

Bubba's Garage, Newport, Indiana October 3-5, 2003

Great weather and hundreds of cars (the most modified T Speedsters ever) made this Newport Hill Climb the best ever!

We started out moving the garage, van and campers to Newport on Wednesday and the trip went very smooth. It seems that something happens to make each year exciting on the trips back and forth. This year was no different as we had a trailer come loose on the way home one evening. Terry was driving my PT Cruiser pulling a empty trailer when "BANG!" the trailer tongue hit the pavement and was dragging behind the vehicle on the safety chains. Terry not being overly experienced at this yelled "what do I do?" and I quickly said try to keep the trailer from hitting the vehicle as you slow down. We were on a four lane section of highway 63 with little traffic when this happened and it seemed like days slowing down to zero with the trailer jerking the cruiser side to side. Once stopped with little or no damage done I looked over and Terry was hanging on to the steering wheel with very white knuckles. I looked at him and said " you handled that really well for an old guy" to which he replied very sternly " I ain't ready to laugh just yet!". It appeared that the hitch pin had fallen out of the receiver, something I have never, ever had happen before in my many, many years of towing! I later found the clip in our parking lot at the shop meaning that we had towed the golf cart to Newport without the clip. Needless to say, the receiver is now bolted in with no clip!! Another lucky Newport trip!!

Friday went really well as we worked on a few easy to fix old cars and I got to run my newest vehicle (1922 Ford Model T) up the hill for the very first time. WOW , my new Potter hopped up engine pulls the hill in high gear with two people in the car, although this new modified engine is faster that my sloppy steering!! Danny (Peggy's husband) worked the van this year with some new stuff from our latest www.bubbagrub.com web site and almost sold out of the special Jeff Fink 1927 Chevy truck t- shirt on Friday. I guess next year we will bring more.



Bubbas trailer park has now grown to 6 teardrop trailers, 3 tents and my latest "jewel" an 1956 Aluminum 16-footer that sleeps four. We used this trailer as our office and booze trailer as it has a working fridge etc. A fire ring was formed and we burned a truck load of wood Friday and Sat evenings. Some "genius" come up with a new Hill Climb event that may become an annual sanctioned event as well, with a big wheel race DOWN the hill at midnight. The little kids big wheel race is held Saturday afternoon on the starting line and the big wheels were just laying in the alley for the time trials! It appears that alcohol causes some bad judgment in the respect of how fast a big wheel would run down the hill.



Analysis from the “Sleuth”, Michele Winn



This month's case study is a 1993 Chevy 3500 w/ 7.4L engine. The truck came to me from a shop in Southern Indiana. The complaint: check engine light on with knock sensor code. When it arrived, the first thing I noticed was the lift kit which made it a real joy to work on, especially for me! The shop that brought it to me had already replaced the knock sensor, the distributor and ran a completely new wire from the knock sensor to the ECM. I was curious about what was going on to say the least. After climbing into the driver's seat for a test drive, I noticed that the light came on almost as soon as I started the vehicle. I decided to take it for a quick spin to see if there were any other problems that needed to be addressed. Test drive was fine (if you don't mind driving something that big) so I pulled it into the shop to hook up a scan tool. Sure enough, the Tech 1 showed a code 43. I went down the data list to see the “knock signal” pid which showed “no”. I tapped on the engine block near the sensor and watched the reading change to “yes”. Seems like it's working, so I cleared codes. Again, shortly after start-up, the check engine light was back on. At this point, I had done all the quick checks on that circuit that I knew how to do without looking for additional information. Hey, I figure with all the different makes and models of vehicles I'm expected to work on, I can't possibly remember everything, right? Most of those brain cells are now taken up with pin numbers and such :)

I decided to consult Motor/Alldata for a flow chart and wiring diagram. For those of you that may be new to reading my case studies, let me give you one word of caution with regards to flow charts. I believe that they can be helpful at times, but if followed blindly, they will bite you! With that said, I read thru the chart quickly and then read the circuit description and diagnostic aids that usually follow at the end of the flow chart. Under the heading “circuit description” is where I found the biggest clue to the problem. It says that there are two code 43 checks performed by the PCM. One monitors the 5V reference voltage. The other check isn't performed until engine reaches operating temperature and the PCM will perform a self-test by advancing the ignition timing and anticipating a knock signal. If no knock signal is received during 2 consecutive tests, the code will set. Since the check engine light comes on right after starting the vehicle, we know that we are failing the first test where the PCM is monitoring the 5V reference line. Knowing that, the next thing we need to find out is what is the PCM looking for on that wire? Under the heading of “diagnostic aids” we find the explanation that the PCM applies 5V to the circuit. A 3500 ohm resistor in the knock sensor reduces that voltage to around 2.5V. So, with the Knock sensor plugged in, there should be around 2.5V on the knock sensor wire. When I checked that wire, I had close to 5V. You don't have to be a math whiz or a pro at using ohm's law to know that if the reference voltage has only dropped a few tenths, the resistance in the knock sensor must be very low, correct? The flow chart instructed me to remove the knock sensor connector and check the resistance between the knock sensor terminal and the engine block. I found about 100 ohms. AHA! It needs a new knock sensor, right? I ordered a new knock sensor and nervously waited for it to arrive. How could this be such an easy fix? After all, this truck had been at the DEALER and had the sensor replaced and also been at an independent garage who had also replaced the sensor along with the PCM and wire. What were the odds that another new sensor would fix the problem? While I was waiting, I walked into our classroom and found that we had a new knock sensor mounted on a board as a part of a classroom simulator. I “borrowed” it from the simulator thinking I would replace the part and finish the job instead of waiting on the new part. With the new (borrowed) knock sensor installed, I went back and did all the checks again. This time everything was fine. Even though I re-checked everything and even went for a lengthy test drive, I was still cautious that the truck was really fixed. I couldn't understand why such a seemingly easy fix gave more than one shop such a problem.

Why did the dealer and the independent shop have such trouble getting this truck fixed? I found out the answer shortly after the new knock sensor arrived from the local parts store. The new knock sensor was ordered by application and the sensor I received had a resistance of 100 ohms. Remember, the one I removed from

Analysis from the “Sleuth” (cont. from page 2)

the truck also had a resistance of around 100 ohms. The one we had laying around that I used as a “test” part had the proper resistance of 3500K ohms. I called the parts store back and made them re-check the part number to be sure that they had brought me a knock sensor for a 1993 Chevy Truck with a 7.4L engine. Yes, the part number in their book for this application matched the one the had just dropped off. I asked him to look up the part number for a knock sensor on an early ‘90’s Chevy tuned-port engine and it turned out to be a different part number. I had him send one of those and sure enough, the resistance on it was 3500 ohms. Turns out the dealer and also the independent shop had made the correct diagnosis by replacing the knock sensor, but they were getting the wrong parts. Because they didn’t entirely understand how the system worked, when a new sensor didn’t fix the problem, they weren’t sure what to do.

In the meantime, Randy Dillman, one of our Guru school instructors, called and I told him about the interesting situation I ran into with the part numbers and knock sensors on this particular truck. He informed me that the parts books are incorrect and he had run into similar situations in the past. He now orders by part number, not by application to ensure he gets the knock sensor with the correct resistance. He also informed me that recently he added a similar case study to the material that he teaches during Guru schools. So, for those of you who are recent Guru school graduates, you may remember hearing Randy discuss a similar case study. Unfortunately for me, it was way back in February of 2000 when I sat thru an entire Guru school, so I had to find this out the hard way. Hopefully this will save some of you time and money in the future.

Bubba’s Garage, (cont. from front page)

The other bad guess was how in the world would you ever stop one from that speed?? As the official starter from the bottom, I was amazed how loud these 6 big wheels were coming over the hill, as it sounded like a heard of runaway cattle coming over the hill on the dimly unlit street! Listening for the noise we were all shocked to see the first 2 fly past our position at the bottom of the hill . WOW they must be going 40 mph! Just as they broke into our view they both crashed as the wheels on the rear melted from the load and speed! Both guys scooted past us with sparks and gravel flying everywhere and I was sure someone was really hurt in his awful looking crash. In reality, jeans and a leather wallet saved their butts and one of the riders destroyed a pair of new shoes after dragging their toes on the pavement. If there is a next time , jeans, jackets and helmets will be required and maybe in the rules wheel bearing should be allowed just for safety sake. The picture on the right is of Michele’s “trikester” that she will run in the 2004 big wheel race at Newport. Of course, this picture is before any modifications have been made.



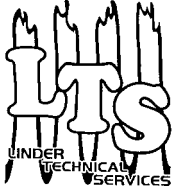
Sunday was another great weather day with a record numbers of vehicles running the hill as well as a very large car show on the streets. Looking for something neat for the family to do the first weekend of October next year? We actually have crew from many different states and one even flew into Indy for the event this year! Join us at Bubbas Garage as we always need technicians to help fix the cars and maybe camp with the trailer trash group in Newport.

Jim Linder, AKA " Bubba from Bubbas Garage"

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In The News

NEW FUEL ECONOMY RULES PROPOSED: Automakers will have to increase the fuel economy averages of SUV's and pickup trucks if the National Traffic Safety Administration (NHTSA) follows through on proposals announced last week. The agency says it will try to close loopholes that hold those vehicles to a lower standard than passenger cars. Reuters reports the agency's proposals, which will be open for public comment, could include putting fuel economy rules on vehicles with a Gross Vehicle Weight (GVW) of more than 8500lbs., and could revamp the Corporate Average Fuel Economy (CAFÉ) rules to base them on vehicle weight rather than vehicle type.

The proposed rules are expected to draw a lot of attention from auto-industry lobbyists. They likely will scramble to protect their own companies' lineups of vehicles and to push the burden for any fuel-economy improvement onto competitors. Even slight changes in the Corporate Average Fuel Economy, or CAFE, rules could shift the balance of power within the auto industry, creating new winners and losers.

FYI: Currently, the government requires an auto maker's entire fleet of new passenger cars to average 27.5 miles per gallon. The requirement for light trucks, now 20.7 mpg, will rise to 22.2 mpg by 2007 under a recent Bush administration change.

It will be interesting to see what changes take place in the light truck and SUV market to meet the new requirements!