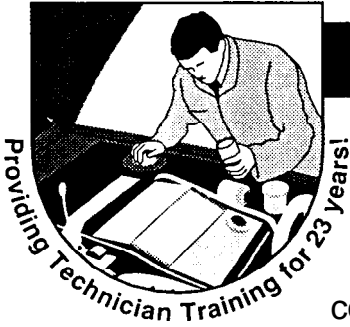


SEPTEMBER 1999

Networking

The Official Newsletter of LINDER TECHNICAL SERVICES



TECH TRAINING

INFORMATION FOR 2000

BY JIM LINDER

As mentioned last month I just attended the SAE OBD-II Top Tech conference held at the Westin Hotel in Indianapolis.

One of the presenters was Cheryl Adelman from the U.S. EPA office in Ann Arbor Michigan. The presentation given was in regards to Automotive Service information and its distribution to the aftermarket.

The initial draft of the proposal reads:

- All Emission information to be made available through the internet effective 1/01/01
- English
- Common terminology J1930 required
- Model Years 1996 and up
- Upload info within three months of introduction
- Information to be included:
 - Manuals, TBS's, working diagrams, training
 - Diagnostic procedures (can't require vehicle hookup to access)
 - Vehicle Strategies that sets mil
 - Enable criteria
 - Fault identification logic
 - Component operating ranges

Also this draft included a discussion regarding "**reasonable cost**", meaning of cost, factors for evaluating, and per use and subscription.

Reasonable cost was stated to be no more than the OEM charges their selling dealers.

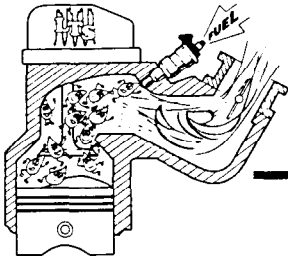
Electronic versions of database to information intermediaries (not just allow web access).

This is a good thing for the service aftermarket BUT it means we will need to step up with our existing PC utilization skills.

I feel as if approximately a third of my existing customers have computers and web access in the repair shop today.

If LTS can do anything to help your service shop get to speed please call.

WE MUST BE READY FOR THIS NEXT LEVEL OF SERVICE INFORMATION.



FUEL INJECTION SERVICE UPDATE



FROM THE INJECTION WIZARD - DOUG GARRIOT

In a recent 5 Gas Analysis class we had a “hybrid truck” (put together with various part from different vehicles) that suffered from a lean condition. We pulled the TBI injectors, flowed them and replaced them with a set of higher flowing injectors. This took care of the lean condition and cured some driveability complaints. A discussion ensued about increasing fuel delivery into an engine. Being the “Injector Wizard” I asked the question “Are we talking about a stock engine that we suspect of having dirty or clogged injectors, or are we talking about building a modified engine that demands more fuel?” The latter topic won, but not before I got in my plug for the first by saying “call me, \$24.95 each”.

Of course there are three ways to increase the fuel delivered into an engine.

1) Increase the injector pulse width. This is done by replacing or reprogramming the computer/chip or out smarting the computer with generic inputs such as engine speed, load, temperature and throttle angle, causing it to open the injector for a longer time. Be aware that mapping fuel trim in a computer in many cases is done by trial and error and most programmers charge each time a change has to be made.

2) Replacing the injectors with higher flow rated injectors (a flow matched set

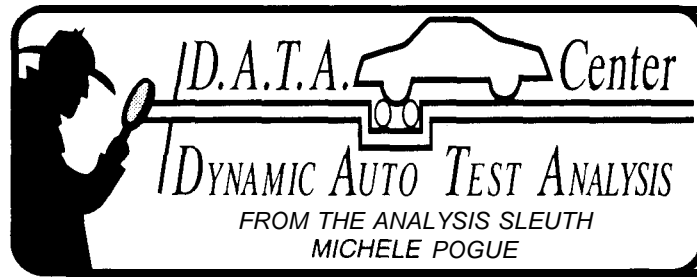
from LTS works the BEST). This also can be a *trial and error situation* (however I am easy to work with and UPS ships overnight) .

3) Increasing the supply fuel pressure. This can be done by installing an adjustable pressure regulator on the rail or a restrictor unit in the return line. Increasing fuel pressure does offer some advantages, however there is a *point at which the volume delivered will decrease and the injector will cease to flow*. This is because the mechanical resistance of the fuel pressure overcomes the ability of the injector to open quickly or even open at all.

Each of these three ways of delivering more fuel has an adaptability, durability and cost factor to be considered. Depending on how radical you want to go, it may take all three combined to get the job done.

In some cases of modification it is necessary to examine your fuel pump capabilities and it may require replacement with a higher output unit and larger fuel feed lines .

It is my recommendation that before you modify an existing fuel injected system or convert a carbureted engine, do your homework.



TWO BIG THINGS I LEARNED MY FIRST TWO WEEKS @ LTS

FLOW-MATCHED INJECTORS

During my first week here, I spent every day in the fuel injection room with Doug. I realized very quickly that “reconditioning” fuel injectors was much more involved than I thought. Even after the injectors have gone through as many as 15 different steps, they are then paired up to make “flow-matched sets”. I made the mistake of asking Doug what point there was to flowing each injector and then making sets of injectors that all flowed the same. To me it seemed like a waste of time. Doug pulled out 8 brand new injectors and asked me to flow them. He said I could expect a 4-6% difference in flow rate. That didn’t seem like much to me, but after I had flowed them all, I found a difference of 24%! As Doug pointed out, the computer can only compensate for a rich or a lean condition. If I had one injector that flowed 24% more than another, there’s no way the computer can compensate for that. That showed me the value of having flow-matched sets.

NOTHING IS FREE

During my second week, I got a chance to work with Jim doing some analysis. A typical customer pulled up outside the bay door and wanted us to check out a problem. Jim asked me to go out with the scan tool and make sure the IAC was reading. It took about 15 min. and he scheduled the customer to come back next week to look at it further. Jim charged the customer for the time I spent and the customer cheerfully paid! I had done similar things for customers at other shops. I would stop working on something else, run out to the car with the scan tool and pull the code – always for free. WHY? Most of the time we don’t ask them to pay! We think that just because we didn’t spend an hour looking at it we don’t deserve compensation. Maybe we don’t want to charge them because it’s a “good customer”. We all need to remember that our time is valuable, our equipment is expensive and our knowledge is priceless!



SKY-GUARD® EGR KLEEN SCREEN™ CARBON FILTERS

WHAT THEY DO

Catch and filter out carbon particles that cause stalling and rough idle on vehicles using the Ford Sonic or GM Linear EGR valves

FAILURE SYMPTOMS

Stalling and rough idle

MAINTENANCE/SERVICE

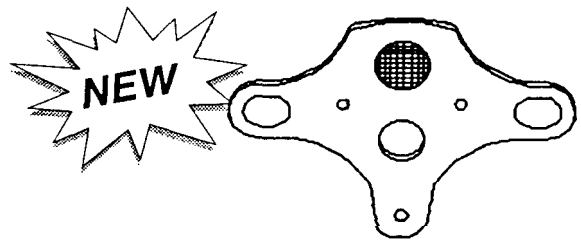
Inspect and clean or replace every 12,000 to 15,000 miles (5,000 to 10,000 miles if vehicle is subject to short trip operation.)

LOCATION

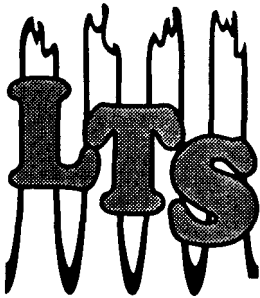
on the engine, under EGR Valve.



Ford Sonic EGR Gasket
Tomco Part #2- 1121



GM Linear EGR Gasket
Tomco Part #2- 1357



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THROUGH TECHNICIAN
CERTIFICATION



SEPTEMBER 1999