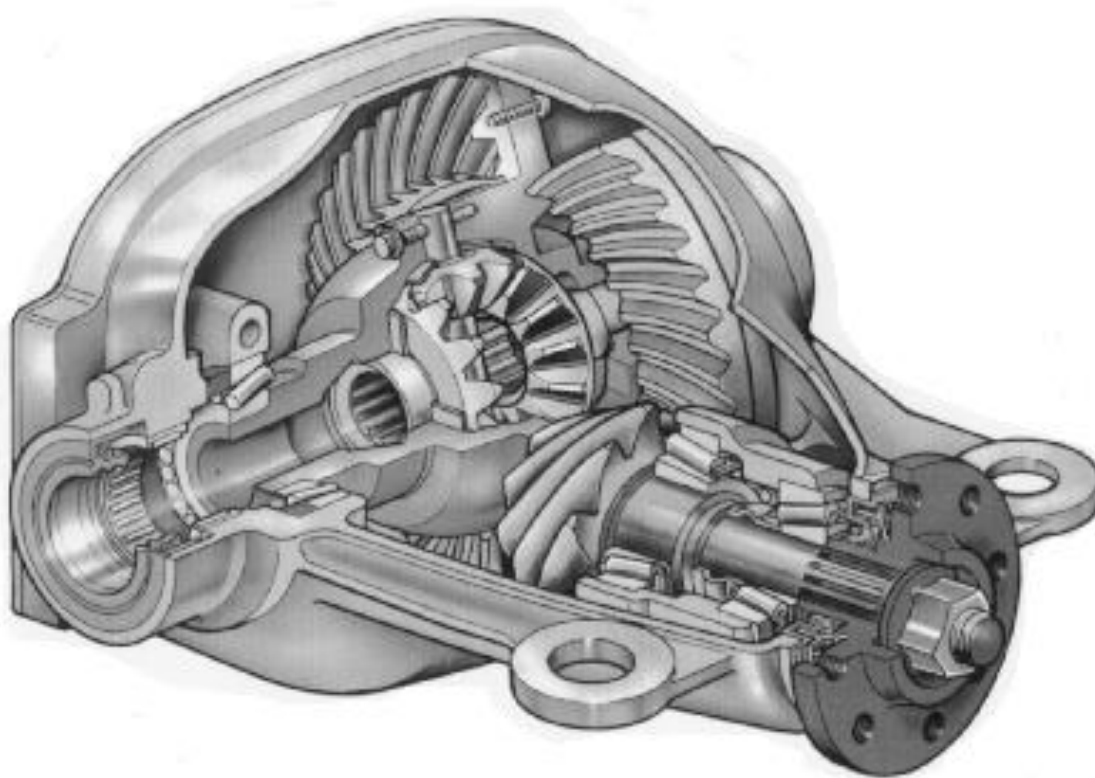


CHARGIN' THUNDER

Super Coupe Club of America

Volume IV

December 1999



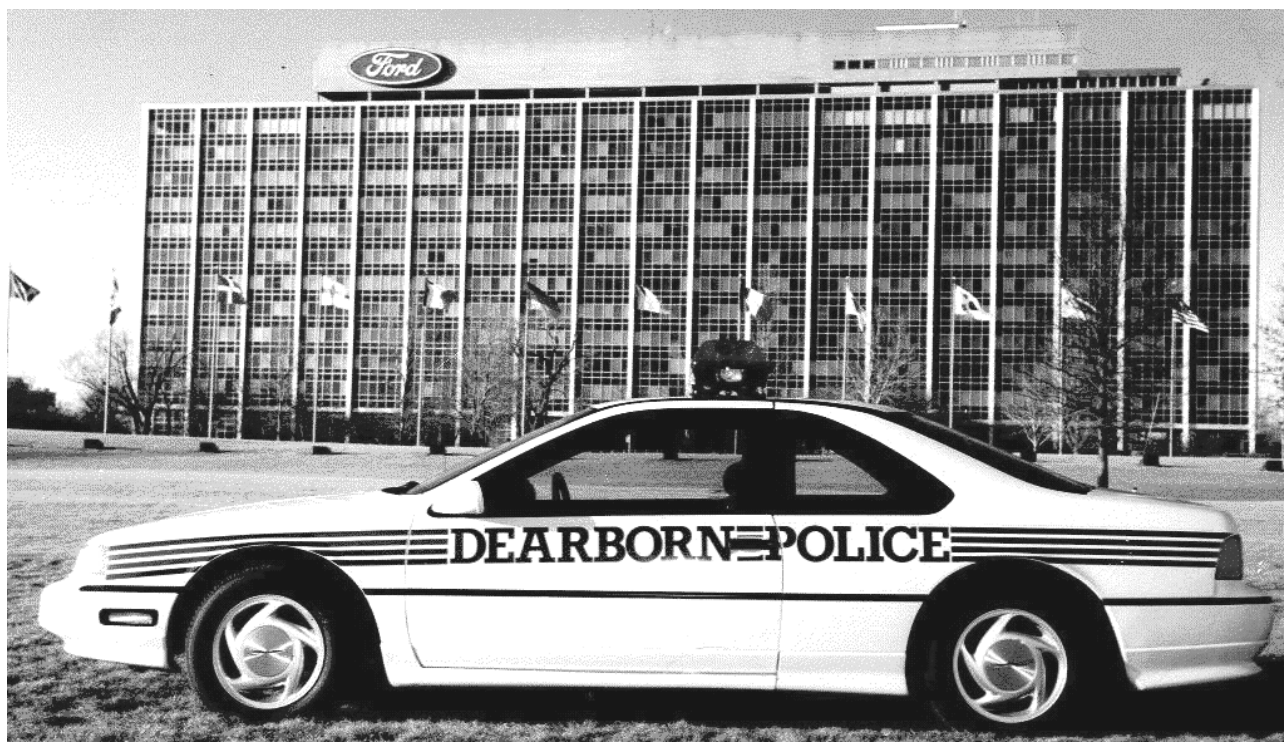
***Dedicated to the preservation and performance of the
1989 – 95 Thunderbird Super Coupe & 1989/90 Cougar XR7***

“Whether you think you can, or that you can’t, you are usually right.” – Henry Ford (1863 – 1947)

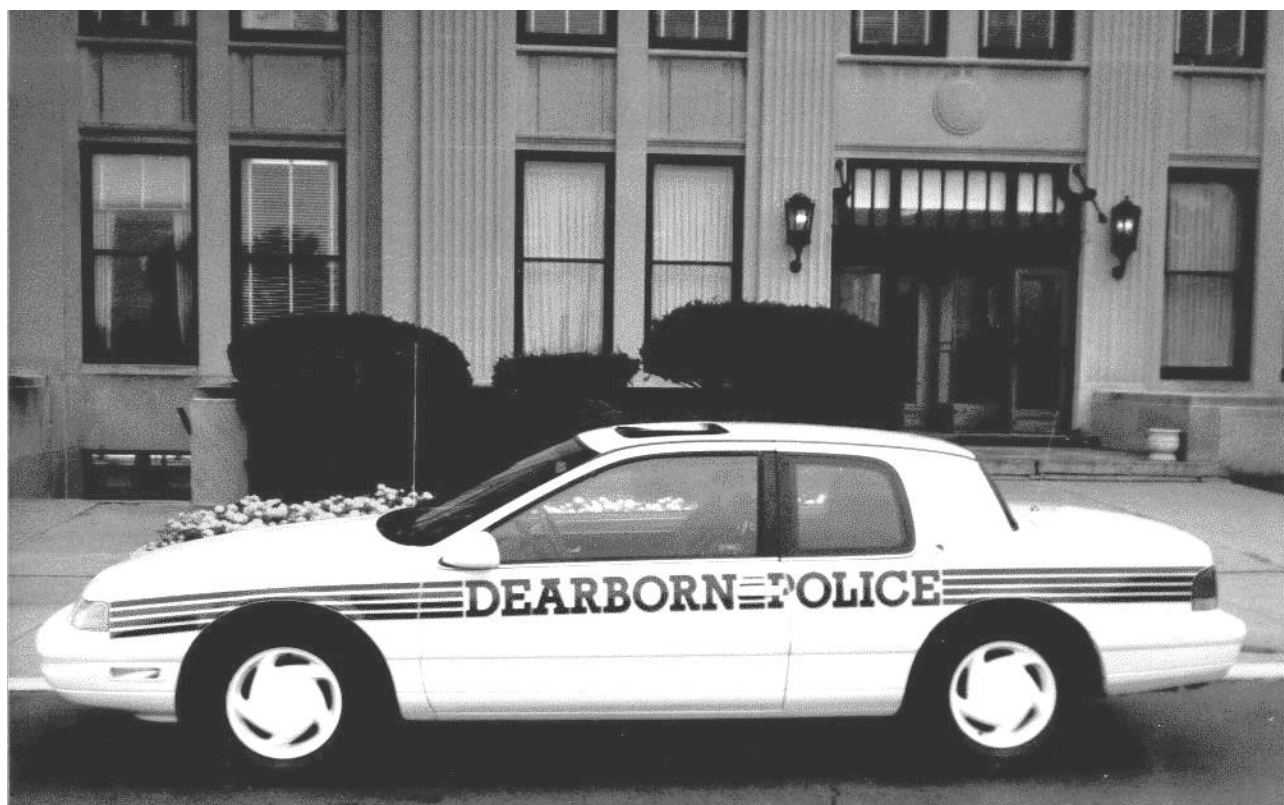
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Dearborn SC Police Car In Front Of The Current Ford World HQ



Dearborn XR7 Police Car In Front Of The Old Ford World HQ



From The Birds Nest

By Bill Evanoff

The year 2000 is almost upon us and whether you are one who believes the new millennium **starts on January 1st of 2000 or 2001**, I'm sure the changeover will be a memorable one for all of us. Some of you may have stocked up on canned food or have ten cords of wood for your fireplace in your back yard, but if you were a true gear-head, you should have stocked up on motor oil and gasoline. I personally have three cases of oil in my garage currently, not so much to stock up for Y2K, but more so because of a good sale **recently. At least I'm covered for awhile** in this regard. My SC will also ring in the New Year with a full tank of 93-octane premium in its belly as it sits stored away for the winter under its car cover.

I have contemplated if Y2K electrical glitches will cause our highly sophisticated Super Coupes to go spastic? Do you suppose Ford possibly planted a few date dependant functions into the EEC controller? Upon starting your SC after the New Year, your car may idle a little funky, the automatic headlights may flash on and off, the electronic temperature controller will blow hot and cold air, and your automatic ride control **may not be able to decide if it wants "firm" or "soft" as its setting.** Your ABS may decide that it no longer wants to be anti-lock, but becomes down right anti-social! Your fuel injectors no longer want to inject, but decide to eject, and your electronic engine controller (EEC) **decides to give up its control!.....We shall see soon enough.**

The Time To Buy Is Now:

Y2K will be the start of the club's fourth full year. I really can't believe our cars are getting that old as most of the ones I see at car shows still look great. In the real world

though Super Coupes of all model years are taking a real hard hit from the ravages of **time and owner neglect. I've seen rusty ones, dented ones, and ones with faded paint** cruising the streets of Cincinnati. I hate to say it, but the objects of our affection have never been more affordable as prices for **good used '89 and '90 SC's typically are less than \$5,000.** Abused examples like I've mentioned can be had for around \$2,500 or less. **Even the '95 SC's, which was the last production year, can be now found for less than \$10K in many instances.**

If anyone is looking for a real performance bargain, buying a SC in the next few years is the thing to do. If you are considering buying another SC, or know someone considering doing so, there has never been a **better time than NOW!** I'm actually hearing the word "restoration" used in conjunction with a SC and I'm extremely happy that new owners are buying these SC's in need of love and attention and fixing them back up to the level of quality the cars deserve. Ford is slowly making obsolete those parts that many new owners are searching for. For instance, early front SC bumpers are no longer **available with the "SC" letters inset into the fascia.** Dashes are also not available and finding an uncracked example from a salvage yard can be difficult. This problem will likely get worse as Ford is not forced to keep parts in production indefinitely. Where there is a will, an enthusiastic SC will find a way to keep **their car going. I'm positive of that!**

CT Improvement:

The last issue of Chargin' Thunder was the first ever "fully electronic" issue ever produced. I received all the articles via email or disc and I assembled the issue completely within my computer. Previously, the issue was printed from a laser printed master copy. This issue bypasses the hard copy and was printed directly from the master file that I



have given the print shop. I am expecting that the pictures will be drastically improved over those from past CT issues. The print shop manager has shown me examples of what to expect and I hope everyone will be pleased with **the new clarity. I've included many more pictures of member's cars in this issue** because of this major improvement.

Time To Rejoin For 2000:

This issue is also the last one that is included with your 1999 membership. I trust that you all have found the CT newsletters and the SCCoA a source of enjoyment and I invite you all to return for 2000! There were a few new SCCoA business cards included in your mailing. Please tuck them under the **windshield wipers of any other SC's you may find around your town to help the club grow.** I have many plans in the works for the upcoming year and believe it will be the biggest and best year ever to be a SCCoA member. I have included a rejoin form inside this issue that one may fill out and send in to Patty and I to get on the mailing list for the March 2000 issue.

350 HP Kit Update (Again)

I know I've talked about this kit in each of the last few issues, but I keep learning a little more about its true output as time goes on. I **don't mean to beat a dead horse, but there has been a lot of talk about what numbers one can really expect to see with the installation of these parts.** In the last issue I had reported that I calculated my original **claim incorrectly and now I'm back to state** that I would like to raise those numbers again slightly. I had used a figure of 18% for drivetrain losses in my calculations and I have learned from a Ford Engineer who used to work in their dyno area that the actual figures **are 20%. Now this doesn't make me happy** as the M5R2 is sucking up more HP than one would expect, but it also impacts the numbers (at the engine) that I experienced

on the Carlisle PA dyno to the tune of 9 HP and 10 ft-lb of torque. My new figures now stand at 329 HP and 430 torque! The more I learn, the closer we are getting to the **claimed output of 350 HP aren't we. I have seen Bill Hull referring to his kit recently as the "325 HP Kit" and I'm here to say that he may now be too conservative.**

Gone Racin'

I did finally take my car out at the drag strip and had a great time doing it. I attended the Midwest SCCoA chapter outing at the Milan Dragway near Detroit. There is a short write-up in this issue with more details but I'll just get to the point of how I did. I ran a 14.10 at 97.2 mph. I was happy with the time considering the high humidity and 75 degree temperature. If I could only improve upon my 60-foot times I would surely be in the **high 13's. I freely admit that I have no idea how to launch the car.** The tremendous low-end torque easily causes my 26 x 9.5 x 16 MT **Sportsman Pro drag tires to spin. I've tried dropping the clutch at low RPM, slipping the clutch as I feather the gas for the first few split seconds, and I've also tried bogging the car but with no improvement.** The best 60' time I've achieved with my current setup is 2.18 seconds and on my best run it was in the 2.2-second range. Anyone who knows anything about drag racing would know that **these 60' times STINK – Big Time!** To do better I will need to either get a whole lot more practice or purchase a wider and stickier tire. I'm also considering going with a 27" tire to effectively lose some gear ratio. With the taller tire, it should theoretically be harder to spin. For an amateur and someone who drag races about once every two years I **can't** be too disappointed with my times. At least my head gaskets, transmission synchros, and motor mounts have not given up from the track abuse.



Carlisle 2000:

The SCCoA has been offered a nice discount to the Carlisle All-Ford Nationals next year if you wish to preregister. The details are in another loose-leaf flyer that I've included with this newsletter. Lets all take advantage of this money saving offer and make our hotel reservations early for this fantastic show. We are staying at the Super 8 again and I hope to see sixty to seventy Super Coupes on the show field next June.

SCCoA Cartoon T-Shirts:

A shop in Virginia created a cartoon type Super Coupe T-shirt for Bill Hull a few years ago. I have recently been working on recreating and improving this shirt. I have contacted a friend of mine from college who runs a screen printing studio and showed him the design. He loved it and began offering **suggestions on how to "jazz" it up. I told him to let his creative juices flow and he ended up showing me a proof print recently that was a six-color design with printing on the front, back and the right sleeve. In my opinion, this shirt is totally cool and I'm sure Hull and everyone else will appreciate the improvements over the original design which was sold through the club about three years ago.**

There are two different "sayings" which are available on the shirts. (1) The Surgeon General never warned us about smoking the competition, and (2) Injection is nice, but I'd rather be blown. The shirts are offered in

sizes Medium, Large and Extra Large. Pricing for all sizes is \$15 + shipping.

SCCoA Member Discount:

Duffy Floyd has done an outstanding job for **this issue with an article on the '89 to '92 SC ABS systems.** Numerous owners have been experiencing problems with this system and many of your questions and problems are addressed in his article. While researching the article, Duffy contacted SIA Electronics who is a remanufacturing company for the SC ABS system. Duffy and I have been able to negotiate a substantial discount with this company on their repair services and ask everyone to read the article carefully and check out the discount program at the end of the article.

Corrections & Thank You's:

I mistakenly forgot to give Charles Markman credit for the **"Competition Comparison Chart"** in the September issue. Charles made good use of his encyclopedic-like magazine collection digging up all those comparison statistics. Secondly, we all can thank Lee Maust for the new look on this issue's cover. Lee surprised me with his artwork via an email and I loved the updated look and incorporated it into the December cover. **Lastly, the "California Minimeet" article in the September issue was written by myself from notes provided by John Zinn. John was not the author as was shown in the article header.**

-
- 1) Before you criticize someone, you should walk a mile in his shoes. That way, when you criticize him, you are a mile away from him and you have his shoes.
 - 2) A bus station is where a bus stops. A train station is where a train stops. On my desk I have a work station.
 - 3) I believe five out of four people have trouble with fractions.
 - 4) If quitters never win, and winners never quit, what fool came with, "Quit while you're ahead?"
 - 5) Do Lipton Tea employees take coffee breaks?
 - 6) What hair color do they put on the driver's licenses of bald men?
 - 7) I was thinking that women should put pictures of missing husbands on beer cans.
 - 8) I have found at my age, going braless pulls all the wrinkles out of my face.
 - 9) I was thinking about how people seem to read the Bible a whole lot more as they get older. Then it dawned on me-they were cramming for their finals



Stumbling on Some Classic Photos in Dearborn MI

By: Just Passing through Dearborn

I have eaten at a reasonable and very good luncheon spot in Dearborn quite a few times: **"Kowloon Restaurant" (Cantonese, Szechuan & American Cuisine)** on Michigan Avenue (22905) between Outer Drive and Oakwood. I had noticed at the **check out counter an 8.5" x 11.0" picture of a S.C. T-Bird Dearborn Police Car** taken in front of the present Ford World Headquarters. I asked them about the picture and they mentioned it was from one of their favorite customers. I asked them if I could scan it. They were very cordial and let me have the picture to scan and through a bit of luck with their help, I was able to find this gentleman, a retired police officer. Upon talking to him about the S.C. T-Bird he was really impressed with the total car. Here is a little what he said about this car. He personally drove this Dearborn police car and he said it made him feel like he was back into the muscle car era. It reminded him of when he was a kid driving **GTO's, Chevelles, and Mustangs. This S.C. T-Bird** was one of the best handling Dearborn police car. It had an experimental S.C. engine in it with no fuel shut off. He said it sure did accelerate and felt as strong as some **of the late 60's early 70's muscle cars.** How about seeing 151MPH from the digital

speedometer on Michigan Ave. from Oakwood to Southfield Bridge before the car had to be shut down and he said it still had a lot left in it. He did not want to go air born over the approaching X-way bridge and with the superior braking of the car he brought it back down to 40 MPH before going over the Southfield Expressway bridge. He said he has driven a lot ¼ miles times, but the one thing at that speed he will never forget is how much ground it covered – too fast even to react if something happen. One time was enough.

Here is the good news about this gentleman. He has a collection of 12 pictures of different **Dearborn Police Cars (most are around 8.0" x11.0" after cropping/centering the car)** taken at historical sites in Dearborn. Note: He was able to drive the car where the average individual cannot. The poses are classics. He has about 12 to 20 colored photos of each picture presently when he was doing his own developing. Here is the a great deal for SCCoA Members for \$7.00 each (which includes handling and shipping) you can get a colored photo print until he runs out. After that he will reprint the photos for \$11.00 including shipping.

Here is a list of the pictures below;

1. **XR7 S.C.** in front of the Original Ford World Headquarter at Schafer & Rotunda Drive **(Note:** It has been taken down – building no longer exists).
2. **XR7 S.C.** in front of the present Ford World Headquarter on Michigan Ave. just east of the Southfield Expressway.
3. **XR7 S.C.** at Ford Field just north of Michigan Ave & Oakwood.
4. **TURBO COUPE** in front of the Henry Ford's Home off the Rouge River: Henry Ford Manor and is presently open for tours and serves a good lunch in the pool room.
5. **TURBO COUPE** in front of the Henry Ford Museum.
6. **TURBO COUPE** in front of the present Ford World Headquarters.
7. **S.C. T-BIRD** at night with the siren lights.
8. **S.C. T-BIRD** rear view in front of the present Ford World Headquarter.
9. **S.C. T-BIRD** side view in front of the present Ford World Headquarter.



10. **CONTINENTAL** in front of the glass building.
11. **LINCOLN MARK** in front of the Dearborn Henry Ford Library.
12. **LINCOLN MARK** in front of the Dearborn Henry Ford Library.

NOTE: *If you would like to purchase any of these pictures you may contact me via phone or email.... Editor (see the magazine cover for my phone # or email address)*

SC Club of Ontario Outing Report

By Charles Markman

The annual October SCCoO event at Cayuga Dragway, was held October 23rd this year. The crisp Canadian day again proved the value of winter coats with temps hovering in the high 30's and low 40's. For you Canadian folk, that is between 0 & 4 °C. Whatever system of measurement you use, it was COLD!

SCCoO had a great turnout for the event. Approximately 20 cars showed up and most raced. The weather tried to hold out for us to make some good runs, but the rain eventually

came. The day of racing was officially cancelled when a 10-second Chevy Monza, lost traction on the slick track, crossed over the centerline and hit the wall directly in the path of Charles Markman. But before that, the fastest run of the day was made by Ron DiPaola with a 14.5.

We left the track around 4 p.m. and most of us headed to Kelsey's in Brampton, Ont. where we all shared a post race meal. We then proceeded to The Avalon in Oakville, Ont, a nice bar/pool hall for drinks and conversation.

In attendance were: Wayne Ing (White SC), Charles Markman (White SC), Michael Maroschak (Titanium SC), Norman Tsai (White SC), Andru Tahk (titanium SC), Bill Gowland (Titanium SC), Scott Mallais (Black SC), John Challinor (Black SC), Michael Varrik (4.6r), Paul Deane (Titanium SC), Ivan Korotash (Mystic SC), Wes Martyn (Titanium SC), Bill Tchakchuk (Black SC), Dean Cacoutis, Hans Schmiedburg (Green LX), Ron DiPaola (Black SC), Paul Harrison (Black SC), and Ed Nicholson (Black SC).

Midwest Chapter Mini-Meet at Milan Dragway

By Charles Markman

On October 9th, the Super Coupes and XR7 Cougars of Ohio and Michigan descended on Milan Dragway in Milan Michigan. There were a total of 15 MN12's in attendance on a rather gloomy Saturday morning. The rain held off and there were a lot of best ever quarter mile runs completed that day.

The coordinator of the event, Doug Williams managed to show up about an hour late, only to wow the crowd with a stunning 28-second run at 47 MPH. He mumbled something about missing a shift after returning to the pits, but we all just thought he may have forgotten which pedal was the gas and which was the clutch. (The gas is the one on the RIGHT Doug). Trying hard not to be embarrassed again on his next run he recovered enough to half his ET and double his MPH to a 14.2 @ 99 MPH.



Stan Wodzisz had driven the three hours from Cleveland in his ultra clean & FAST XR7 and had simply planned to watch the racing action. His plans changed quickly as he was not able to be content sitting on the sidelines and miss out on the fun. He usually races using drag radials, but even on his street tires **he ripped off repeated runs in the mid 13's** effortlessly. He was by far the fastest of our group.

The low 14 second Super Coupes were in abundance. Bill Evanoff was the first to turn a 14.1 with Bill Schlabach close behind with a 14.2 second run. Jimmy White and Doug Williams (as previously mentioned) were also just above that elusive 13.99 second level. **Charles Markman was hitting solid mid 14's**

In attendance were:

Doug Williams with April and Taylor Dantes
Jimmy and Bev White
Stan Wodzisz
Chuck Carrol and Kit Duty
James Fernandes
Mark Kovalcik

Charles Markman
Clifford, Zena, and Clifford Jr. Jolly
Nick Francis
Tim Steinman and Sarah Panno
James Carclay
And our illustrious President Bill Evanoff.

Bill Schlabach
Andy Stairs
Ritch Percival

B&M News Release.

forwarded by Scott Shockley

B&M Racing and Performance recently made available a new addition to the already impressive line of Ripper™ shifters. This latest shifter was designed for the Ford Thunderbird SC and Mercury Cougar XR-7 equipped with the Mazda M5R2 manual transmission. This completes the series for **the latest generation of Ford's personal coupes** optioned with the manual transmission, including the 1983 through the 1995 Thunderbird and Cougar vehicles.

The latest Ripper™, part number 45058, is cataloged for the 1989-1995 T-Bird SC and the 1989-1990 Mercury Cougar XR-7. It is

and several others were slightly above that time. Clifford Jolly also shifted his **"showroom floor" looking '94 5-speed** to a personal best time that afternoon.

After a solid day of racing, several of the attendees went on a wild goose chase for a nice steak dinner. After Doug Williams 28 second run, we probably should not have listened to him when he claimed to know of a great steakhouse just about 7 miles up the interstate. After driving 15 to 20 miles, we finally gave up the search and wound up at a Steak & Shake somewhere near Ann Arbor, **MI (They don't sell nice steak at these but** we were hungry and it had finally started to rain).

composed of aircraft quality materials, such as the 6061 T-6 billet Aluminum base and 303 stainless billet stick. Machining is accomplished on the latest generation CNC milling centers for the highest quality, and backed by the lifetime Ripper™ warranty. The same performance characteristics that have benefited other applications have now been bestowed upon the T-Bird / Cougar lines. These include an approximate 25% reduction in throw length, more precise shift feel, and spring leveled neutral position to aid second to third shift accuracy.

In a side note B&M sold its Supercharger and Marine divisions to Holley Performance Products. The move allows B&M to concentrate on the more lucrative markets more in line with their core business.



New Mexico Chapter's Historic Route 66 Meet

By Kurt Sunday

Seriously Edited by Major Glenn Huber

Wild, Wild, West! You may remember the TV show, seen the movie, or heard the catchy tune... well by now you may have witnessed some of the video downloads of the "Wild, Wild, West" chapter of the SCCoA. Well here **is the write up for Chargin' Thunder of the** most fun under the New Mexico Sun and Moon that 12 SC aficionados from the Southwest had on the SCCoNM's Historic Route 66 Meet on October 23rd and 24th.

After weeks of hard planning and last minute upgrades to our SCs, Saturday arrived with its usual Southwest sunshine and clear skies. A look at the watch indicated we were 30 minutes behind schedule at the starting point so we knew we would be tempted to do some spirited driving to get to Tucumcari (304 miles in 4 hours).

At 8:30 am Saturday October 23rd we departed Las Cruces for Tucumcari, NM Major Glenn, in his white 90 5 speed, Brad Bishop in Glenn's other SC, a blue 95 Automatic (AODE), and I was in my red 92 AOD. The 3 SC's soon reached White Sands Missile Range with its lonely 40 miles of US70 stretching across it. Cruising at 85 mph, we soon itched to check out our most recent mods on the lonely road. A few hard stomps on the gas netted a few runs into the 130MPH zone before quickly letting off the gas and letting the cruise control take over. (Man, are these cars smooth and stable at high speed....A tribute to Ford's engineering, a long wheel base, and a heavy car).

Forty minutes later we arrived at Alamogordo where we met with 2 more SC's and their owners, Wildman Jonathan McEwen, (89 Titanium 5 speed) and Bill

Morrow, (cameleon blue 95 5 speed). After fueling and loading up on snacks, the quickest convoy from Alamogordo to Tucumcari, New Mexico was born. Wildman Jonathan, emphasis on WILD; and his girlfriend Selena led the convoy and soon had us moving out on US54 at cruising speeds of 85 to 110 mph (with plenty of video footage to document the fun). It was euphoric cruising at 110 for up to 30 minutes at a time. With all that spirited driving, we didn't notice any abnormal engine temperatures at those speeds. Traffic was very light, but the few cars we did pass probably had their driver's pissing their pants when 5 SC's rocketed by them at over 115 MPH.

We were making great time when the convoy began approaching the town of Santa Rosa, NM. The constant cruising at 2,800 to 3,200 rpms took its toll on an idler pulley bearing in Wildman Jonathan's car. Once the bearing froze up, the accessories belt soon slipped off the belt and began cutting the small by-pass hose on top of the water pump and soon coolant was spewing from his car. We stopped at the first gas station in town to take a look and assess the damage. Seeing an easy fix, Major Glenn quickly hit the local NAPA and returned with a metal pulley and about 2 feet of heater hose. Wildman's car was quickly back on the road and sporting the SCCoNM's very own custom part... a 2-foot long by-pass coolant hose.

Finally arriving in Tucumcari an hour behind schedule, we met up with the others who had been there since the night before. Talk about devotion!! (Combined, our 8 SCs logged on more the 4,000 miles to and from the meet.) The SCCoNM reserved all but 2 of the rooms



at the Blue Swallow Motel in Tucumcari, NM. The Blue Swallow Motel is a restored original Route 66 era motel. We highly recommend it if you ever decide to cruise on Route 66 to get a full flavor of how it was to go west 50 years ago. The Blue Swallow Motel in Tucumcari seemed like there were SC's everywhere. It somewhat reminded me of being at the Super 'Coupe' 8 motel during Carlisle 99. Roman Reyes (red 90 AOD, Clovis, NM), Will Priesler (black 94 AODE, Wichita Falls, KS), Dan Cullen (teal 93 AOD,

Tulsa, OK), and Fred and Jackie Holzhauer (White 90 AOD, Denver CO) where hanging out waiting for the convoy to arrive. Fred's SC was making bearing noise so he drove down in his Chevy Blazer. Will and Dan arrived at the Blue Swallow on Friday night and they were very ready to get nuts with the rest of the SC's. Two of our chapter **members didn't make it though.** Greg Stewart, from OK lost his transmission in route to the meet and Jason Marsh, from OKC had a last minute emergency.



The 140 MPH Club

A few handshakes and soon everyone was talking SC lingo and gawking over each other's cars. Before I could get my towels and wax out, the group was itching to depart the motel and go on a burnout contest as had been scheduled on the SCCoNM web page. Putting towels, wax, and tire foam in our cars was a total waste of time. Our group didn't sit around in lawn chairs talking about the cars, our SC's did the talking (err, barking) for us. Our first stop with eight bad-a\$\$ SC's was on the Mother road for picture taking at the famous Route 66 sign (same as the one on the SCCoA's November's Main page from Ben Wishner). A few pictures later and everyone was asking Major Glenn, "Where are we doing the Burnouts?". Not having

done a previous reconnaissance, Major Glenn just led the pack West of town looking for a good open piece of pavement free of traffic. It didn't take more than three minutes and a U-turn (with SCs fishtailing back on the road) when he settled on a long, 2 lane access road with wide shoulders and absolutely no traffic. The 8 SC's pulled over to the right and each SC took its turn melting their back tires while the rest of the group took pictures and video. (You can see pictures and download some video of these stunts at our web site). After Major Glenn's second burnout run he simply lost his mind and did a few monstrous donuts creating an awesome smoke show. Donuts after the burnout runs then became the norm. I think everybody, except me, cranked



out several donuts. It's weird how those "I don't give a s**t about my tires" thoughts take over the whole crowd. Major Glenn brought two extra old "H" rated tires on SC rims just for the burnout contest, but we were having way too much fun to stop and change rear tires. When we were done the road looked like a 30 car NASCAR accident occurred there. I'll bet people traveling that road even today wonder where the hell all of those rubber marks came from!

For dinner we hit a recommended Tucumcari restaurant and talked about SC modifications. The SCCoNM usually decides where and when it's next event will be at dinner. Our choice was Tulsa, Oklahoma in April 2000. After dinner, with dusk upon us, we fueled up the SC's and it was my honor to lead the speed hungry pack on a cruise through Tucumcari and out a 2-lane highway. As we got further away from town speeds increased climbed to about 90MPH. There was a full moon that evening and as the 8 SC's crested a hill I decided to pull over for some cool pictures.

Wildman Jonathan led the pack back into Tucumcari. I remember passing an old farm truck, probably going 55, it seemed like he was parked. The group had talked about taking it easy while in Tucumcari because the local law enforcement were very visible patrolling their main drag for gear-heads like us. When the pack turned left on to Tucumcari's main drag Glenn and I had to stop at a traffic light. When the light turned green Glenn lost his mind again and laid a killer SC burnout in the busiest intersection of Tucumcari!

With all of the SC's safely parked at the Blue Swallow, we set out on foot for the nearest beverage store and returned with enough of the wet stuff for the whole Super Coupe Club of America. The Blue Swallow had a very cozy court yard set up for us, but the 12 of us

ended up in Fred and Jackie's room watching the day's burnout videos. Everybody went to sleep around 11:30 pm except Fred and I. We sat up talking about refinancing our homes to build a 500HP SC motor. I think I fell asleep around 1 a.m.

I was awoken around 6:30 a.m. by Jonathan or Roman (don't know which one because of the incredible pain when I opened my eyes) banging on my motel room door wanting to borrow my floor jack. Early bird, Major Glenn was sponsoring an air-silencer box removal clinic. I lay in bed for a few moments wondering why I had drank too much and why I packed seven Thunderbird T-shirts and no Tylenol. The Blue Swallow was a great, clean and cozy motel, but I would rather change my SC's spark plugs with it running than get another hungover shower at the Blue Swallow Motel. I've been in a few hotels where the showerhead is too low. I usually just get down on my knees to wash and rinse my hair. Not in this shower! The shower head was so low I had to sit down... well when I spun around to rinse my face, a piece of my *ss got pinched in the drain. It still hurts!

That morning I can't remember who's crazy idea it was, but somehow we crammed 11 people into Wildman Jonathan's SC. The SCCoSW formally issues a challenge to all of the other SCCoA Chapters to try and break our record.

A few cups of coffee, a Band-Aid on my a**, and some last minute check outs from the Blue Swallow, and we were rolling back to the site of the burnouts! Although, the schedule said we were to get on I-40 West and try to do some high speed runs early in the morning, this Wild, Wild, West group wanted to flog their SCs some more with the benefit of the cool dry air. (Funny how we SC owner's are ever so conscious of outside weather conditions, eh?) This time the



footage was better, and the donuts (instead of eggs) were made to order!! Outstanding donuts were displayed at 7:30 Sunday morning while the local posse was still sleeping. Dan Cullen donuted his SC around 3 times. Will Priesler delivered an unbelievable tire smoke show. Roman Reyes went bananas (there was so much smoke we

think his tires were made of some kind of bleach derivative). Major Glenn put a perfect donut circle down, and Wildman Jonathan put down a mind-boggling burnout in reverse. We truly believe that Ford built one extra tough and indestructible SC and Wildman Jonathan owns it! If anyone else did this in their SC it would instantly break!



After an hour of autographing the road then letting our SCs cool off, we were heading West and ready to get on I-40 and later pickup historic Route 66 all the way to Santa Rosa where we planned to have breakfast. I-40 was packed with traffic, so the speed runs were canceled. It was thick with 18-wheelers, so we kept it pretty mellow. We exited I-40 at exit 300 and were instantly on Historic Route 66. The pack of SC's were the only cars on the historic road for miles. As Major Glenn led the way we stayed under 55MPH

for most of the 15-mile stretch dodging the deteriorated parts of the road. We were soon back onto I-40 when Route 66 quickly blended into an on ramp. Major Glenn then led us into Santa Rosa to a very famous and historic restaurant. (It wasn't that good... I forgot the name of the place.) During breakfast, conversation persisted about expanding the SCCoNM and the Southwest Chapter was born! The Southwest Chapter now includes New Mexico, Colorado, West Texas, Oklahoma, and Kansas.



Super Coupe Club of America

The Club voted and the following award certificates were presented. Everyone that attended received an award.

Dan Cullen: Best of Show

Fred and Jackie Holzhauer: Most SC Devotion
Doctor Fred's SCCoA (SCPI) 350hp SC was making bearing noise so it stayed in Denver, CO. Fred and his wife Jackie still drove down in their Blazer to make sure everybody was well stocked with vital fluids on Saturday night. Fred will be in Tulsa with well over 400hp!

Will Preisler: Longest Distance Traveled and Best Stock Super Coupe

Kurt Sunday: Best Modifications and Most Modifications

Glenn Huber: Best Event Burnout, The "New" Donut King, Best Intake System, and Best SC Exhaust System

Jonathan Q EcEwen: Most Event Burnouts, The Wildman Award, Best Burnout in Reverse, and Best Sound System

William Morrow: Best Bill Hull Look Alike

Roman Reyes: Cleanest Super Coupe and Best Suspension Modifications

Owning a SC, modifying it, and being associated with the Super Coupe Club of America has been a blast, but assembling other people that have the same passion for the car is the ultimate in fun! Thanks for reading and get ready for our next tire wasting event "SCCoSW's SC-YA in Tulsa in April 2000". Please try to attend. Check out our web site for pictures and event details at <http://www.zianet.com/ksunday/sc/sc.html>



Ben Wishners '95 SC at the same Route 66 sign mentioned in this report



SUPER COUPE PERFORMANCE, INC. - UPDATE

By Bill Hull

This coming March, the Super Coupe Club of America will celebrate it's forth birthday! Who could ever have imagined the rapid growth of this car club and the tremendous enthusiasm Super Coupe owners have for their favorite rides!

As you all know by now, Bill Evanoff has taken over the reins of the SCCoA, allowing me to spend all of my limited time on my ever-expanding parts business. Congratulations to Bill & Patty for doing such a great job on Chargin' Thunder for the past year!

I have been keeping a running total of all of the major parts the SCCoA (now SCPI) has marketed since March 1996. Since my ORIGINAL prototype raised SC top was installed on my 91 SC in 1993, we have sold 383 hi-flow SC tops. The SCCoA was the first company to make production headers available for SC's - to date 221 sets of headers have been purchased by lucky & happy SC'ers. Over 200 sets of SCCoA/SCPI hi-flow cat-back exhaust systems have been installed, 185 BBK throttle bodies, 212 C&L/Vortec or Pro-M MAFs, 66 "S"-model superchargers, 342 sets of Magnecor wires, 122 fresh-air kits, 58 Griffin radiators, 46 complete 350HP kits, etc. From our humble beginnings, the SCCoA/SCPI has grown from a part-time hobby into a full profession. I never thought I would separate the SCCoA from my parts business, but it just got to the point where I could not do justice to both. I am thankful that someone as qualified and

enthusiastic as Bill Evanoff was willing and able to take over the SCCoA!

New parts:

A Fluid-damper type harmonic balancer is still in the prototype stage. I believe worn-out stock balancers are the major cause for sheared balancer/pulley bolts. I hope to have this great part available in 2-3 months. A hi-flow "S"-type inlet plenum should be available in about 1 month. Preliminary CMRE dyno tests show a 30+ HP gain over the stock unit on his monster motors (w/75mm BBK throttle body). Gains on 300-350 HP engines will probably be in the 15-20 HP range (w/70mm BBK). Not only does this new hi-flow plenum out perform the stock unit, it may soon be the only inlet plenum available for 94-95 blowers, as the stock units have been out of stock and almost impossible to find.

Members Discount Program:

Beginning Dec. 1, 1999, all SCCoA members will receive a 5% discount on all SCPI parts orders (except already discounted member-only package deals). All one has to do is provide me with your SCCoA membership number with your order. Everyone who owns a Super Coupe should join the Club and read the quarterly issues of Chargin' Thunder! C.T. contains a wealth of info not available anywhere, not even on the web - besides, you will get that good "fuzzy" feeling every time you receive your new issue of C.T., knowing you are a member of the first and only organization dedicated solely to the T-Bird SC.

Everything is funny as long as it is happening to someone else.

Will Rogers



New SCPI package-deals:

1. Headers w/mandrel-bent 2-1/2" down-tubes & 3/4" raised SC top -\$999 (Jet-hot coating & converters - \$150 ea. additional).
2. Complete head-gasket protection kit - Jet-Hot coated headers, d.t.'s w/converters, 3" or 3-1/2"cat-back exhaust, raised SC top -\$1999.
3. "S"-model blower, (incl. plenum) & raised SC top - \$1999 exchange.
4. Complete induction system incl. either a C&L/Vortech or Pro-M bullet MAF, BBK 70 T.B., & SCPI fresh-air kit - \$549.
5. Suspension kit incl. Eibach springs, Tokico shocks, Addco 1-1/8" rear-sway bar, \$949. 6. 325HP bolt-on kit - incl. complete exhaust system, SC top, larger MAF & TB, U.D. pulley set, 5% O.D. pulley, I/C fan, 190lph in-tank fuel pump & (for 89-93 SC's - S-model blower & 36lb/hr injectors) - call for special complete package deal!
6. In stock - Eaton S/C fluid (8 oz.) \$24, OTC spanner wrench \$59, factory S/C

reseal kits \$30 (now incl. w/ each raised SC top!

SCPI Web Site:

Thanks to "Rapid Ron" Dipaola for setting up the new SCPI web site. Ron has been very busy lately, & the new web site is far from finished, but check it out at www.supercoupeperformance.com! Now, if I can just get my e-mail working again! I want to thank each and every one of you SC owners for your support! We have had growing pains over the past 4 years, to be sure, but without your continued encouragement, I never would have survived! Thanks again, all!

Bill Hull

Super Coupe Performance Inc. (SCPI)

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Web Site: www.supercoupeperformance.com

BLCKBRD Build Up

By Ken Seegers

I have always liked the 1989 and up body style of the Thunderbird SC. Back in 1992, I needed to get a new car. I wanted a Thunderbird SC, but I could not afford one at the time. I ended up buying a 1992 Eagle Talon. I could not beat the deal I received on the car. I drove it for a couple of years, saved money to buy a house and got married. Then one day that itch came back, this time I was getting the Thunderbird SC. I went to several dealerships and even called a couple more. One Sunday morning, I was looking through the paper when I saw a 1992 black Thunderbird SC for sale at local

dealership. I took the car out for a test drive and was impressed with the ride. I sat down with the salesman and a week later I was the proud owner of a black 1992 Thunderbird SC.

I purchased the car during the winter of 1995, so I did not drive it too much because of the snow. Once spring hit, I got another itch. This time it was to increase the performance. I was looking at a Ford magazine when I saw an advertisement for Magnuson Products. I called them up and **they told me about their "S"-model blower.** They also told me about this club. I said this sounds neat. I gave Bill Hull a call to see what he had to offer. I never knew there was so much you could do to these cars. I read the first two newsletters and was



hooked (my wife on the other hand had different thoughts).

The first stock item to bite the dust was the exhaust. I had a local custom exhaust guy **bend me up 2.5" dual exhaust** after the cats. What a difference it made. The next items on the hit list were the filter and the wires. I **replaced the stock filter with a K&N 9" conical** and the wires were replace with 8.5 mm Magnecores. After meeting some fellow **SCer's** at Carlisle in 1997, I decided to complete the exhaust and buy headers and downtubes. I also found a set of underdrive pulleys on the Internet and purchased them.

In August of 1997, I went out to Columbus for the Expo show. I went to meet other **SCer's** and drag race to see what the car could do. This was my first attempt at drag racing. The first time I went down the track, my time was a 15.75 at 89.92 MPH. I was **kinda disappointed considering stock SC's run 15.8 to 16.0**. Before the next run I iced down the intercooler, tubes, and top. On the **second run, I brought my rpm's up to 1500** and launched. This run would turn out to be my best at 14.916 at 92.78 MPH. I was really happy with this run considering I had only **done 2.5" dual cat back exhaust, underdrive pulleys, and 9" filter**. I could not wait until the headers and down tubes came in. I had a great time that weekend, not only meeting others, but I was able to witness Neil **Frisbee's 12-second** run. I was impressed with the intercooler set up he had. On Sunday, I said good bye to everyone and said I see you all in Carlisle 1998.

Over the winter 97/98 I installed the headers and down tubes. I also installed a raised supercharger top. One day I was driving to work and my transmission decides not to engage into overdrive. It looked like I blew the famous Ford AOD overdrive band. I called around to different transmission shops

and transmission people in magazines to get prices on rebuilding a high performance transmission. I found out most transmission shops do not build high performance transmissions. They like to stick to stock rebuilds (how boring). I found a guy local to me that did build high performance transmissions. I told him what I wanted in the transmission. I wanted a non-lockup torque converter, one piece input shaft, stronger clutches, TransGo shift kit, and definitely a stronger OD band. This guy came back to me with a 2200 stall non lockup, 300M one piece input shaft, red clutches, Kolene steel plates, Kevlar OD band, and TransGo shift kit. About a couple weeks later I had a new transmission. At first it felt weird with the non-lock up converter, but I got used to it quickly.

Now it was time for Carlisle, I got my car ready. I found out they were having a dyno up there and decided to see how much power I was putting to the pavement. The guy ran my car and numbers were 192 HP and 302 FT/LBS of torque. This equates to corrected numbers of 256 HP and 403 FT/LBS of torque, assuming a 25% power train loss for an AOD. Now, all I **needed was the "S"-model blower, 70 MM throttle body, and 73MM mass air sensor** to hit the magic 300 + horsepower mark. I was figuring on doing this on the winter, but Mr. head gasket had different plans.

One morning, I went out to start the car and the car was blowing white smoke out the exhaust. I knew I blew the gasket. So the next couple of months, I was getting the heads ported and a cam installed. After calling Coy and talking to Dave Glista, I was going to do a Stage 1 setup. I wanted to keep my stock rocker arms for now, but Dave was having problems running with the stock rocker arms. I decided to keep the valves stock for now and just port the heads. I got



the car back together and made sure to break in the cam. Once the cam was broken in, I wanted to see how much different the car felt. What a difference!!! The car pulled all the way to redline. I tried to get the car dynoed, but the guy did not know how to **dyno an AOD correctly. (Don't ask)**

The car is now currently sitting in my garage with a broken harmonic balancer bolt. I have plans over the winter to get the engine rebuilt. I am looking into having a local shop do the work. I am hoping to have it make

over 400 hp plus hook up a 100HP NOS kit. The NOS might have to wait, but we will see. I will keep everybody updated on the engine **rebuild. I hope see everyone in Carlisle '00.** I hope to have the engine ready. If I do it will definitely be on the dyno. I also hope to get it down the track. Maybe we will start to see more 12-second **SC's with everyone** getting his or her engines redone.

To everyone; Have a happy holiday and great New Year. See you all in 2000.

My Quest for the 13's(part two)

by Joe Santillo

Let's do a quick recap to see where we left off. Last time, I spoke about my goal to **reach the 13's in the ¼ mile with my 95 auto SC** and less than \$2000 worth of modifications. Back in September, the only modification to my car was the MN12 exhaust with the Dynomax cat-back. I ran the car and was able to achieve a consistent 14.94 at 92 mph. I had no problems with tire spin using the Goodyear gatorbacks. A lot has happened since then so I will get started.

I purchased several parts from Bill Hull that **I'm just getting to install. The first is the raised blower top.** I installed this part back in September with no major incidents. The car felt better on the street but I was not sure if it performed any better. I needed a trip to the local strip to confirm its performance benefits.

Back in October, several club members organized a mini track meet at Capitol Raceway in Crofton Maryland. The weather

was good that night and I bought a bag of ice to keep the I/C cold between rounds. As luck would have it, someone oiled the track and I had a very long wait in the staging lanes to cool the car down.

When I got to run, I did my usual burnout to **get the water off the tires. I don't know why** some tracks insist on making street cars go through the water. I held the car on the line with enough throttle to get the tach to about 1500 rpm. When the light turned green, I floored the gas. The car launched better than I ever felt before. I knew that it would be a good run. The C5 Corvette the lined up next to me was nowhere in sight. Finally at ½ track, he passed me big time. He must have had 25 mph on me. I was able to get a **14.6 at 93.7 mph on that run. (The 'Vette** wasted me with a 12.89 at 117 mph).

After that track event, I traded my new (never installed) 10% blower pulley with Mike Puckett for his factory pulley. I got scared to run the 10% after hearing about so many horror stories. I also purchased a 190 lph fuel pump from Bill Hull that remains in my basement until I get the time to do the installation.



I have also performed one more mod since the last report. I installed the Motorsports M4001M373 pumpkin in my car early in November. The Factor rear was making a lot of noise and the pinion seal was leaking. Rather than put any money into the old rear, I decided to fork out \$585 for the Aluminum unit with the 3.73 gears and traction-lok.

The installation was fairly easy and was performed on jack stands. If you are competent enough to install the SC top, you can replace the rear. A word of caution - the rear is heavy and you will need an assistant to get it in place. I put in the correct speedo pinion and that was it. The rear comes shipped with oil and plugs where the axles are inserted.

There have been some problems with axle seal leakage that I attribute to the dry insertion of the plugs into the axle seals. If you attempt this modification, I would recommend purchasing new seals and installing them before you get the rear in the car. You will also need new circlips for the half-shafts and new nuts for the wheel bearing end of the axles. Here are some other tips. Never remove the parking brake return spring from the caliber unless it is necessary. That sucker is hard to get back in. Also, replace the differential bushings with this mod. It is easy and cheap and will reduce the all too well known wheel hop.

Since the installation of the 3.73 rear, I made one disappointing trip to the track. I could equal my previous best of 14.6 but at a lower mph. The reason for the bad mph is my transmission now shifts too late from 2nd to 3rd gears. This is not a computer issue. The transmission gets the signal to shift at the correct time. The tranny also takes the same amount of time to execute the shift. The problem is that the engine has hit the rev

limiter long before the shift can take place at WOT.

I have a plan to fix the problem myself. I **won't go into too much detail because there** will be a tranny article coming out soon. All you need is the proper diameter drill bit and some knowledge to fix this problem with the 4R70W. The article will cover this and much more. By the time you read this, it will be published on the TCCoA web site. I talked to **the author about publishing it in 'Chargin Thunder' or at the SCCoA site.** He chose TCCoA because of the possible larger audience from the 1994 - '97 T-birds and Cougars that use the 4R70W transmission. The article might also make it to the Corral. (Yuk)

Although I have not gotten the most out of the gear change, I did get better short times. **My 60' times are now down to 2.01 seconds** on those sticky gatorbacks. I no longer can launch at WOT and need to ease on the throttle to keep from hopping. To get the **most out of the gears, I'll need to get slicks** and fix the tranny.

Another benefit of the gear swap is the car is much more fun to drive. Having the ability to fry both tires at-will can put a grin on most **anyone's face.** My mileage has dropped from 22-26 mpg to 20 to 23 mpg. That is because most of my driving is on the interstate at 75-80 mph. I bet the city mileage would suffer less. Driving at 70 mph puts the engine at almost 2500 rpm. This has two pluses. The exhaust is silent at this rpm because it is past that 2000 rpm resonance. The second is passing torque. Apply just a little more gas and you gain speed fast. Since the engine is near peak torque, it pulls hard.

Let's summarize to see how far I have come and where I'm going. My original plan was to reach 13's for less than \$2000. At this point,



I have spent \$850 on the exhaust (ouch), \$450 on the blower top (still ouch), and \$575 for the rear (almost reasonable). My \$60 10% OD pulley was traded to for a factory 89-93 pulley (not quite fair so I won't count that). My spending for these mods totals \$1885. Could I be in trouble? We shall see.

I have to lose 0.6 seconds with only \$115 left in the budget. How will I do this you ask?

Once I include the cost of the fuel pump, I'm right at \$2000.

In the following issues, I will discuss how I plan to optimize my current set-up. There are also several free modifications to be made yet. I think the car will run a 14.3 once I get the tranny fixed. That leaves only 0.3 seconds to make up. Tune into the next **Chargin' Thunder to see if I'm any closer to my goal.**



Joe's blue '95 SC

So you blew your head gasket, Huh?

By Mike Puckett

Chances are that if you own an early model Super Coupe, and you drive it hard, you'll eventually blow a head gasket. I won't go so far as to advocate that everyone replace their head gaskets before they blow, but you would certainly fair better than I did when it does happen. I would definitely recommend replacing the head gaskets if you buy a used replacement engine. It is a lot less expensive to do while the engine is out of the car than when it's installed and it may need it soon

anyway. If you replace them yourself I offer the following few guidelines. Use Fel-Pro gaskets, have your heads checked and serviced by a quality machine shop, use new head bolts and not reuse the old 'stretch' bolts, and as I discovered be sure that the rest of the engine is good mechanically.

My saga began last July. I had the engine dyno'd in late June to see if my mods were really producing the intended horsepower. I was pleased but not overjoyed by my 242 hp at the rear wheels despite a misfire under heavy load. Since the misfire seldom showed up under normal driving I didn't think too much more about it. But, two weeks later while driving home for lunch from work the



right side head gasket finally let go and I lost almost all of my coolant before I made it home. About a mile from the house the 'check gauge' light came on, but thinking it was for a low fuel warning I ignored it. As I pulled into the garage I noticed a wisp of steam escape from under the hood and I thought "Uh-oh." I shut it off and checked the radiator to find it empty. Refilling it with scalding hot water I restarted the engine to see a puff of steam blow out the tail pipes, so I shut it right back off. Then I watched as the water pump dispensed all the water on the driveway. The proverbial blown head gasket had finally occurred and had taken the water pump with it. I now suspect that the misfire had been from the antifreeze fouled plug.

The garage that I chose to do the work was about 15 miles away in Roswell, Ga. I knew that they had done this type work before and a phone call revealed that they would be happy to do another one. I already had the gasket set as I needed the valve seals for the new heads and I also had a set of freshly ported and polished cylinder heads to install. Well, this wouldn't be quite so bad after all, I thought and looked forward to the return of my beloved SC. It took a week for them to free up a lift and then the mechanic pulled his back out accidentally and was out of work for an additional week. Finally, a week later the job was done and my car was ready. During the drive home it developed a bad misfire which turned out to be a loose plug wire. The # 6 wire fell off when I touched it but upon reseating it everything was fine.

The next day fellow club member Rick Cunningham came over and asked how it was running. "You tell me" I said and tossed him the key. "Don't blow it up," I yelled as he pulled out of the driveway. I could still hear the exhaust note when he was close to a mile away. Five minutes later he returned with grin from ear to ear. "Man, that thing is fast"

he told me. "Geez, sounds like you really wrung it out!" I said. It would effortlessly get rubber in 2nd and 3rd at only 3000 rpm and it finally felt awesomely fast. I knew I had a winner. 13 seconds here I come.

In mid September Atlanta Dragway hosted the 'MOPAR vs. The World' meet. Wanting to see how it would perform, my wife and I loaded up both cars and off we went. I had pretreated my BFG Drag Radials with Hot Lap II and LMT tire treatment and expected some really good times even though an intermittent misfire had returned. On my first run the tire treatment performed excellently as I got virtually no wheel spin but the misfire killed my time. Even though I blistered a 95 V8 T-Bird my 14.6 time was a thorough disappointment. I pulled around for a second pass and was lined up against some sort of a rail job. I had decided to try a more aggressive start but shift at 5000 instead of 5500. I launched at 3000 and again the tires got good bite but the rail job took off like a shot and disappeared leaving me the whole strip to myself. The misfire was still there and my time rose to a 14.9, slower still. I was thoroughly disgusted by now and decided to call it a day and go home, something was definitely wrong.

In order to track down the misfire I checked all of my tube and hose connections, plug wire connections, and I replaced my MAF with a C&L unit calibrated to my new 36# injectors, all with no luck. I called a local chassis dyno shop and explained my problem. Come on up, they told me, that with their instrumentation they could find it. Just before going I decided to swap out the new plug wires with my old Motorcraft wires and lo and behold, it was goodbye misfire. What a relief! It was short lived. At the dyno shop they hooked up the sensors and we made the first run-up. But, the 225 hp reading left me mystified as I had previously gotten a reading



of 242 hp before the new heads were installed. The next run-up netted only 200 hp. It was getting worse. I switched back to my old MAF and this time it only showed 179 hp with an accompanying wisp of smoke and a ticking noise that soon turned into a clanking noise. Stick a fork in it, the engine was done. Later disassembly revealed # 2 rod bearing failure from the overheating that occurred when the head gasket blew. Now what do I do. The \$950 head gasket job was wasted money.

Fortunately, the dyno shop was also a speed shop. I decided to have them rebuild the engine which they agreed to do but they had not done an SC before. I agreed to source the parts for them and the project was begun. Since the # 2 rod journal was damaged, turning the rod journals on the crank would have made it too thin and unreliable and it was trashed. Rick suggested that I call a used parts dealer he dealt with and see if they could find a used 94/95 engine. The bad news was that they couldn't find a used engine. But, the good news was that they did find me a brand new factory crated 94 engine complete for only \$3000. Well, break my heart! It was located at a used parts dealer in downtown Atlanta. A

brief inspection the next day revealed that it was for real and I bought it on the spot. They even delivered it to the speed shop at no charge.

It took another three weeks for them to fit it into the car. I retained my s-ported blower and ported heads along with the oil pan (for the oil sensor), harmonic balancer and crank sensor, and my other mods. It was one of the most difficult engine swaps that they had ever done and refuse to do another but, they did an excellent job. I'm breaking in the new engine now, babying it for the first 500 miles or so. Oh, how smooth it runs and idles. At idle I have to check my tach to make sure the engine is running. I had to have a muffler shop reseal one of the header to downtube connections but that seems to be the only complication. The total cost including the wasted head gasket job ran \$6000, but I'll make some of it back by selling the new engine parts (blower, heads, injectors) that I didn't use. I've also got a spare clutch, pressure plate and flywheel, water pump, tensioners, etc. for whenever I need them. So, count your blessings if you can get by for less than \$1500. Then again, I have got a brand new engine.

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Your SINGLE source for all your Super Coupe performance parts needs

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Inquire about our SCCoA member discount program and package deals

NEW WEB SITE: www.supercoupeperformance.com



89-92 Thunderbird SC ABS Systems

By Duffy Floyd

Background

The Anti-lock Braking System (ABS), as we early model SC owners know, is a sometimes exasperating system which is very expensive to have a dealer fix. Unfortunately, it is also a critical sub-system since if it goes bad, more than likely the braking performance will be severely impaired. There are thankfully a few relatively common things that can be checked or repaired on a DIY basis that can save some big bucks. Though the scope of this article must be somewhat limited since the FORD Shop Manual contains over 100 pages of information on this system and **it's troubleshooting.**

ABS was initially developed for aircraft applications and was toyed with periodically in the 50's and 70's in the automotive arena.

The system equipped on our SC's is the TEVES Mark II ABS System. It was originally designed and manufactured by the Brake & Chassis Division of ITT Automotive, which was based in White Plains, NY. On September 28, 1998 Continental AG of Hanover Germany acquired the division. The name of the newly combined company is Continental Teves AG & Co. The Germans must have liked what they saw since they paid US\$1.93 Billion.

The TEVES Mark II ABS System has been equipped on many different cars of the 80's Included in the list is the Pontiac 6000 STE and 88-90 Riviera and Reatta. The system also appeared on some SAAB, Mercedes-Benz, Jaguar, Alfa-Romero, and Lincoln Town Cars. Unfortunately for us though, ABS was usually installed as an option, a very expensive one at that, so the number of car equipped with "our" system is rather limited when compared to more widely used systems like the TEVES Mark IV which the 93 and up SC's came standard with. It does open up the chance though that there may be alternatives to FORD to purchasing some replacement parts. It appears though that there are minor differences in the design of each different car's systems. Substitution should be done only after careful examination and comparison of the parts in question.

The main difference between the TEVES Mark II and Mark IV systems is that the Mark II is an integrated ABS System as opposed to the non-integrated system of the Mark IV. What that means to us is that our system contains all the controlling hydraulic components into one unit called the Hydraulic Actuator Assembly. This includes the Hydraulic Power Booster, master cylinder, pump and motor, valve assembly, and accumulator. On the Mark IV system the ABS system is basically piggy backed onto a conventional brake system to add ABS functionality to it.

Basic TEVES Mark II System Operation

The heart of the TEVES Mark II ABS System is the Hydraulic Actuator Assembly. This assembly is controlled by the Electronic Controller which is mounted in the package tray area of the trunk along side the adjustable ride control (ARC) Computer. Additional vital components include the Four Wheel Sensors and Indicator Rings.



Electronic Controller

If the Hydraulic Actuation Assembly is the heart of the ABS System then Electronic Controller is the brain. It consists of two parallel microprocessors that operate on the principal of two-channel redundancy for data processing and plausibility criteria monitoring.

The Controller monitors the system operation under normal driving conditions as well as during anti-lock braking. Under normal driving conditions the microprocessors send short test pulses to the solenoid valves of the Hydraulic Actuator Assembly that checks the electrical continuity of the system without causing the valves in the Solenoid Valve Block Assembly to change position. When the Electronic Controller senses from the signals that it processes from the four wheel sensors that one or more wheel is about to lock up, signals are sent to the appropriate solenoid valves located in the Solenoid Valve Block Assembly of the Hydraulic Actuator Assembly to allow hydraulic pressure to be bleed away from the wheel(s) that are about to lock. The lock-up condition is sensed when one or more wheels are determined to be decelerating faster than the other wheels. The brake fluid pressure is then reapplied through cycling of the appropriate valves. This occurs at a rate in excess of 10 times a second. The cycling will continue until all wheels are decelerating at approximately the same rate.

Hydraulic Actuator Assembly (Figure 1)

The Hydraulic Actuator Assembly is made up of several sub components. These include:

- 1) The Hydraulic Actuation Assembly
- 2) Electric Pump and Accumulator Assembly
- 3) Solenoid Valve Block Assembly
- 4) Brake Fluid Reservoir and Level Indicator Assembly

Each of these sub components provides essential functions to the assembly as a whole. The system is a 3-channel system meaning that brake fluid can be controlled to each of the two front wheels independently and to the rear wheels as a unit.

1) The Hydraulic Actuation Assembly

This assembly consists of two sections; the master cylinder and brake booster. These are arranged in two parallel bores with the master cylinder being below the brake booster. The brake booster contains a main control valve that is operated by a lever connected to brake pedal rod. During normal braking when the brake pedal is pushed, this lever causes the control valve to modulate the amount of pressurized brake fluid applied to the rear brakes via a proportioning valve. The control valve also ports brake fluid to the master cylinder pistons which applies braking pressure to the front brakes. The source of this pressurized brake fluid is the accumulator that will be detailed later. Also the fluid must pass through normally open Load Solenoid valves in the Solenoid Valve Block Assembly. The operation of this assembly will be detailed later as well.

A successful person is one who can lay a firm foundation with the bricks that others throw at him or her. *David Brinkley*



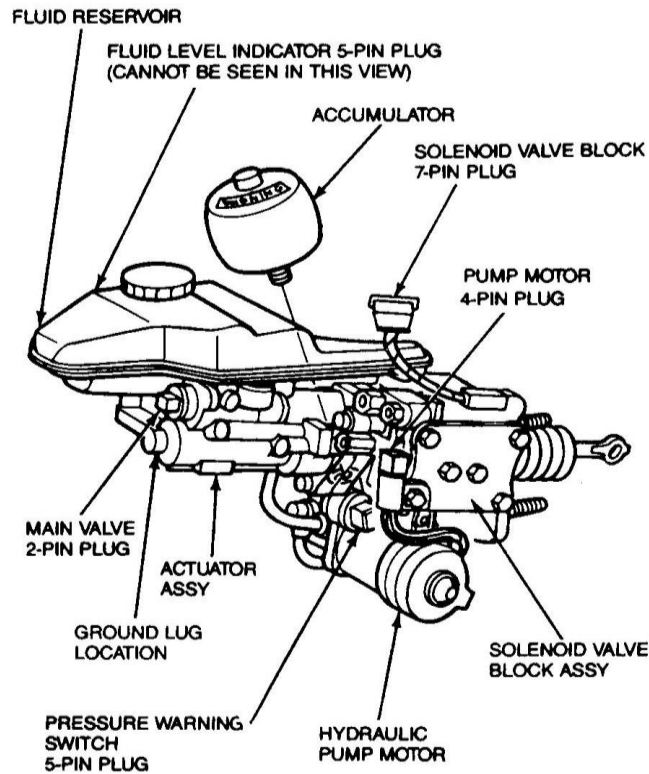


Figure 1 Hydraulic Actuator Assembly

During the Anti-lock braking mode, the main control valve actuates allowing pressurized brake fluid to enter a chamber behind the master cylinder pistons and into the front brake circuits through the appropriate solenoid valves as required. The pressurized brake fluid also exerts force against a reaction sleeve that raises the brake pedal. This allows a 70% stroke of the front brake master cylinder pistons in the unlikely event of an anti-lock malfunction. The Actuation Assembly, Master Cylinder, booster and main valve are serviced as an assembly.

2) Electric Pump and Hydraulic Accumulator Assembly (Figure 2)

The ABS System uses stored high-pressure brake fluid as a source for power assist as well as for the rear brake circuit. The Pump is controlled primarily by the attached pressure switch that senses Hydraulic Accumulator pressure. The Accumulator is a Gas filled reservoir that contains a flexible diaphragm. When the pump runs, it forces brake fluid into the accumulator where it presses up against the diaphragm. This pressurization continues until pressure reaches approximately 2650 PSI. At this point the pressure switch opens allowing the Hydraulic Pump Motor Relay to drop out causing the pump to stop. An internal thermal switch protects the pump motor. If the motor overheats due to prolonged running (20 minutes continuous or so) the thermal switch will open shutting off the motor for 2-10 minutes until it cools down. The electrical operation of the system will be detailed later. The Accumulator and Pressure Switch are serviced separately while the pump and motor is serviced as a unit.



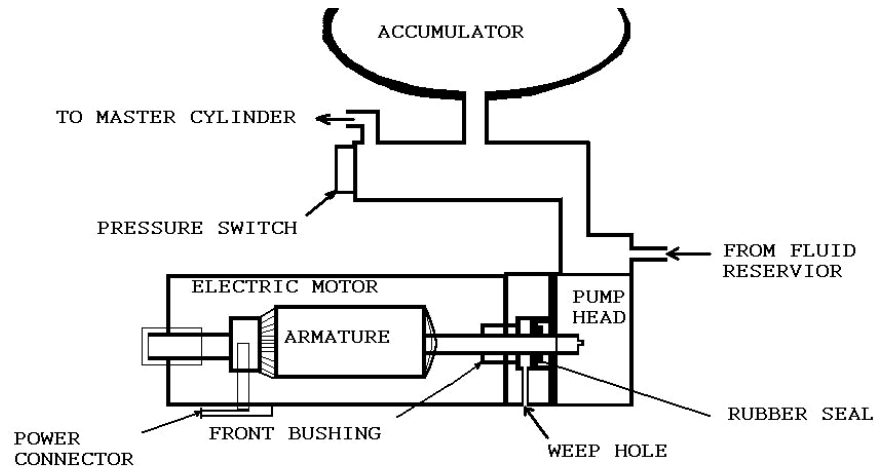


Figure 2 Electric Pump and Hydraulic Accumulator Assembly

3) Solenoid Valve Block Assembly

This assembly houses three pairs of solenoid valves; one for each of the three channels of the ABS System. The pairs of valves are inlet/outlet valves which I will call Load and Dump Valves. In normal operation, the Load valves are open and the Dump valves closed. This allows pressurized brake fluid to be properly ported to the appropriate front brake circuits via the Master Cylinder and Main Control Valve and the rear circuit via the proportioning valve. During a Anti-lock condition the circuit for which a wheel is sensed to be in a potential lock-up condition the inlet valve will shut and the dump valve will open. This reduces the amount of pressure felt at the wheel for the brake caliper thus reducing clamping pressure of the brake pads on the brake rotor. The valves will cycle to Inlet open Dump shut restoring brake pressure. This cycling will occur up to 10 times per second until the Electronic Controller senses that "normal" braking has been restored. The Solenoid Valve Block Assembly is serviced as a separate unit.

4) Brake Fluid Reservoir and Level Indicator Assembly

The Brake Fluid Reservoir and Fluid Level Indicator (FLI) Assembly is a translucent, plastic container that is mounted on top of the Hydraulic Actuation Assembly. The reservoir is connected to the pump inlet by a low-pressure hose, and to the master cylinder by a sealed feed port. The FLI provides a warning signal visa the red Brake Light should the brake fluid level fall below the prescribed minimum. If the level continues to lower this will cause the Amber Anti-Lock warning light to illuminate as well. Additionally the Electronic Controller will stop the ABS System from operating. The reservoir and FLI are serviced as a unit.

Wheel Sensor and Indicator Rings

The ABS Unit uses four sets of variable reluctance sensor and toothed speed indicator rings. These two devices work together to determine the rotational speed of each wheel. They work under a magnetic induction principal. As the teeth on the indicator rings rotate past the stationary sensor a signal proportional to the rotational speed of the wheel is generated. This voltage is an analog AC signal that is fed to the Electronic Controller via coaxial cables, one for



each sensor. The frequency of the signal is dependent on how fast the toothed indicator ring is passing by the stationary sensor. It is the frequency that is used to determine wheel speed by the Electronic Controller. On the front wheels the toothed indicator rings are mounted on the backside of the Hub Assembly. On the rear they are mounted as part of the inner CV Joint assembly. The front sensors are attached to the front spindle and on the rear to the axle housing. The indicator rings and speed sensors are serviced separately. A fine point to be aware of though is that only the correct speed sensor can be installed at each wheel location. If you decide to get replacements from the junkyard, make sure you mark the sensors front to back and left to right and only install the sensor at it's proper point in the system.

Electrical Operation of the ABS System

I examined the FORD Electrical & Vacuum Troubleshooting Manual for the 89 through 92 model years. The electrical system for the ABS System was virtually identical between all model years. **Let's describe what happens to power this system.**

When the ignition key is placed into the start or run position, power is applied to a portion of the ABS Control Module (Electronic Controller) via the 10A CLUSTER Fuse. The ABS Control Module applies power to the Anti-Lock Power Relay when the Ignition Switch is placed into the **START Position. This relay closes it's contacts allowing power to flow from the ABS MOD 30A Fuse in the Primary Distribution Box (inside the engine compartment) to the rest of the ABS Control Module. This relay is a "seal-in relay" in that it continues to be closed even when the Ignition Switch is released to the run position.** The purpose for this relay is that it allows a relatively large amperage load to be powered but not directly from the ignition switch. This way, up to 30A of power can be supplied to the system without relying on the contacts in the ignition switch to do it. After the system is energized it performs a self-test. If you place your ignition switch to the run position without starting the car you can watch this test being run. This self-test will check electrical continuity of the system as well as the Electronic Controller for proper operation. The Amber Anti-Lock light will illuminate for approximately 4 seconds and then extinguish if all is well with your system. If you then place the switch to the start position and start your car you should see the following cycling of lights. The Amber Anti-Lock and Red Brake Light should illuminate. The Hydraulic Pump Motor most likely will run since the pressure sensed by the Pressure Switch in the system is probably low (below 2030 PSI) if the car has been sitting a while. The Pressure Switch will allow power from the ANTI LOCK 10A Fuse to **cause the Hydraulic Pump Motor Relay to close it's contacts allowing power to flow to the pump motor from the ABS MTR 40 A fuse.** It will also cause the Anti-Lock Warning Light to be illuminated. The pump running will pressurize the hydraulic accumulator to around 2650 PSI at which point the pressure switch contacts will open, the Hydraulic Pump Motor Relay will drop out and the pump will stop as well as the red and amber lights will extinguish. For all applicable model years the Anti-Lock Power Relay and the Hydraulic Pump Motor Relay are located on the passenger side firewall area. When facing the engine bay these relays are located as follows:

89 Model Year (Left to Right)	WOT AC Cutout Relay, Hydraulic Pump Motor Relay, Anti-Lock Power Relay
90 Model Year (Left to Right)	WOT AC Cutout Relay, Hydraulic Pump Motor Relay, Anti-Lock Power Relay



91 Model Year (Left to Right)	Hydraulic Pump Motor Relay, Anti-Lock Power Relay, WOT AC Cutout Relay
92 Model Year (Left to Right)	Hydraulic Pump Motor Relay, Anti-Lock Power Relay, WOT AC Cutout Relay

Note: This information based on diagrams in the Ford EVTM's for the appropriate year. If it is incorrect, blame Ford's literature, not me.

The CLUSTER and ANTI LOCK fuses are located in the Primary Junction Box in the passenger compartment and the ABS MOD and ABS MTR fuses in the Power Distribution Box in the engine compartment.

Basic Troubleshooting

Most of the problems associated with this system seem to revolve around the electrical operation of the Hydraulic Pump Motor and the Accumulator. So let's describe what some of the common symptoms are and what you can do about it.

Problem: Hard pedal with the Amber Anti Lock and Red Brake Lights always on.

The hard pedal is an indication of no power assist which we now knows means the Accumulator is not pressurized or the hydraulic pump is not running to pressurize the system. You should also realize that you don't have ANY rear brakes too. Run the Self Test and see the Amber Warning Light goes out in 4 seconds. Have an assistant stand by the open hood to listen for the Hydraulic Pump Motor to run when you start the car.

If the pump runs most likely you have a bad Accumulator or the pump is not being supplied with fluid because sediment has plugged the low-pressure hose leading from the reservoir. **Check to see if the hose is unplugged and if that doesn't correct the problem replace the Accumulator. If this doesn't fix your problem you are into a high buck Pump Assembly replacement. (You already replaced the Accumulator so don't buy another one now).** For reference you should be able to press on the brake pedal from 5-8 times without the Hydraulic Pump Motor running. If this is not that case you are due for an Accumulator soon.

If the pump does not run you now most likely have an external electrical problem although it is possible the pump motor is shot. Here is how to tell what is what. With the Ignition Switch off depress the brake pedal 20 times to ensure the system is fully depressurized. Turn the Ignition Switch to Run the pump should run. If not, disconnect the 4 pin connector on the pump. Use a multi meter to measure the voltage on the pins of the harness connector. The two positive pins are on opposite side of the connector as are the negative pins. Measure from one positive to one negative pin. (See figure 3). You should measure **more than `10V DC. If you don't, potential problems include either the Hydraulic Pump Motor Relay, The Pressure Switch or the wiring harness between them all.**



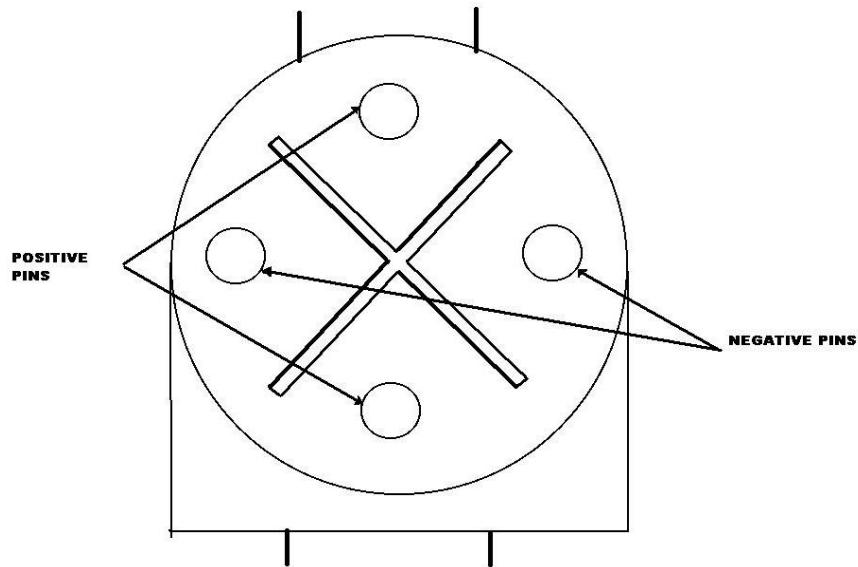


Figure 3 Four Pin Motor Connector

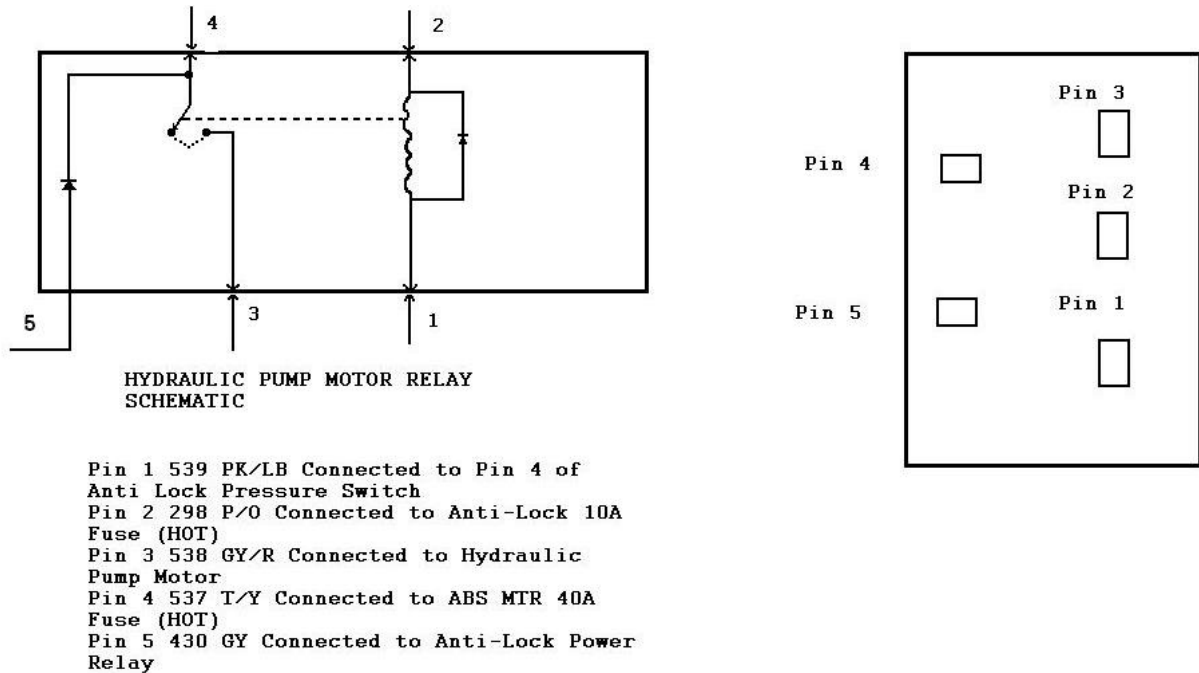


Figure 4 Hydraulic Pump Motor Relay Schematic and Pin-out

The failure of the Hydraulic Pump Motor Relay is a common occurrence. The normal failure modes are the contacts welded themselves shut causing the Hydraulic Pump Motor to run continuous or the relay failing to close that prevents normal pump motor operation. To verify relay operation it would be possible to disconnect the harness connector to the Anti-Lock Pressure Switch and ground pin 4 of the connector to ground. (See Figure 5) This will complete the circuit for the coil of the Hydraulic Pump Motor Relay and should cause the pump to turn on. If the pump does not run, most likely the relay is bad and must be replaced. If the motor does run, the Pressure Switch may be the faulty part and should be



replaced. The FORD Shop Manual states that if the Pressure Switch is replaced the Hydraulic Pump Motor Relay should be replaced as well.

Problem: Anti-Lock Warning Light and Red Brake Light come on after brakes applied.

Most likely this is indication of a weak or bad Accumulator. If you have this symptom it is important to fix it as soon as you can because you are cycling the Hydraulic Pump Motor unnecessarily which will cause this high buck part to fail sooner than it needs to.

Problem: Red Brake Light comes on when accelerating or braking or going around a corner hard.

Probably your brake fluid level is a tad low. Angles and dangles on the car are causing it to pick up the level sensor. Make sure your system is pressurized when you check / add fluid **since the Accumulator will "store" an appreciable amount of fluid. This will cause the level to go down as the system is pressurized at start up.** Where did the fluid go you might ask? Assuming you have no leaks it probably is as a result of the brake pads in your calipers wearing. As they wear, more fluid is required to keep the caliper pistons maintained in the proper position for braking action.

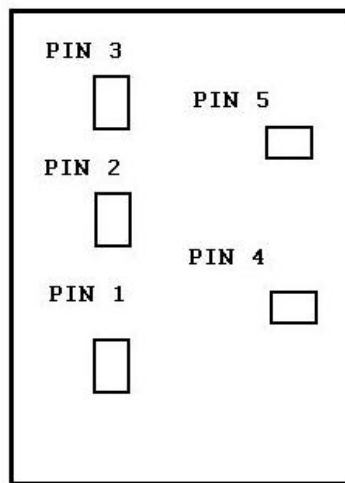


Figure 5 Anti-Lock Pressure Switch Pin-out

Other Problems that might be troubleshot by the DIY

Just like the EEC, the ABS System has a Test Connector which may be used to download error codes from the ABS Electronic Controller. It is located on the right rear quarter panel trunk area. The types of codes present here will be basic system faults that will cause the Amber Anti-Lock Warning Light to remain lit even after 4 seconds have elapsed on the Self-Test. As far as I know, any aftermarket Code Reader that is compatible with the FORD EEC System can be used to access these signals. Two things to be aware of though. One, if the first code received is in the 20's, service the indicated fault. No other codes can be



outputted to the code reader if a 20's fault exists. After servicing the 20's code repeat getting codes from the Electronic Controller. Two, the memory can be cleared only by reading all codes present, all faults being corrected (anti-lock warning light off) and the vehicle being driven above 25 MPH.

The troubleshooting techniques used for these types of problems are more involved than what is commonly used, but I have included the Service Codes for those of you that are more adventurous. I have tried to give a short summary of what checks are made but if it is not something obvious you are going to have to get the manual or visit a dealer unfortunately. I included this to give you a direction to look for the obvious rather than becoming an ABS Expert Troubleshooter. There are other checks detailed in each Pin Point Check Section other than what I am listing.

Service Code	Component
11	Electronic Controller (Clear memory Read codes ... get 11 or 99 replace Electronic Controller)
12	Electronic Controller-Replacer (Clear memory Read codes...get 12 replace Electronic Controller)
21	Main Valve (Disconnect main 2 Pin Plug on Hydraulic Actuator Assembly & measure resistance. 2 to 5.5 Ohms, service cable harness, any other reading replace Actuation Assembly)
22	LH Front Inlet Valve (Disconnect 7 pin connector on Valve Block, measure resistance Pin 7-6, 5-8 ohms service harness, other reading replace valve block).
23	LH Front Outlet Valve(Disconnect 7 pin connector on Valve Block, measure resistance Pin 7-5, 5-8 ohms service harness, other reading replace valve block).
24	RH Front Inlet Valve (Disconnect 7 pin connector on Valve Block, measure resistance Pin 7-1 5-8 ohms service harness, other reading replace valve block).
25	RH Front Outlet Valve (Disconnect 7 pin connector on Valve Block, measure resistance Pin 7-2, 5-8 ohms service harness, other reading replace valve block).
26	Rear Inlet Valve (Disconnect 7 pin connector on Valve Block, measure resistance Pin 7-3, 5-8 ohms service harness, other reading replace valve block).
27	Rear Outlet Valve & Ground (Requires use of EEC Break-out Box)
31	LH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
32	RH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
33	RH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel



	sensor)
34	LH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
35	LH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
36	RH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
37	RH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)r
38	LH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
41	LH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
42	RH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
43	RH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
44	LH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
45	LH Front and one Other Sensor Signal (Requires EEC Break-out Box to check harness)
46	RH Front and one Other Sensor Signal (Requires EEC Break-out Box to check harness)
47	Missing both rear sensor signals (Requires EEC Break-out Box to check harness)
48	Missing three of four sensor signals (Requires EEC Break-out Box to check harness)
51	LH Front Outlet Valve (Requires EEC Break-out Box to check harness)
52	RH Front Outlet Valve (Requires EEC Break-out Box to check harness)
53	Rear Outlet Valve (Requires EEC Break-out Box to check harness)
54	Rear Outlet Valve (Requires EEC Break-out Box to check harness)
55	LH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
56	RH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace



	wheel sensor)
57	RH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
58	LH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
61	Fluid Level Indicator Circuit (FLI)and Pressure Warning Switch (PWS) Circuit (For FLI disconnect 5 pin connector on fluid reservoir measure pin 1 & 2 for resistance > 2 ohms replace indicator, For PWS disconnect Pressure Switch connector measure pins 3 & 5 should have a short if not replace Pressure Switch FOR PWS CHECK SYSTEM MUST BE PRESSURIZED)
71	LH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
72	RH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked for continuity to vehicle ground. If there is continuity...replace wheel sensor)
73	RH Rear Sensor ((Requires EEC Break-out Box to check harness but sensor can be checked for continuity to vehicle ground. If there is continuity...replace wheel sensor))
74	LH Rear Sensor (Requires EEC Break-out Box to check harness but sensor can be checked for continuity to vehicle ground. If there is continuity...replace wheel sensor)
75	LH Front Sensor Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
76	RH Front Sensor (Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
77	RH Rear Sensor Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
78	LH Rear Sensor Requires EEC Break-out Box to check harness but sensor can be checked 800 - 1400 Ohms is good. Other than that...replace wheel sensor)
88	Electronic Controller (Clear memory Read codes ... get 11 or 99 replace Electronic Controller)
99	Electronic Controller (Clear memory Read codes ... get 11 or 99 replace Electronic Controller)

If you come up with Wheel Sensor Codes make sure to check the indicator rings for missing teeth or other damage. It is also important to maintain proper gap between the sensor and



the rings. Although this is not adjustable, faulty wheel bearings may allow the wheel to “float” axially too far, which can be a source of problems.

Self Induced Potential Problems

Given that signals are generated from each wheel sensor that is proportional to the speed of rotation, changes to wheel diameter may have a detrimental effect on the ABS System. This is particularly true for those that choose to run different tire sizes front to back. This difference in tire height will be seen as the wheels rotating at different speeds thus giving the Electronic Controller potential problems. This could cause the ABS System to actuate **when neither warranted or desired or may prevent it's proper operation when needed.**

Please be careful when making changes in tire sizes or brands of tires. Some TEVES ABS systems can be reprogrammed to compensate for changes made to the tire size on the vehicle. Unfortunately the FORD TEVES System is not capable of that.

Another area of potential problem is the manner in which the brake system is bleed. Since this is a High Pressure ABS System certain procedures must be followed to perform these operations. Front Brakes can be bleed in a conventional manner either with the Ignition Key ON and the system pressurized or with the system depressurized. Rear Brakes are a different matter altogether though. The Ignition Switch must be ON and the system pressurized to get this bleed operation to work. Be aware that the system will have a lot of pressure on it so the brake pedal does not have to be pressed very far to get flow to the rear brake circuit.

When you decide to change your own brake pads here is another thing to think about.

When the brake pads are pressed back into the caliper, any “junk” in the lines will be forced back into the ABS Hydraulic Actuator Assembly possibly contaminating the system. My suggestion is to bleed the brake system before doing the brake job to flush out some of the contaminants from the system before they can do damage. An alternative is to clamp off the brake hose but personally I am not too fond of that method.

Choices in remanufacturing your ABS Hydraulic Actuator Assembly

Given that FORD wants in excess of \$1500.00 for a new Hydraulic Actuator Assembly I think you better consider a rebuild of your present unit as an alternative. In preparation for doing this article I contacted two reman companies for our TEVES ABS System. The two choices are Cardone Industries and SIA Electronics. I do not have much to say about what Cardone can do since even though I contacted their Marketing Department twice for information they did not provide any to me. I do know that they will not deal with customers directly preferring to deal through distributors only. I was unable to determine their entire network of distributors but do know that Car Quest is one company they deal with.

Our other choice at present is SIA Electronics. I contacted Mr. Bryce Elledge who was very forthcoming with information concerning what his company can do for us. I quote a portion one of the two E Mails I received from Mr. Elledge concerning their process.



"THE THREE MAIN HYDRAULIC COMPONENTS (PUMP, VALVE BLOCK, & MASTER CYLINDER) ARE BROKEN DOWN CLEANED AND REBUILT. REBUILT MEANS REPLACING OF SEALS, O-RINGS, VALVES, SPRINGS, AND ANY OTHER NECESSARY INTERNAL COMPONENTS. UNITS SUCH AS THE ACCUMULATOR, PRESSURE SWITCH, MOTOR, LOW PRESSURE HOSES, HIGH PRESSURE LINES, AND OTHER COMPONENTS ARE TESTED AND REPLACED / REBUILT ON AN AS NEEDED BASIS. SOME OTHER COMPONENTS (RESERVOIR, FIREWALL GASKET, PUSH RODS, PLUGS, MOUNTING BOLTS, & OTHERS) ARE NOT READILY AVAILABLE TO US AND CAN NOT BE REPLACED.

THERE MAY BE SOME COSMETIC FEATURES THAT WE CAN NOT DO MUCH WITH, SUCH AS THE RESERVOIR, AND BROKEN PLASTIC ON PLUGS. THE REST OF THE UNIT WILL BE PAINTED A CAST COLOR FOR COSMETIC VALUE. ALL OF OUR UNITS WILL BE SHRINK-WRAPPED, AND PACKAGED USING A FOAM IN PLACE SYSTEM WHICH MOLDS AROUND THE UNIT TO PROTECT IT IN SHIPPING. IF THERE IS A CORE RETURN WE ASK THAT THE RESERVOIR BE DRAINED AND THE SAME FOAM AND BOX BE USED FOR THE CORE RETURN. THIS PROTECTS THE CORE COMING BACK TO US.

YOUR MEMBERS NEED TO MAKE SURE THAT THE UNIT THEY ARE SENDING IN FOR R&R IS HIGHLY PROTECTED FOR SHIPPING PURPOSES. THE SHIPPING COMPANIES DO NOT HANDLE THESE PACKAGES WITH CARE. WE HAVE RECEIVED SEVERAL UNITS WITH BUSTED PLUGS, BENT PUSH RODS, AND OTHER COMPONENTS DAMAGED IN SHIPPING. MANY OF THE DAMAGES WE CAN NOT REPAIR OR REPLACE. PLEASE STRESS THIS POINT TO YOUR MEMBERS. " (Emphasis added is mine)

SIA Electronic has been rebuilding the TEVES ABS Units since 1995. They are able to perform work on both the Mark II systems as well as the Mark IV's of the later years. I quote from a second E Mail from Mr. Elledge which details their pricing structure. In addition SIA has offered a Club Discount pricing structure for multiple ABS Units sent in as a package for rebuilding. I defer to our President for details since he negotiated the price after speaking with Mr. Elledge.

Year	System Type	SI#	Standard Cost	SCCoA Cost	Member Discount	Core Deposit	Comments
1987	Teves II	274120	\$747.50	\$672.75	\$74.75	\$200.00	Before 7/87
1987 - 88	Teves II	274119	\$747.50	\$672.75	\$74.75	\$200.00	After 7/87
1989-92	Teves II	274118	\$747.50	\$672.75	\$74.75	\$200.00	
1993	Teves IV	T403	\$286.00	\$257.40	\$28.60	\$100.00	
1994 - 96	Teves IV	T413	\$370.50	\$333.45	\$37.05	\$100.00	W/Traction Control
1994 - 96	Teves IV	T412	\$370.50	\$333.45	\$37.05	\$100.00	WO/Traction Control

Note: SIA also repairs EEC modules for \$81.66 with a \$50 core and shipping charge

Shipping costs will depend on the UPS method requested

EX: Ground, Next Day, 2'nd Day, or 3'rd Day

Next day shipping does not imply that your unit will be shipped the next day after we receive it. Only that when it is rebuilt we will ship it in the requested manner.



The pricing sheet shown on the previous page shows the discounted price that a SCCoA member will pay for an individual ABS unit repair to "like new" condition. SIA has also offered a further discount if our club can offer them five Teves II units at once. I have offered to collect these units until five are accumulated and then send them all to SIA. The cost for remanufacturing 5 or more units is \$625.00 per unit, for a total savings of \$122.50. If you would like to take advantage of this group discount, contact Bill Evanoff. If you would like to have an individual Teves unit remanufactured, then you may contact SIA directly. Your current SCCoA membership will be verified by SIA.....Bill Evanoff

This would seem to me to be a lower cost alternative for those that choose to have the work done. **SIA Electronics can be contacted at 1-800-327-6338.**

References

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<http://www.serviceinsights.com/main/tech/techarcv/0897brk6.htm>
<http://www.autotruck.net/library/brakes/breaks1.asp>
<http://www.serviceinsights.com/main/tech/techarcv/1198pond.htm>
FORD Electrical & Vacuum Troubleshooting Manuals for the Model years 89-92
FORD Thunderbird Cougar Shop Manual 1989 Model Year.

Credits

I would like to thank the following people for their assistance in assembling the necessary technical information for this article.

Mr. George Davenport
Mr. Bryce Elledge
Mr. Lee Yaccarino
"SC Kido" Mr. Luis Garcia
"Kar Doktor" Mr. Craig H. Donor

But this I say, He which soweth sparingly shall reap also sparingly; and he which soweth bountifully shall reap also bountifully. Every man according as he purposeth in his heart, so let him give; not grudgingly, or of necessity: for God loveth a cheeful giver.
II Corinthians 9:6-7



Super Coupe Heaven

By Jimmy White

Before owning a Super Coupe, I had a 3.8 liter Thunderbird LX. It was a nice car but left something to be desired in the power department. I was seriously thinking about trading it in for a car with more get up and go. I liked the late model T-bird body style so I was thinking maybe I'd trade it in for a Thunderbird LX with a V8. On rare occasions, I'd see a Super Coupe but I really didn't know anything about them so I started looking around for any information I could find on the SC, and the more I learned, the more I wanted one. Then one day in the spring of '94 Bev and I pulled into a Ford dealership just to look around, not really serious about buying anything at the time. They had one new Super Coupe on the lot, so we test drove it and that was it...I was hooked! It was black with an automatic transmission, full gray leather interior and was loaded with everything but an alarm system, a CD player, and a phone. After a few days we went and picked it up and proudly drove it home. I had my first Super Coupe.

I really loved this car... but... after a couple of years I started looking around to see what I could do to make it a little quicker. Much to my surprise, I couldn't find anyone that made performance parts for a SC other than underdrive pulley's which didn't interest me at the time. At about this same time I started thinking that maybe I should've waited and ordered a five speed. I even entertained the idea of converting my automatic over to a five speed but after considering everything that it would take to do it, that idea quickly passed. One day while looking through an issue of SuperFord Magazine I came across a small ad for blower upgrades for the Thunderbird SC. I called the number and the guy asked me if I had heard of the Super

Coupe Club of America. I told him no, so he gave me the number. When I called, I got Bill Hull and after speaking to Bill for a few minutes it became apparent that he knew a lot of information about SC performance upgrades and that this was the place I was looking for. I immediately joined.

By now I was getting serious about owning a five speed so I started looking through auto traders to see what was out there. My plan was to find a used 94 or 95 five speed exactly like my 94 at the right price, buy it, and sell my 94. In the spring of '97, after a lot of auto traders and phone calls I found my '95 five speed. This car was exactly like my '94 except it didn't have a JBL sound system, an electrochromic rear view mirror, and only the drivers seat was six way power. It had 34,000 miles on it and one year or 2000 miles left on the warranty. After mucho haggling about the price, I bought my five speed. The only problem was, when it came time to put my '94 up for sell, I just couldn't do it. I had babied it since day one. With only 24,000 miles on it and an extended warranty, I'm sure it would've sold easily but I really loved the car. So now I had two SC's. I decided the five speed would be the one to make a little faster but I wanted to wait awhile and get any little problems that popped up fixed while it was still under warranty and to decide exactly what I wanted to do to it.

I received my first issue of Chargin' Thunder, the March 97 issue, and it was loaded with information about SC's. It also had information about the SCCOA club meet at an upcoming All Ford Nationals in Carlisle Pa in June, so Bev and I decided to go. When we got there we really didn't know what we were doing so we parked in the spectator's section planning to walk to the show field and find the SCCOA. Then this guy walked up and introduced himself as Rich Thomson and he



asked us to join the club on the show field. After registering we parked with the club and met some great people. There was a lot of great looking SC's there, and I got a chance to see what some of the aftermarket parts looked like on some of the cars. The last day there, I watched a guy take out his air box and intake resonator to install a nine-inch conical filter he had just purchased. I left that day with lots of information and ideas.

Taking out the intake resonator would be my first mod so when I got home I pulled it out. I really couldn't tell if there was any increase in power, but throttle response seemed a little better and I liked the increased intake sound. Then I converted the manual passenger seat over to six way power. I took it to Milan dragway for the first time in Aug 97 and ran a best of 15.374 @ 90.72 mph with a 2.410 60' with the only performance mod being the intake resonator removed. This was also my first time at a dragstrip. Although I was a little disappointed with the time, I knew it would get better after I had some more track experience. Also, traction was lousy, wheel hop abundant, and Bev never let's me forget about the full tank of gas I had. I had met Neil Frisbee that August **at the '97 Ford Expo in Columbus OH and I had him make a 3/4" raised and enlarged blower outlet for me.** I installed this next along with some 3.27:1 gears, an SCCOA true dual exhaust system (stock manifolds and cats), got some BFG 255-50-16" Comp TA's, a K&N panel filter, and an intercooler fan. I **went back to Milan in October '97 and ran a best of 14.737 @ 92.24 mph with a 2.216 60'.** Traction was better with the wider tires, but **still wasn't all that great.** In the spring of '98 I installed some SCCOA short tube headers with matching 2.5" downtubes, a C&L 73 mm MAFS, an SVO 5% overdrive pulley, some Magnecor 8.5 mm plug wires along with some Autolite double platinum plugs, and had a 190 LPH fuel pump put in. After these last

modifications the car was much slower and there was a lot of problems I had to work out. A few more times at the track netted a best of 14.989 with all the other run's being in the low to mid 15's. I won't go into the many problems, but one big problem was the car would buck hard under full throttle but not all of the time. It wasn't a continuous bucking and it only did it in first and second gear. It would buck once and if I stayed on the throttle it would buck again two or three seconds later. It would do this every time I went to the track after the header installation. For a long time I thought it was a belt slipping. After putting on new drive belts and making sure the tensioners were ok, I came to the conclusion that there was no way any of these belts were slipping. I checked plugs, wires, and had the fuel pressure checked, but **found no problems.** In the fall of '98 I put my SC's up for winter storage, but 1998 was not a good year for my 95 SC.

In the spring of '99, after getting some of the problems worked out, I sent my blower to Magnuson Products to have it "S" ported and had my inlet plenum port matched to my new BBK 70MM SC throttle body. Then I installed the MN12 Performance exhaust system, MN12 Performance polyurethane differential bushings and a Pro-M 75 mm billet MAF. I also had a Wings West Custom rear wing put on. I took the car to Milan in late spring and the bucking problem was still there, but it was even worse. That's when I began to notice that it seemed to be related to the amount of gas in the tank. Under a half tank it would do it but a half tank or more it wouldn't. Whenever I went to the track I always had around a quarter tank. I took the car back to the Ford dealership that had installed the 190 lph fuel pump and told them I wanted it checked to see if it had been installed correctly. They told me there is only one way it can go in but they would check it. When they pulled the tank, they found the



fuel pump reservoir that's glued to the bottom of the tank had broken loose and was floating around. The fuel pump sits down inside the reservoir and under heavy acceleration with a low tank, it wouldn't hold gas for the fuel pump. One new gas tank later, I had FINALLY solved the bucking problem! I ordered some BFG 255-50-16" drag radials and had them mounted on some '97 t-bird sport wheels that I was able to get hold of. The blower that had recently been **"S" ported was rattling, so I sent it back to Magnusons to have it rebuilt under warranty.** After putting the blower back on I went to Ford Superfest at Milan dragway in July and ran a best of 14.469 @ 94.33 mph with a 2.064 60'. My times were headed back in the right direction but I was sure the car could do better than this. I then discovered I had a broken motor mount which I'm pretty sure had been that way since my 14.737 run in **October of '97.** After changing the motor mounts, I installed the ASP underdrive pulleys that had set in my garage for over a year. I also installed some H&R lowering springs, an Addco 1 1/4" rear sway bar, an MN12 Performance intake tube that was powder coated black, a Kenny Brown strut tower brace, and I installed a 9" K&N conical filter in the fender well attached to the bottom of the stock air box. Then I found that one of my spark plugs was gapped at .042", so I put some new stock Motorcraft plugs in gapped at .054". I also returned my Magnecor plug wires for a new set because I was having problems with the set I had. The new set had different coil pack connectors which are much better than the ones I had received before. The SCCOA Midwest chapter mini meet at Milan dragway was coming up in October and I figured I was set.

The turnout for the mini meet was pretty good and I was pleasantly surprised by the number of people that showed up. Although I had a great time at the meet, the best I

could run was a 14.395 @ 95.95 mph with a 2.228 60'. For me, traction was terrible, and I believe a lot of the other people that ran their cars that evening felt the same way. I was pretty disappointed with my times, so on the spur of the moment, Bev and I went back to the track the next day, which was a Saturday, and I ran a best of 14.105 @ 94.69 mph with a 2.016 60'. That was much better...and traction was much much better. It was around 68 degrees when I ran the 14.105, so I figured 13's was only a cool day away. I started watching the weather channel waiting for the perfect day. It had to be on a Saturday or Sunday because it seemed I could hook better at Milan dragway on a weekend as opposed to a week night. Why?...I don't know. That day came on Sunday, October 24th. It wasn't perfect, but it was cool. The gates opened at 9:00AM and I got there around 9:05AM. After going through tech I parked the car, put a bag of ice on the intercooler, and waited for it to cool down. It was an overcast morning with a pretty good head wind that I would be driving straight into. I thought...this is not good. Bev had followed me there in her truck and she laughed when I asked her if she thought I should wear the helmet that I had borrowed just in case I got into the 13's. After waiting a little longer I thought, it's time. I adjusted the tire pressure to 20 pounds in the drag radials and pumped the front tires up to 45 pounds. It was about forty degrees out when I made my first run and the results were a 13.966 @ 98.28 mph with a 2.076 60'. I did it! 13's had been a goal of mine for quite awhile...I'd wear the helmet on the next run. The car cooled off for about twenty-five minutes before my next run which was a 13.883 @ 99.33 mph with a 2.019 60'. After cooling the car off another thirty minutes it went 13.861 @ 99.37 mph with a 2.037 60'. Then I let the car cool for almost an hour and ran my best time ever. It was about forty-four degrees out by now and



I ran a 13.778 @ 99.31 mph with a 1.969 60'. WOW!! I thought it would be possible to break into the high 13's in the cooler weather but 13.77 was much better than I had expected. I made one more pass but could only get a 13.873 @ 99.29 mph with a 2.049 60'. What a day!!! The only downside to all those 13's is I think one of my motor mounts went to motor mount heaven. I haven't had a chance to look them over real good yet but if I have to do the mounts again, I'll definitely put solid ones in.

Just a few years ago I didn't know jack about SC's and there is still a lot I don't know. But thanks to the SCCOA, MN12 Performance, SCCOO, TCCOA, and many others, I was able to learn about Super Coupes through the **BBS's and Chargin' Thunder** articles. I'd also like to thank Bill Evanoff and Ron DiPaola for the great job they have done in revamping the SCCOA web site which has been a very good source of information for all.

The current list of modifications for my 95 SC is:

- Intake resonator removed

- K&N conical filter
- Pro-M billet 75MM MAFS
- MN12 Performance intake tube powder coated black
- BBK 70MM SC throttle body on port matched inlet plenum
- S-modeled supercharger
- Neil Frisbee made 3/4" raised and enlarged blower outlet
- SVO 5% overdrive pulley
- ASP underdrive pulleys
- Magnecor 8.5 mm plug wires
- Intercooler fan
- 190 lph fuel pump
- 3.27:1 gears
- SCCOA short tube headers
- MN12 Performance exhaust
- MN12 Performance polyurethane differential bushings
- H&R 1.5" lowering springs
- Addco 1.25" rear sway bar
- Kenny Brown strut tower brace
- Wings West rear wing
- BFG 255-50-16" D.R's for the track
- Manual passengers seat converted to six way power

Dilbert's Salary Theorem

Dilbert's "Salary Theorem" states that "Engineers and scientists can never earn as much as business executives and sales people." This theorem can now be supported by a mathematical equation based on the following two postulates:

Postulate 1: Knowledge is Power.

Postulate 2: Time is Money.

As every engineer knows: $\text{Power} = \text{Work} / \text{Time}$

Since: $\text{Knowledge} = \text{Power}$ & $\text{Time} = \text{Money}$

$\text{Knowledge} = \text{Work} / \text{Money}$.

Solving for Money, we get:

$\text{Money} = \text{Work} / \text{Knowledge}$.

Thus, as Knowledge approaches zero, Money approaches infinity, regardless of the amount of work done.

Conclusion: The less you know, the more you make.



Super Coupe Club of America

