about the automatic, after owning two 5 speeds and having almost always driven a stick shift.

So the first thing on the agenda was to update the 4R70W by changing the accumulator pistons over to the metal ones with rubber skirts and, installing the larger late model sump & filter. After reading more about the 'woes' of this transmission I found a local trans. shop that specialized in Fords and duly had the rest of the '96 upgrades installed, including a TransGo shift kit & Mercon V. My only regret is that the 1-2 shift is a bit too firm for around town driving, but it sure works well when you stomp on the gas from a red light. I also installed a temperature sensor in the pan, plus a 24" long tubular cooler in the front bumper/radiator opening. In heavy summer traffic it does get up to 200 deg. F, but generally it runs in the 160-180 deg. range. A plate type cooler would probably work better, but I haven't noticed any problems with the fluid. I change just the pan capacity every 10,000m and, drain the torque

converter & change the filter every 30,000 miles.



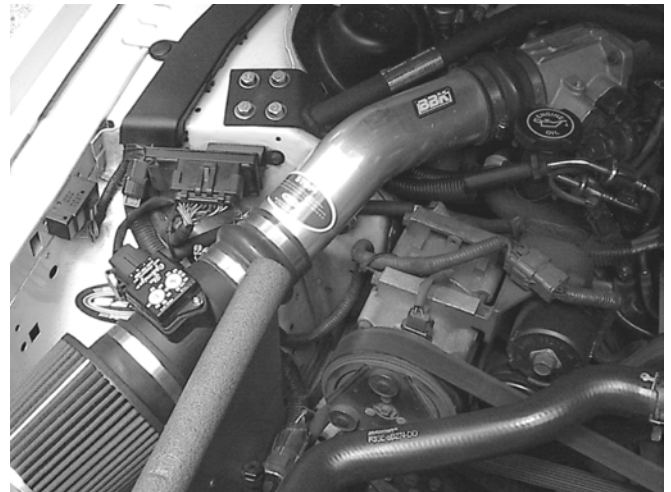
For the engine I installed the Flowmaster Force 2 exhaust. Although not the most free flowing system out there, it has worked well in the other SC's and is very easy to install yourself at home. I have the second generation $\frac{3}{4}$ " raised top on the supercharger, plus an intercooler fan that is operated through a relay and is set to come on at 100 deg. In addition I installed a cool fan switch on the high speed-cooling fan, which has a 200-deg sensor on the face of the radiator. This keeps the temperature gauge about mid-way between the cold and norm settings, but I switch it off in the winter unless I'm sitting in traffic.





On the intake side I have the 70mm BBK throttle body, switched over the linkage myself and ported the plenum to match. I also tried the 75mm ProM Bullet MAF with their 'Optimizer' electronics, which you are supposed to be able to finely calibrate, together with a custom aluminum intake tube and separate K&N pcv filter. I also installed a 5" Autophysics cone filter and made a heat shield to help reduce drawing in warm engine compartment air as well as avoiding any fan wash. The Bullet meter works ok but I was very disappointed with Pro-M's calibrations, because initially the car wouldn't even start until I re-adjusted the idle voltage. On the rich side I simply played with the settings until any detonation was eliminated at WOT. It does seem to run well these days and my fuel consumption is around 20 in town, so I know it isn't running too rich. Originally I tried porting out the stock MAF, but although the tires would peel as soon as you pulled away, the fuel consumption dropped to below

16mpg, so that modification was way too rich.



I installed the Magnecor wires and new stock plugs and haven't had any problems since; that is almost 70,000m ago. Having experienced warped rotors on the two previous SC's I tried the larger Thunderbird S/Mark V111 - 11.57" brake set-up including KVR drilled rotors. They certainly lasted a lot longer between cuts, around 30,000m miles

or so compared to every 20,000m on the stock ones. I wrote a "How to" article on this some time back and it is still posted on the SCCOA web site. What really surprised me was that with the automatic transmission the front pads only lasted 25,000m versus nearly 60,000m with the 5 speeds. Since that time I've changed back to the stock size 10.86" KVR's with the PBR twin piston calipers, which I got used from "mustangparts.com". I'm really impressed with them, as I re-installed the old used rotors and the used pads that come with the 'salvaged' calipers and, haven't had any warpage problems at all since.

A while ago someone posted information about the 17" OZ Fittipaldi wheels on sale for \$100 ea. By the time I inquired they were down to \$60 ea, so I couldn't resist, even if they were a discontinued line. I checked on the replacement hub-cap price just in case I scraped a curb and they wanted \$35; therefore I bought a spare wheel. I felt bad about it afterwards because another person had mentioned on the BBS that they had called after these wheels only to find that they had three left. With the 17"x 8" size I wanted to put on some nice performance tires, but with winter approaching in the NE. I settled for the same tires installed on the Lincoln LS, a VR rated Firestone Firehawk LH which were 235/50's and, almost identical to the stock 16' wheel diameter (around 26.5"). Of course we had little or no snow this winter, but at \$65 each on special at TireRack, I can't complain much.

On the interior of the car I really wanted a carbon-fiber dash kit, but could only find the stick-on type, which was not even a full kit. Some months earlier I had seen a fully molded kit on display at PepBoys for about \$350, but unfortunately it is no longer sold and PepBoys couldn't trace the original manufacturer for me. So I settled for white

face gauges and a triple gauge pod set-up with white analog gauges - a trans. temperature, air-fuel ratio and voltmeter. I'm a bit apprehensive about the accuracy of the air-fuel though, because it has some kind of rectifier to modify the voltage pulses to an analog display. Still the white gauges and orange florescent needles do look nice.

Some of the leather upholstery stitching on the rear head rest area had come apart (I guess due to the sun through the rear window), my drivers' side lumbar wasn't working and the front headrest was broken. So I found a local trim shop who sewed-in a vinyl piece on the rear seat and repaired the other items for around \$400. Other than catching-up with some much needed leather conditioner the interior is still like new, even after 98,000m.

I can't believe all the miles I've driven SC's now. On my original 1990 I clocked-up 90,000m before I passed it on (it was a company car) and the new owner went all the way to 247,000m before the head gaskets finally blew. My black 1993, which my son Mark now uses, is up to 180,000m and of course my 1994 has the 98,000m

For the future I would really like to either bore out the stock headers or install the Kooks, plus high-flow cats of course. I'd better hurry up and install the solid engine & trans. mounts (which are still in the box), before I ruin the power steering pipes or put a hole in the sump. I already did it on the '93, so I can't say I don't know how. The plugs too are in need of a change. My guess, however, is that I'll be installing a new clutch in the '93 first and, it always seems that everyone else's car in the household gets preferential treatment over my car. They say that's what Dads are for, just doesn't seem fair does it ?

Carlisle 2002 Recap



George Davenport picks up his first place plaque for the '89 SC Class during the drive through ceremony on Sunday.



**Have you ever seen so many SCs in one place before??
There were over 80 in attendance this year...a new record!**



Bill McNeil and Christa.



Ed Nicholson from Ontario received a Celebrity Choice award for his beautiful '95 SC.



Jimmy White with one of his two SCs.



Heber Gordills with his teal '94 SC



**Coy Miller's latest motor setup
making 400 Rear Wheel HP**



George Davenport with his highly modified, custom short wheel base '89 SC.



A bird's eye view of approx. half the main show field. Yes, this place is HUGE!



Newlyweds, Curt & Fran Hungerford (L) and Joe & Sara Baldazzi (R)



Judy & Dick (Da' Judge) Adams (L) and Leronne White with his better half (R) at dinner on Saturday evening.



Madd Max is sporting a big blower through the hood while the 2003 Cobra, shown at the FoMoCo display, is coyly covering up its pulley for "safety" reasons.



Ron DiPaola, Bill Hastings, Joe Russo, and Mike Puckett (left to right)



DIS 101

or

" Is 'dis the way its 'pose to work"?

By Eben Farley

This article is written to explain the operation of the Distributorless Ignition System used on Thunderbird SC's, Taurus SHO's, and other Ford vehicles. I am not an automotive technician, nor do I claim to be an expert in automotive electronics. However years of experience in electronics have given me some insight into how things operate. Hopefully this article will help the novice understand how the DIS operates, and maybe clear some misconceptions and fill some voids in the more advanced readers knowledge about the DIS as well.

The article is broken into different sections so that readers of different automotive and electronics levels of expertise may find the information most useful to them. The sections are:

Part 1: Review of Ignition Systems – Purpose and implementation.

Part 2: DIS Basics – Components and function.

Part 3: DIS Intermediate – Signals and component operation.

Part 4: DIS Advanced – Coils, plugs, waste spark, and platinum plugs

Part 5 Troubleshooting Tips – with pop test

Part 1: Review of Ignition Systems

This article assumes that the reader has some automotive and electrical basic knowledge. Even if you do not know the difference between a Hall effect sensor and a baloney sandwich (never eat Hall effect sensors), you should still be able to acquire some useful information from this article. So lets get started with the review.

What does the Ignition system do? Good question. The purpose of the ignition system is to simply produce a spark in the combustion chamber to ignite (ignite-ignition, get it?) the air/fuel mixture. The insuing explosion causes the fuel mixture to expand, thrusting the piston downward. This in turn causes the rear tires to spin and smoke! Followed shortly by flashing red lights appearing in the rear view mirror. Although this igniting seems like an easy thing to do, it becomes more complicated on an actual engine.

In a 4-cycle engine there are 4 separate cycles (dah, film at 11). Anyway they are:

Intake: Piston travels downward drawing in fuel/air mixture

Compression: Piston comes up compressing said mixture into a highly explosive bomb contained within the combustion chamber. When the piston reaches the top of its stroke is when we need that spark to produce the explosion.

Power: The burning fuel pushes the piston downward causing the crankshaft to rotate and the vehicle to move.

Exhaust: After the piston has transferred its energy to the crankshaft, on the up stroke it pushes the burnt mixture out the exhaust.

Note that the spark plug fires only once during these 4 cycles. In other word, it fires once for every two rotations of the crankshaft.

What engine components produce this spark and at the correct time? In the "classic ignition system" the two main components are the distributor and the coil.

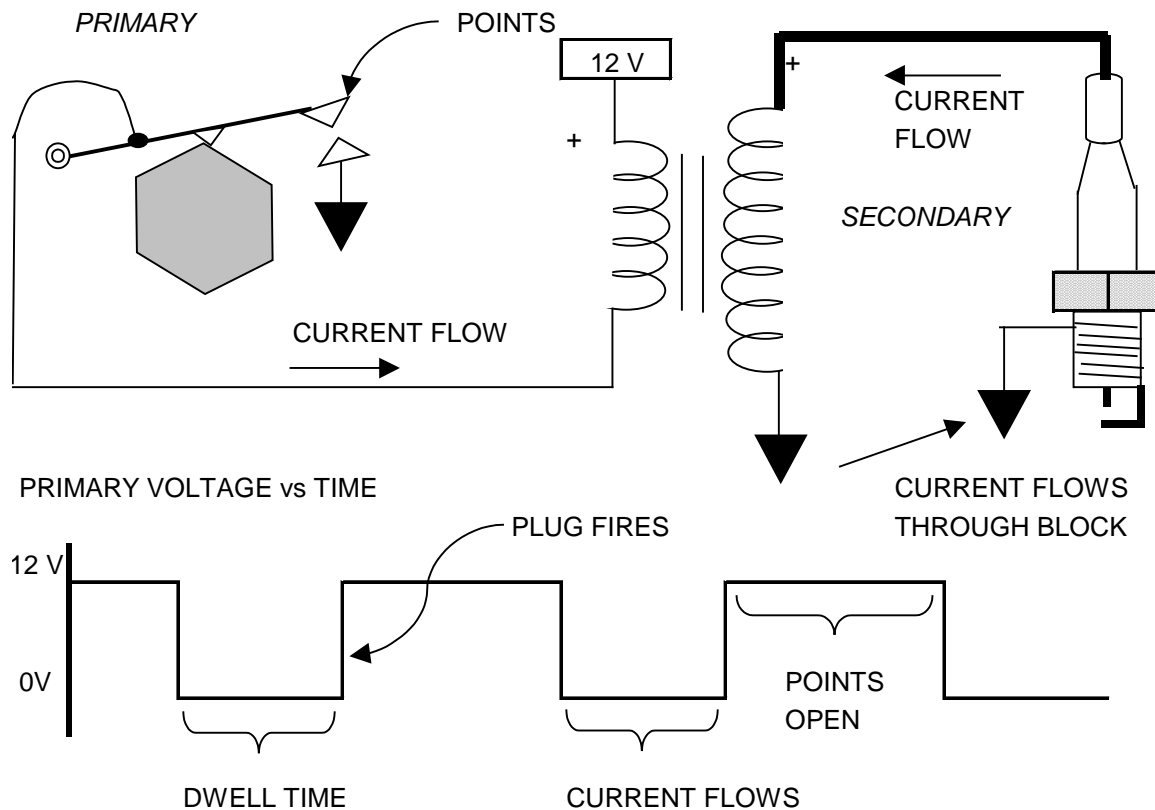
The distributor has several jobs to perform. On the primary circuit side (low voltage, 12 volts) it controls timing and dwell. On the secondary circuit side (high voltage, 6,000 to 35,000 volts) it distributes (get it?) high voltage to the correct cylinder at the correct time.

TIMING: The distributor determines when the spark should occur within the cylinders cycle. Because it takes some time for this mixture to burn, we must deliver the spark before the piston reaches the top of the compression stroke. The point when the piston reaches the top and is stopped is called Top Dead Center. Timing is used to deliver the spark before this point. Timing is measured in degrees of crank rotation Before Top Dead Center (°BTC). Because the time needed to burn the mixture stays about the same, as engine rpms increase and the pistons move faster (taking less time to travel toward TDC), the spark must be delivered earlier in the cycle. Thus we need some sort of timing advance mechanism to increase the timing as engine speed increases. The "classical" method uses mechanical weights and engine vacuum to mechanically move the points plate and vary the timing.

DWELL: The distributor also determines the dwell. Dwell is the amount of time that current is allowed to flow through the coil primary circuit. Dwell is measured in number of degrees of rotation of the distributor during which current flows to the coil. Dwell is important because the time that the current flows determines how much energy is transferred to the coil. Too short of time means less voltage out of the coil – poor performance, poor mileage, misfires etc. Points are used as a mechanical switch to turn on and off the current to the coil primary. By the way, the condenser (called a capacitor today) is used to prevent arcing of the points so they last longer.

HIGH VOLTAGE DISTRIBUTION: The distributor also has a mechanical switch to select the correct cylinder to receive the high voltage. This consists of a rotor that receives the high voltage at its center then as it rotates selects the correct cylinder to fire within the distributor cap. Most of us have seen how well a car runs if we do not get the spark plug wires in the right sockets on a distributor cap.

The coil is nothing more than a transformer. We all remember from Mrs. McGillicutty's 9th grade science class that transformers are robots in disguise. No, that's not it, we learned that transformers convert an alternating voltage to a lower or higher voltage. An automotive coil converts a low voltage pulse (12v) to high voltage to spark the plugs. The points produce a 12 v square wave pulse as shown in Figure 1. The spark plug fires on the rising edge of the pulse. Current flows to the coil during the time the pulse is low or at 0 volts.

FIGURE 1. CLASSIC IGNITION SYSTEM

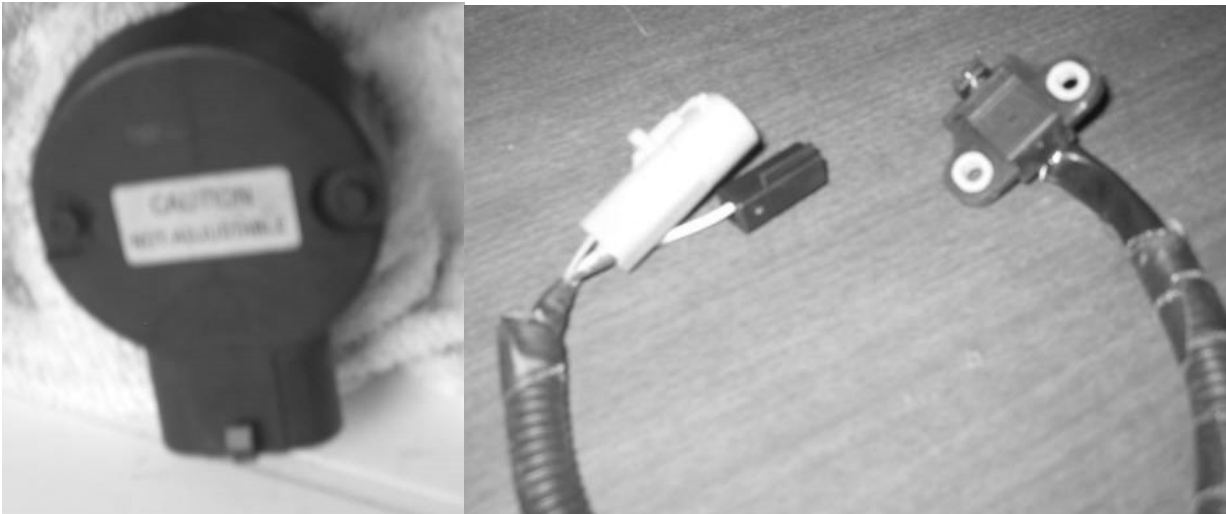
PART 2: DIS Basics.

The Distributorless Ignition System is composed of four electronic components and a coil pack. As the name implies, no mechanical distributor is involved. In theory, with no mechanical parts the system should be more reliable, have better performance, produce fewer emissions, and cost less. So much for theory.

The four electronic components and their basic functions are:

- 1) Crank sensor: Is a hall effect sensor that "reads" notches in a wheel on the crank that is used by the DIS module and the EEC (computer) to determine timing and rpm information.
- 2) Cam sensor: Is also a hall effect sensor that "reads" one notch driven off the cam to tell the ignition system and fuel system when number one cylinder is on compression stroke.
- 3) DIS module: Receives signals from the cam sensor, crank sensor, and the computer. It outputs on and off signals to the coil pack to fire the spark plugs. It also outputs the signal used to drive the tachometer.
- 4) EEC computer: It receives signals from the cam sensor, crank sensor and all the rest of the sensors (such as knock sensor, O2 sensors, barometric

pressure sensor, etc.) and calculates dwell and timing information. It sends that information to the DIS module.



Cam Sensor (Left) and Crank Sensor (right)

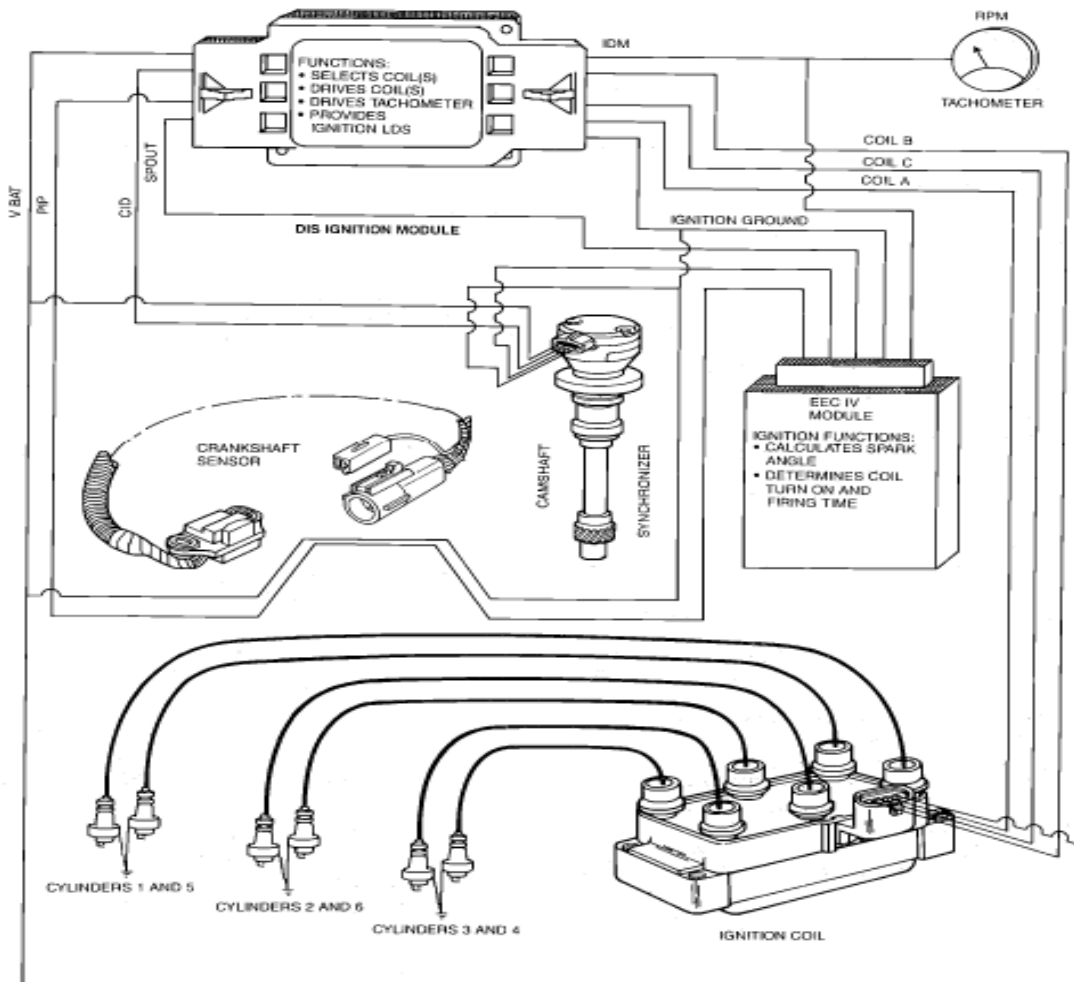


DIS Modules (New style on top and original style on the bottom)

The coil pack contains 3 separate but equal coils. Why are only three coils used on a 6-cylinder engine, you ask? Simple math is the answer. It is cheaper to make a coil pack with 3 coils than one with 6 coils. And you thought that you would never need that economics class. Actually, each coil fires two spark plugs at the same time. The

spark plugs wear out twice as fast and the "man" can sell more sparkplugs. Simple economics.

FIGURE 2. DIS SYSTEM COMPONENTS



PART 3: DIS Intermediate

Now lets take a look at the DIS components in more detail.

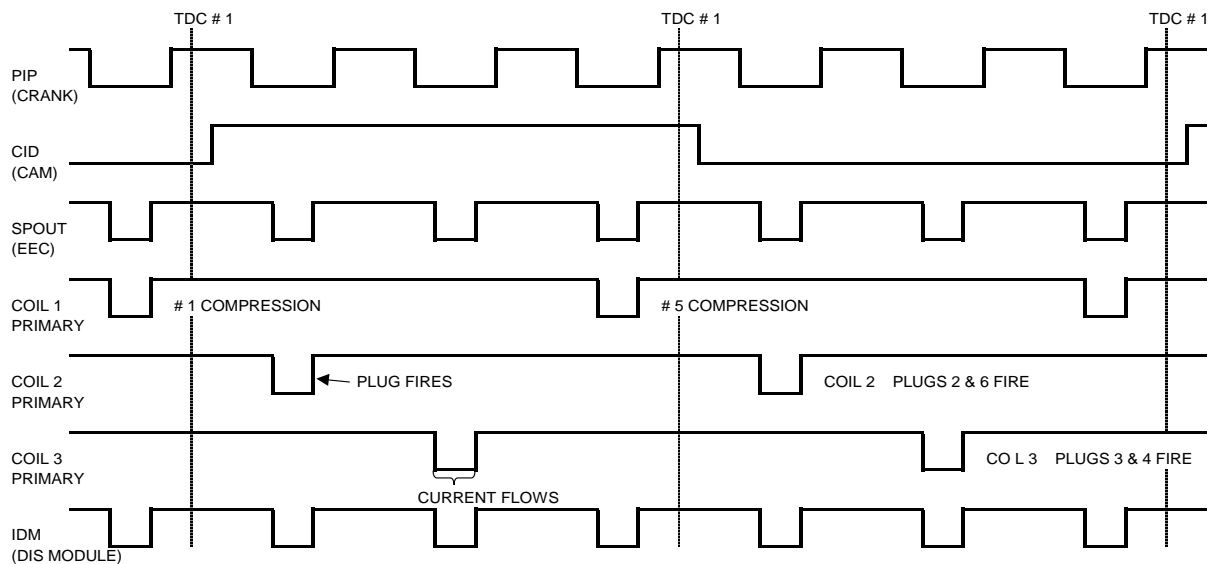
- 1) **Hall effect sensors:** As mentioned above the crank and cam sensors are Hall effect devices. What the heck are Hall effect devices? Well, they are devices that detect magnetic fields and then convert the strength of the magnetic fields into a relative voltage. In the case of the cam and crank sensors, a stronger magnetic field closes a switch and a weaker field opens the switch (not an actual mechanical switch, but a transistor switch). The sensor has its own permanent magnetic and "reads" how strong that field is. When a piece of ferric material (iron or steel) is placed near the sensor, more of the magnetic field is coupled back to the sensor, which it then detects and causes the switch to change states.

If a rotating metal disc with slots in it is placed near these sensors, the sensors output will be a signal that is 0 volts for a time, then 12 volts for a time, then back to 0 volts, etc, as shown in Figure 3.

The rotating metal must be close enough to the sensor so that sufficient magnetic fields are coupled to the sensor, but not so close that it touches the sensor. Rubbing on the sensor will destroy the sensor (if your wife or girlfriend told you that, do not believe them). This is why there is an air gap specified between the sensor and the slotted rotor during installation of the crank sensor. Set the sensor too close you risk rubbing and destroying the sensor, set too wide and the output can be intermittent. Of course if your crank damper bolt breaks and the damper wobbles, that's right, the sensor is toast.

There are 3 slots or vanes on the crank disc so that during one rotation of the crankshaft there will be 3 zero voltage pulses and 3 high (12v) pulses. The camshaft sensor only has one vane so that during two rotations of the crank, one rotation of the camshaft (remember that the camshaft rotates at $\frac{1}{2}$ the rate of the crankshaft) there is one zero volt pulse and one high (12v) pulse. The orientation of the camshaft synchronizer (sensor) must be correct because it determines timing. This is why an alignment tool is needed for cam sensor replacement. A diagram of the crank and the cam sensor voltages vs. time is shown in Figure 3.

FIGURE 3. DIS SYSTEM VOLTAGES vs TIME



2) DIS Module: The DIS module has several different jobs to perform. Its main job is to receive a signal from the EEC called SPOUT (sparkout) and to process that signal into coil firing output currents. It also works as a backup system for the EEC should it flake out. The engine can still run even if the EEC is disconnected (i.e. pulling the SPOUT plug, more later). The DIS module also monitors the system and outputs a signal to the EEC called IDM (Ignition Diagnostic Monitor) to tell the EEC if everyone is working and getting along ok. This

signal also goes to the tachometer and drives it. Obviously, or not so obviously, if the DIS Module dies, it will not be able to report failures to the EEC, so codes may not be set. Both the DIS module and the EEC receive the crank sensor signal PIP (Profile Ignition Pick-up) and the cam sensor signal CID (Cylinder IDentification). Thus if the EEC goes out the DIS module receives the same signals so that it can take over running the engine.

3) EEC Computer: The computer does all the heavy calculating to determine timing and dwell. As mentioned earlier the computer receives various sensor inputs that are used to calculate the optimum (not necessarily the most horsepower) values for timing and dwell. It uses inputs such as engine temperature, barometric pressure (altitude), knock sensor, MAF, CID, PIP, TPS (throttle position sensor) to determine timing, dwell, which fuel injector to fire, the amount of fuel to inject, etc. There are various "chips" around to give the owner control over the computer and to increase performance.

PART 4: Advanced: Coils, plugs, waste spark, and platinum plugs.

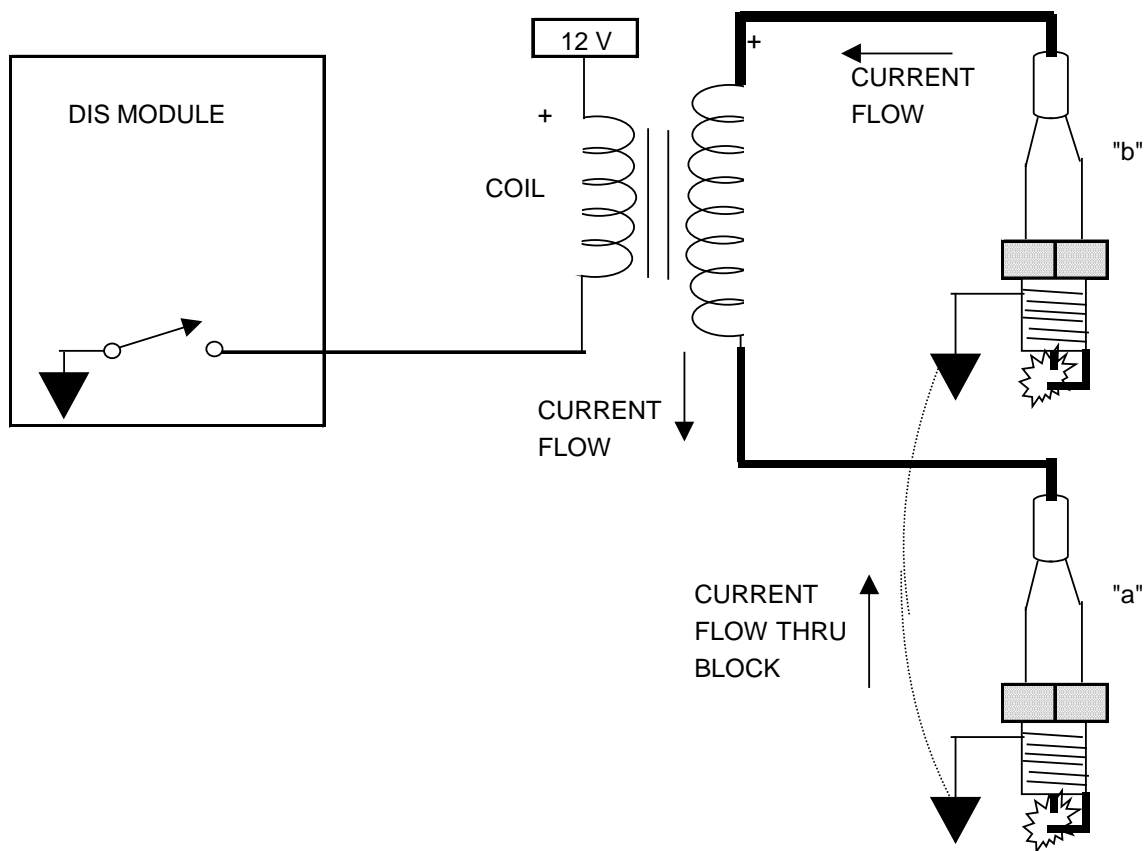
As mentioned earlier one coil is used to fire two sparkplugs at the same time. The cylinders are paired together such that both cylinders are at TDC at the same time, one on compression stroke the other on exhaust. For the SC the pairings in the first round are: #5 and #1, #3 and #4, #6 and #2. The spark plugs are connected to separate connections on the same secondary winding. When the primary coil circuit magnetic field collapses a high voltage is induced into common secondary winding. (See Figure 4)

For Sale

1991 Ford Thunderbird Super Coupe

Red, Loaded, 3.8 Liter Supercharged V6, 5-speed, 87K miles, 1 owner (factory ordered), Automatic ride control, Automatic climate control, Power sunroof, Grey cloth/leather interior w/bolster & lumbar supports, All power & Original, Alarm, JBL sound system, Tinted windows, Rear Defrost, Car cover & Custom black bra w/red T-bird insignia, 25K miles on new tires, Very clean and very well maintained, A Real BEAUTY!

Asking \$5,000 Call (812) 466-2440, Located in Terre Haute, Indiana

FIGURE 4. WASTE SPARK DIAGRAM

The current flows out of the negative end of the secondary coil through the spark plug wire, through the spark plug "a" and across the gap into the system ground connection in the engine block. The current then proceeds through the block (stopping for a quick brew), across the gap in the spark plug "b", through the spark plug wire to the positive side of the secondary coil. You will note that with this setup that current flows in the "normal" direction through plug "b" (as shown in Figure 1) and in the "reverse" direction through plug "a". So what, you say? What what I say. Let me ask this question. What wears out on a spark plug? Well every time the plug fires there is an arc. And just like arc welding (current removes metal from one surface and deposits it upon another) the electrodes will erode over time as bits of metal are vaporized. Normal single platinum spark plugs only have platinum on one surface to slow erosion, which works great if current only flows in one direction through the spark plug (platinum is used to slow the erosion). However in our cars current flows in the normal direction through three spark plugs and in the reverse direction in the other three. So we should use double platinum to help prevent erosion of the center electrode in three of the spark plugs, and help prevent erosion on the ground electrode in the other three plugs. In theory, if the coils are non-inverting from primary to secondary, you could use single platinum on cylinders #1, #2, and #3, but why bother?

Electrons flow (other wise known as current) from a negative potential to a more positive potential. The electrons flow more easily from a hot sharp surface (i.e. the center electrode on a spark plug) to cooler surface, than from a cooler dull surface (i.e. the outer electrode)

to the center electrode. (electrode – electron, electron – electrode, get the connection?) The plug that fires on the compression is called the “event spark” and the plug that fires on the exhaust stroke is called “waste spark”. Up to 95% of the total secondary voltage of 10,000 to 13,000 volts may be necessary to fire the spark plug on the compression stroke. However only about 5% (2,000 to 5,000 volts) is used to fire the spark plug on the waste spark exhaust stroke. And yes, you did deduce correctly that for the whole thing to work properly, both spark plugs must be in good condition and the spark plug wires as well. One bad spark plug wire will effect two cylinders, not just one. As its been posted many times, OEM or better plug wires, Autolite or Motorcraft double platinum plugs, period. And you brainiacs are correct; spark plug gap effects both cylinders as well. Probably best to gap on the minimum side of the range, allows for erosion on both plugs and the total gap not to become too wide (like that gap in your teeth when your brother pried them apart with a screwdriver when you were 8).

PART 5: Troubleshooting

With all these different parts working together there is bound to be trouble at sometime. What are the most likely components to fail? From what I have read the crank sensor and the DIS Module seem to fail the most. Followed by the cam sensor and then the coil pack and EEC. The reason for these failures seems to be the environment in which they reside.

The crank sensor by its location on the engine is exposed to the elements, can be hit by the damper coming loose, and leaking anti-freeze can eat its little heart out, like Alien goo through hull plating. On the other hand, the EEC is mounted inside the vehicle and is not exposed to the extremes like the engine mounted components.

The DIS Module is mounted (on the 89-93s) on the top of the engine where it becomes very hot. Heat is very detrimental to electronic components. The DIS module also produces heat due to the fairly large coil currents that it must switch on and off. It is important for the DIS Module to dissipate this heat which is the purpose of the heat sink compound between the module and its mounting plate. Probably about every 50,000 miles the heat sink compound (it is not grease) should be changed as it dries out and looses its ability to transfer heat. Radio Shack has the compound in a little tube for a couple of dollars. Clean all of the old gunk off with brake cleaner and a rag. Be careful when putting on the new compound, as too much can be worse than too little. What we want is a nice even coat about as thick as a match book cover, spread over the entire metal plate on the module. It does not hurt to run a whet stone or a fine file over both the DIS Module plate and the mounting plate to make sure that they are both as flat and smooth as possible. The more metal to metal contact the better the heat will flow away from module.

As with all electronic devices, troubles come in two main types. Components can be broken, smoked, toasted, flaked out, trashed, gone south, or in other words goes permanently bad. Then there is the dreaded intermittent problem that comes and goes, works some of the time, other times not. The intermittent type of trouble is the most difficult to find. As with all electronic devices they tend to be more intermittent when hot or cold.

I have heard that the engine will still run even if some components are bad, is this true? Why yes it is. Are there any other questions? Okay, I will try to answer that question.

The engine will run without the EEC or without the cam sensor, but not if both are bad. The cam sensors job is to tell the computer and the DIS module when number 1 cylinder is at TDC on the compression stroke. The computer is smart enough to know that the PIP signal tells when to fire the plugs, but not the order in which to fire the sparkplugs. Without a CID (cam sensor) signal the computer will guess at which coil to fire (1 in 3 chance). If it guesses wrong the car will not start. If it guesses correctly the car will start and run like normal until the next time you try to start the car. This is why you should keep retrying to start your car if it does not start the first time. If it takes several tries to start your car, particularly if after a long hot run or when cold outside, the cam sensor could be intermittent (note that other parts can give this same indication). I have read, but do not know first hand, that the IDM signal (remember that it is the status signal from the DIS to the EEC) will cause the tach to not work if the cam sensor goes out. Hey, you said that the car would run with out the EEC, dah how does that work? Well you might remember that the DIS module also receives the CID and PIP signals that the EEC receives. So if the EEC flakes out, the DIS module will take over and be in "limp home mode" of operation. The DIS isn't as smart as the EEC so it puts the timing at the base value of 10 degrees BTC and fixed dwell of about 180 degrees. The car will not run great, but it will run. You can simulate the computer not working by pulling the "Spout plug". This is how you check the base timing with a timing light.

How can I, the SC enthusiast shade tree mechanic, troubleshoot this system? Well there are several things that can be done:

- 1) Look at the symptoms. Previous portions of this article described some of the things to look for when trouble arises. Did the tach start working intermittently? Does it take several tries to start your car?
- 2) Check the simple things. Make sure the wiring is ok and connections are good. Make sure that the crank sensor and dampener are still there. DIS Module have good heat sink compound?
- 3) Voltmeter checks. Check to see if the DIS Module, the cam and crank sensors are getting good voltage and have good ground connections.
- 4) Measure the signals. If you have or have access to an oscilloscope you can monitor the signals, PIP, CID, IDM, SPOUT, and the three coil primary signals. By slipping a straightened paper clip in by the wires (do not damage the wires) connected to the DIS Module you can monitor all the signals. (It is not a good a idea to do this while the engine is running, especially on the coil drives as they have about 60 volt spikes, not that I would know this from actual experience (the doctor said I will not be able to have any more children, but I am ok with that)). A voltmeter can be used to check if the signals are present or not. Check the same signals with a DC voltmeter. While cranking or running, the voltage on these signals should not be 0 volts or 12 volts. It should be somewhere in between these values. Not an exact diagnosis but it might show if something is dead.
- 5) Purchase a DIS system tester. The Plug. Surely you did not think that I wrote all this for my health, did ya? Currently I am in the final checkout of a DIS System tester that I will be selling in the near future. It is a microcomputer-based tester that will be sold in two versions. A basic version that has LEDs for status of crank sensor, cam sensor, DIS Module, and the EEC. The advanced version has a LCD display that shows the status, percent of missing signals, dwell, timing, system history, and coil current information.

Target prices for the testers are, \$40-\$50 for the basic, and \$80 to \$90 for the advanced version. I will conduct a survey on the SCCOA website to see how many devices might be needed, and I will post when the production units are available.

YOU are invited to the 2002 MN-12 Nationals

By Rob Whitt



As all of you know Labor Day is approaching, and that can only mean one thing, MN-12 Nationals time! The upcoming 2002 MN-12 Nationals will be held on August 30th through September 2nd, as well as all future MN-12 Nationals will be. This year's location, after months of trying to find a place that suited all of our needs, will be in Elkhart, Indiana.

The 2002 MN-12 Nationals will be the second annual meeting of the MN-12 Nationals, and we hope to improve on last year's successful meet. For those that did not make it, or knew nothing about it, the MN-12 Nationals was held in Norman, Oklahoma on Labor Day 2001. We had over sixty cars show up, and just about a total of one hundred people attending. We also had a few people fly in from all parts of the country that could not make the long drive. Those people decided to rent mustangs to drive around in, and how could we forget the yellow tire smoke these things produced during the burnout contest. The events were similar to this year's events and included a dyno session, drag race day, burnout contest, car show, and lots of information swapping.



This years MN-12 Nationals has some great sponsors. Each event will be sponsored by one of the companies or clubs that deal with MN-12's on a daily basis. This year the main sponsors include the TCCoA, Super Coupe Club of America, Super Coupe Performance, MN12 Performance, Magnum Powers, and possibly more to come as the Nationals get closer.

To give you a run down of what to expect in this year's MN-12 Nationals here is what the itinerary is looking like so far (this is not set in stone, and will be more detailed closer to the meet date):

2002 MN-12 Nationals <i>presented by: The TCCoA</i>	
FRIDAY 30 th	
7:00-5:00	Dyno Session Event sponsored by MN12 Performance
4:00-Dark	Optional Drag Time
5:00-?	Mingle, Dinner, pool time, whatever you want,
10:00-?	Local cruise
SATURDAY 31 st	
8:00-5:00	Drag Race Event sponsored by Magnum Powers
12:00ish	Burnout Contest sponsored by MN12 Performance
5:00-7:00	Dinner
7:00-?	Mingle, pool time, whatever you want
SUNDAY 1 st	
8:00-12:00	Car show sponsored by SCCoA/SCP
8:00-?	Bracket racing for the die hard racer
8:00-12:00	Brunch at Banquet hall
12:00-2:00	Awards, Sponsors spotlight, raffle
2:00-?	Long distance divers get a head start
2:00-?	Relax, mingle, and enjoy the remainder of the Labor Day weekend
MONDAY 2 nd	
8:00-?	Checkout

Hotel

The official hotel is the Ramada Inn. The Ramada has 150 rooms (100 are reserved for us). The Official Hotel has a large indoor pool in a huge "atrium", an outdoor pool, and banquet facilities. I know someone that recently toured the facility/rooms and they were very impressed. The *entire hotel has just been remodeled* and it's very nice.

The hotel also has a nice on-site workout room, plus coffee makers, hair dryers, and ironing boards in every room. They also have a coin-operated laundry room.

Room rates have been negotiated and are set at ~~\$59/night~~. \$55/night. This is a great deal for a great facility and we URGE everyone to book their room at this hotel. All sign-in, orientation meetings, and gatherings will be held here. ***Feel free to contact the hotel! The phone number is (219) 262-1581. Ask for the MN-12 National Meet group. You'll want to come in on Friday (check-in is at 3pm but we'll be set up before then) and check out Sunday morning, unless you have a dyno slot. For those with a dyno slot you will want to be there Thursday, because the dyno starts at 7am on Friday (arrangements can be made if you can not make it till Friday, but the dyno session ends at 5pm so plan accordingly). The special rate IS available for anyone that comes in Thursday night or stays for Sunday night!***

We've set aside 100 rooms of the hotel. We think we'll sell it out and need extra rooms. Therefore once the Official Hotel is booked up, we can arrange an agreement with the Signature Inn (right across the street) to offer their rooms also at \$55.

We'd prefer everyone to stay in the Official Hotel (and we'll need to fill 100 rooms to do so) but we understand you may want to find less expensive lodging. Rooms at other (clean and safe) hotels will cost around \$49 so it's probably just as good to stay at the Official Hotel. But contact us if you'd like a list of less expensive hotels that we recommend.

Registration

There will be a registration fee of \$25 this year. Everyone that registers will receive an Official MN-12 Nationals T-Shirt, promotional items, and special information from the sponsors. Official Registration is up and running at <http://www.mn12nationals.com/html/registration.html> . Please fill this out if you are going to be at this year's MN-12 Nationals, as it will help decide on the space needed at the banquet hall.

Dyno Session

The dyno session will be held at Angel Automotive Inc., which is 15 miles from the official hotel. A Dyno will be available Monday through Thursday the week before and after the MN-12 National Meet. A private session with time to tune and approximately 10 runs will cost \$100. But on Friday they will give a group rate of \$50 a car to set up and get in 3 Runs. Sorry there will not be time to tune between runs on Friday.

If you are interested in this event, there are only about 5 slots left, so please contact me at dyno@mn12nationals.com , to get on the list.

Drag Race

This will be held at Osceola Dragway, and is 8 minutes from the Official Hotel. The track itself is pretty nice, it's IHRA certified. The cost to race will be \$20 and \$8 for spectators.

We will have the track available to us all day Saturday. The track will be open to all, but normally they are not open on Saturday, so hopefully not many will know about it. There will be a payout at this event, but amount is not yet decided.

There will also be available track time on Friday the 30th from 4 p.m. till dark for Test & Tune and again on Sunday the 1st from 8am-5pm for bracket racing.

The downside of this track is that currently it does NOT have a "scoreboard" to show times/speed. They announce every race time/speed on the PA system, however... and they do have "plans" to put the scoreboard in (no guarantees).

There will be a cash payout for each class, as well as trophies for the top three in each class.

Burnout Contest

This will be held during the Drag Race event. The burnouts will be done in the burnout box on the dragstrip. A trophy will be awarded to the best burnout, as well as a set of Drag Radials provided by MN12 Performance.

Car Show

Here are the classes that will be judged upon:

'89 to '95 SC Stock

'89 to '95 SC with 3 modifications* or more

'89 to '97 Tbird/Cougar/Mark VIII (Non-supercharged) Stock

'89 to '97 Same, but with 3 modifications* or more

* A "modification" will be anything that was changed, except with regards to maintenance items (i.e. battery, plug wires, etc.). A moderator will decide on what class each car should be in if necessary.

Judging will be done by those that participate.

1st, 2nd, and 3rd place trophies will be given in each class.

Raffle

The raffle will be like last year, except this year BIGGER and BETTER! Tickets will cost \$5, and more then likely will have a \$10 option for bigger items. Look for items to show up here as we get more sponsors for 2002!

(10) TCCoA Membership:

Provided by: TCCoA

MagnaPort II, or High Performance Inlet Plenum, or Polished 85mm Throttle Body(winner's choice):

Provided by: Magnum Powers

EEC Tuner, for 89-97 Thunderbirds/Cougars(still in Beta testing as of now, should be ready by meet):

Provided by: MN-12 Performance

(3) SCCoA Memberships

Provided by: The Super Coupe Club of America

(3) SCP Gift Certificates

Provided By: Super Coupe Performance

Banquet

There will be a brunch included with the registration fee at the Banquet where the Car Show will be held. This is also where the awards will be given, as well as the raffle being held here.

All in all it should be a blast, and even better then last year! I hope everyone will try to attend this year.

SC / XR7

PERFORMANCE PARTS

from Magnum Powers

What is New From Magnum Powers™?

Installation Ready MagnaPortII Blowers...(aka "No Wait" MPII) are available for your 89-93 SC so you can install your new Magnum Powers Intake System Saturday morning and be burning up the strip with 60 to 80 more HP Saturday Night! That's right, you don't have to wait for shipping, etc. and have your car down for weeks, just install it and be on your way! For ONLY \$1195 these Blowers are Chemically Stripped and Powder Coated for a New Appearance, Rebuilt and MagnaPorted. After you install your new system you can send your rebuildable old blower back to Magnum Powers for a \$250 core credit resulting in a final cost of ONLY \$945!! Such a DEAL!!

A Front Mount Intercooler Kit is Coming Soon from Magnum Powers™?

This IC Kit features a HUGE 14" X 18.5" Core, CHROME IC Tubes, POWERFUL 16" Fan and all necessary High Quality Hardware so you can install it on a weekend! This Intercooler has the same cooling capacity as the Intercooler Coy Miller used on the record setting 12.18 second run so you know its packed with power. Surf to www.magnumpowers.com for the latest details.

Our Induction System Includes:

- High Performance Supercharger Intake Plenum: Powder Coated - \$499 or Polished - \$549
- 85mm Polished Throttle Body: \$350
- 3 1/2" Show Chrome Intake Tube Kit: \$165 or \$250 for the complete Fresh Air Kit
- The Classic "Big Bore" Blower Top: Powder Coated \$330 or Show Polished \$365

Blower Porting Services:

MagnaPort™ (94/95) about 25-30 more HP - requires MP Plenum ... Only \$350

MagnaPortII (89-93) about 60 more HP - requires MP Plenum Only \$450

Standard "S" Port (all years) about 20 more HP Only \$290

Factory Authorized Dealers:

Super Coupe Performance (513) 697-6501

Coy Miller Race Engines (540) 433-0545

Check out our website at www.MagnumPowers.com