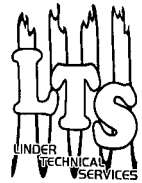


# Networking

*Newsletter*



## Guru-II....the biggest yet!

This year we had record attendance for Guru-II which was held on February 11-13, 2005. Previously we have hosted Guru-II classes in 2000, 2001 & 2003 with attendances of 39, 16 and 38 respectively. This year we had the biggest class yet with 47 students and we still found a way to hold classes here at our shop!

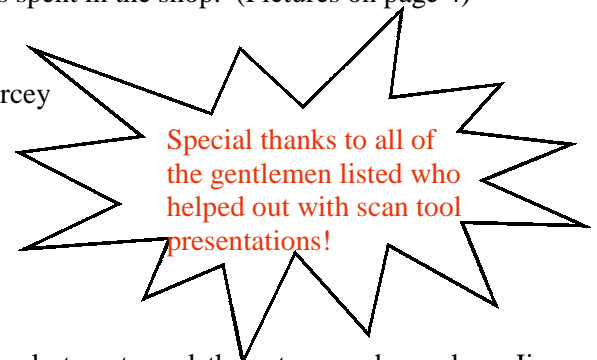


Classes began at 1pm on Friday with John Thornton teaching the latest version of his Ford Coil-On-Plug Ignition System class. As always, John left the group wanting more! Dinner was ready right on time thanks to Peggy and Susan who always make sure none of the guys go hungry. After dinner, Jim gave an update on electronic service information and NASTF (National Automotive Service Task Force). For the latest on what's going on with service information availability, refer to last month's newsletter or visit: [www.NASTF.org](http://www.NASTF.org) or [www.carfixinfo.org](http://www.carfixinfo.org).

Saturday morning began with Jim's class, Scan Tool Graphical Interface, which is an overview of several scan tools, their graphing capability and several case studies. After lunch, a school bus picked up everyone to transport to Lincoln Technical Institute. (This is the same place where we held Tech Day last August). Lincoln Tech allowed us to use their new shop and the guys broke up into small groups and worked with different scan tools connected to live vehicles. The entire afternoon was spent in the shop. (Pictures on page 4)

Scan tools represented were:

Vetronix Mastertech.....Mike Sauer  
GM Tech2.....Mike Kotarba & David DeCoursey  
Mac Mentor / OTC Genysis....Scott Hessler  
EASE.....John Thornton  
Snap-On Modis.....Scot Manna  
Vag-Com.....Randy Dillman  
Ford NGS.....Duane Hoyt  
Standard BDM.....Doug Montgomery



Just before dinnertime, the school bus picked everyone up and returned them to our shop where Jim, Peggy, Susan and Terry had been hard at work on the Bubba-style cookout. I don't think anyone left hungry! After dinner, many of the guys joined the LTS staff at a local establishment for Karaoke night. Would you believe some technicians can even sing?! If I hadn't seen it for myself, I wouldn't have believed it. Thanks to Doug Montgomery and our own Stan Kratowicz for entertaining the group!

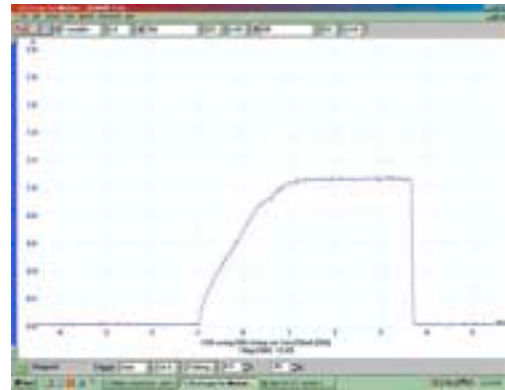
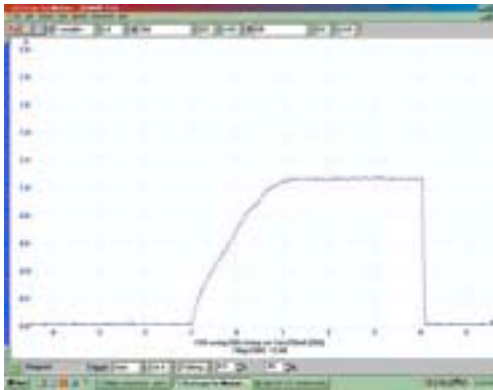
Sunday morning's class came much too early for those of us who were up late singing, but Randy Dillman did a great job of holding everyone's attention. He started off with a short class on Current Ramping Mistakes to Avoid and after a brief break, finished out the morning with Timing Today's Engines.

It seems like in the blink of an eye, 47 guys arrived and were gone as quickly as they came. It was such an enjoyable group of guys, we're looking forward to seeing all of them again for Guru-III! (Coming in 2006)

## Analysis from the “Sleuth”, Michele Winn

This month’s case study is a 1994 Cadillac Deville Concours with a 4.6L engine. The customer complains of a misfire or “shaking” in the engine. He started having trouble with the car while he was traveling out of state and brought me a stack of receipts so I could see what had already been done. So far, the ignition module, coils, spark plug wires and plugs had been replaced along with a few sensors. The last shop that worked on the vehicle told him that the injector on cylinder #7 was dirty and another shop had told him that cylinder #7 had low compression. When he originally called and made the appointment, he said he just wanted his fuel system serviced, so I had scheduled him for an on-car cleaning using our Auto Care unit. After hearing the entire story, I convinced him that the best option would be to let me check the car out first and call him with what I found.

Since it was a Cadillac, and he had already been told there was a fuel injection problem, I grabbed a current probe and the PICO scope and took a current ramp of both banks of injectors. Basically, I was looking to see if it looked like any of the injectors were shorted which would cause a sharp rise at the beginning of the ramp. I didn’t see any electrical problems with the injectors, however, there could still be a contamination issue.



Since 2 other shops had identified cylinder #7 as having a problem and I didn’t think it was an injector problem (at least an electrical problem with the injector) and it had all new ignition parts (although you can never assume that just because they are new, they are good), I thought there was a possibility that I was dealing with a mechanical problem in the engine.

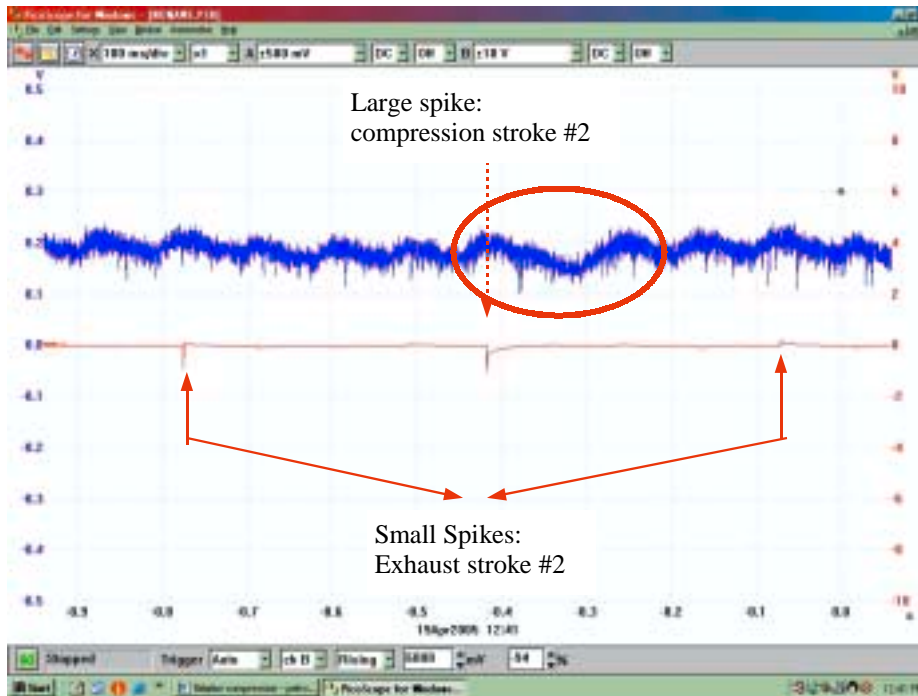
Lucky for me, I had recently sat through a John Thornton class on “Mechanical Testing with Electronic Methods” and I decided to try to put my new knowledge to use. One of the methods John talked about was called a cranking current test. All you need is a high current probe, a sync probe and a scope. The first step is to disable the fuel system, which was easily done by removing the injector fuses on this vehicle. Then, with the high current probe around the positive battery cable, you crank the engine. The theory is that as the starter turns over and encounters resistance (compression) in each cylinder, it causes the current to rise. If it encounters a cylinder with lower compression, the current will not be as high since it won’t take as much to turn the starter motor. (That was the Michele version of how this test works. For the more detailed explanation, you’ll have to sit through one of John’s classes which I highly recommend!)

My first problem was finding a high amp current probe. Lucky for me, I found one under about 2” of dust. I had no idea if it worked or what kind of pattern it would give me, but I still wanted to give it a try. The second problem was finding a sync probe. We had just finished up a week of Guru school and I had sold every sync probe we had in the building. Once again under about 2” of dust, I came up with a sync probe. I had no idea if it would work, but I was going to give it a shot.

–Continued on next page.....

## Analysis from the “Sleuth”, (Cont. from page 2)

The final problem was realizing my lack of scope skills. John mentioned in class that the test was best viewed on any scope other than the Fluke 98 which happened to be the scope I use most often. The pattern below was taken with the PICO scope.



Yes, the pattern is pretty noisy, but a lot of that may be due to the old current probe I was using. The other thing you will notice is that my sync seems to be pointing down instead of up. I tried everything I knew (which obviously isn't much) to fix it, but never could. I'm going to blame it on the equipment :) Since then I have called Carlos at AES ([www.aeswave.com](http://www.aeswave.com)) to get a new high amp current probe, and a new sync probe as well.

Equipment issues and operator error aside, you can easily see by the pattern that there is a problem, one hump appears to be missing. How do I figure out which cylinder it is? Well, I can't rely 100% on my sync probe, but you will notice that there is a small spike every 8 humps and a taller one in between. The sync probe was hooked to the #2 spark plug wire just because it happened to be easy to get to. I will assume that the tall spike is the compression stroke on the #2 cylinder and the shorter spikes are cylinder #2 firing on the exhaust stroke. It appears that I'm missing the current hump on whichever cylinder would be after #2 in the firing order. Next, I consulted my Chek Charts Car Care Guide to find the firing order for this engine. It happens to be 1-2-7-3-4-5-6-8. It seems that there is a mechanical problem with cylinder #7. Lucky for me, #7 was fairly easy to access as it was on the driver's side, back bank. For grins, I removed the spark plug and checked compression manually. 20psi! Wow! Within just a few minutes, I was able to make a diagnosis with this simple test! Since we don't do any heavy engine work, at the point I was basically finished with the vehicle.

I referred the customer to one of our local shops, Car Tech, that is owned by a former Cadillac dealer technician. All of the guys at Car Tech attend our local training classes and the last time they were here, Tom was nice enough to bring me the exhaust valve out of cyl. #7 so I could get this picture.



Coming in future issues: A really slow Saturn and an Escort w/ EVAP issues....

# LINDER TECHNICAL SERVICES

4-D GASOLINE ALLEY  
INDIANAPOLIS INDIANA 46222

Phone: (317) 487-9460  
Fax: (317) 487-1868  
Toll Free: (888) 809-FUEL (3835)  
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## Guru-II (Continued from front page)

To see all of the pictures taken during the Guru-II weekend, visit our website at: [www.lindertech.com](http://www.lindertech.com)

