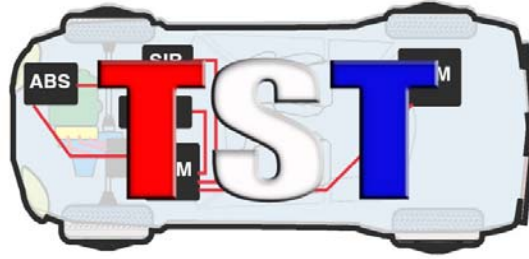


September 2011



Technicians Service Training

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Editor

Jerry “G” Truglia

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Vehicle Serviceability — A Real Issue

Serviceability is not a top priority for vehicle design teams, but it should be. Vehicle designers will surely read this article and remonstrate that there is no real issue here, and that modern computer-aided design makes vehicle repairs logical, efficient, and affordable. Any first year mechanic's apprentice knows better.

To prove the point, let's look a couple of real repairs. Chrysler will take the sharp point of our whoopin' stick in these examples, but the sins of the industry are not bounded by brand. And nowhere is bad service/repair design more evident than in the industry's antiquated approach to heating and air conditioning systems.

Let's start with a 2000 Chrysler Concorde, a car with, well... issues. Other egregious offenses aside, this particular Concorde's air conditioner blows more hot air than a freshman congressman, now that the evaporator core has sprung its characteristic leak.



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- *Keep our fellow technicians up to date with the latest technology.*
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- *Keep technicians informed of information affecting our industry.*
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Bernie Thompson of ATS

John Thornton of Autotrain Inc.

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Jorge Menchu the “Labscope Guru,” AES Wave

John Anello of Auto Tech On Wheels

Mark Warren of Motor Magazine

Bob Pattengale of Bosch

Peter Meier of Motor Age Magazine

Ken Zanders of Illinois Air Team

Jerry “G” Truglia of National Instructor & owner of A.T.T.S. Inc.

Vehicle Serviceability — A Real Issue (con't from p. 1)

The thoughtful addition of a foam blanket wrapped around the evaporator traps moisture and creates a fertile breeding ground for bacteria large enough to fly in formation through the air vents.

The mold smell with the AC on was so intense that scented sprays and anti-fungal treatments were impotent. Why would anyone place large-pore foam that collects moisture in the bottom of the evap case?



Get this far and you'll know how Lewis and Clark felt when first they saw the great Pacific Ocean.

On our journey to this scenic vista we have disconnected large parts of the main wiring harness at the cabin power distribution center, unplugged the SRS module, lowered the steering column, and separated a large number of fragile plastic trim panels designed to snap together easily—and break helplessly when separated again.

(Con't on page 7)

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Jim Bradanini
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QUOTE

Hey: To all my tool carrying friends,

I just switched Brian's tool insurance from Farmers to Pro-TEC and I am now only spending \$350 a year for \$70,000 of insurance on hand tools, welder, air compressor, tool boxes, etc...we were spending \$747 every six months.

Anyway, I figured whoever needs insurance on your tools against theft, flood, fire, etc.... blanket coverage. The people are really nice and you can do it over the phone. You don't have to have a tool inventory list, though you will need one if you have a claim so do one up front anyway.

They offer \$50,000 for \$250 but we upped it to \$70,000 for \$350. <http://www.mechanicsinsurance.com>. The guys name is Jim Bradanini and his email address is: JimB@cpminsurance.com. Their phone is 203-439-2810. I had left a message and he got back to me within the hour.

Thank you so much for making your process so smooth and painless, kind and professional.

Jo



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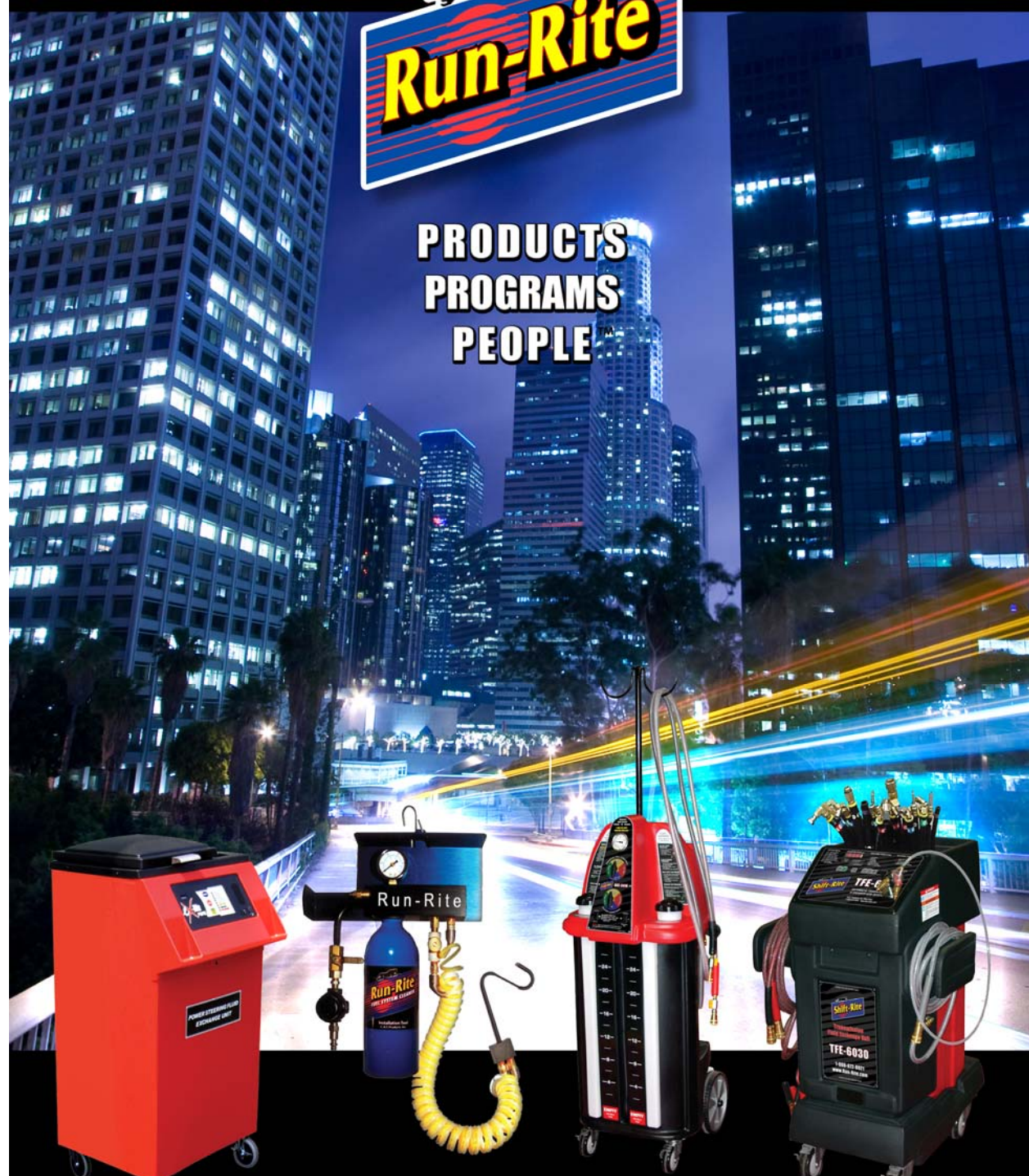
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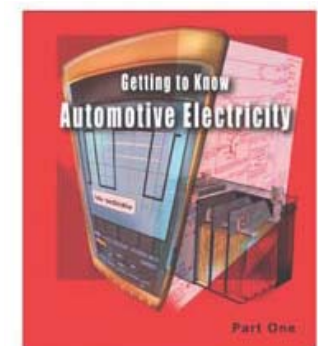
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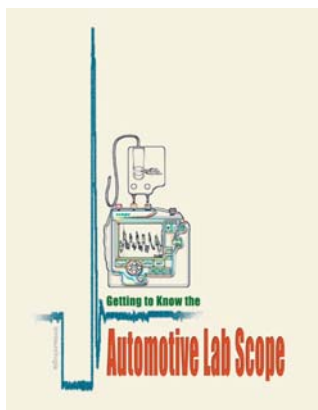
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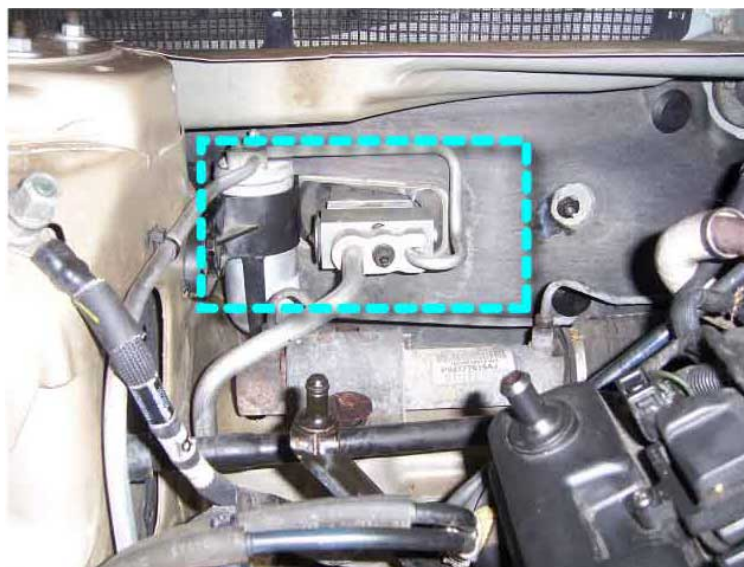
Vehicle Serviceability — A Real Issue (con't from p. 3)

There is no rationale I can think of for this mess below:



Even if you use the most efficient dashboard disassembly method (simply reversing the factory dash assembly process) the absurd repair process required to access the evaporator and heater cores is also a breeding ground—for comebacks. This deeply flawed approach is common throughout the industry, and has been for decades.

A simple access door at both the evaporator core and heater core sure would make life easier, wouldn't it? Imagine such a door in the general location indicated by the dotted line. Considering how many of these evaporators died an early death, a zipper is also a tempting option.

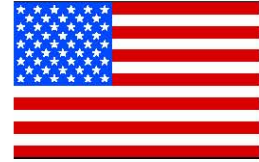


(Con't on page 9)

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Vehicle Serviceability — A Real Issue (con't from page 7)

But wait, there's More!

The top radiator hose is attached to the engine at a plastic/metal bleeder housing with a bolt-on metal snout. The factory housing has been (characteristically) seeping coolant for years, right where the bleeder screw insert meets the plastic housing in which it is embedded. Since the vehicle is getting new belts and hoses, replacing the housing is essential, in our book. Problem is.... *(Con't on page 12)*



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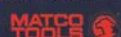


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2. Do you find the seminars useful?

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We need your support:

Thank you,
G Truglia

Vehicle Serviceability — A Real Issue (con't from page 9)

The rear screws holding the bleeder housing to the engine are inaccessible, covered by the wiring harness, which is trapped tightly in place by that stylish black plastic intake manifold. Apparently Form and Function had not been introduced at this stage of the design process.

Three options present themselves immediately:

- a) Add a catch tray with drain hose to route the coolant drip away from the new belts and hoses.
- b) Remove the intake manifold to gain access to the housing's back bolts.
- c) Trade this car in for a new one.

a) is silly, of course, and c) is just what Chrysler hopes we'll do

We remove the intake to get at those two hidden housing bolts. But we ain't all that happy about it.

Why is this necessary? Especially when you consider that we are replacing a part that should last the life of the vehicle under normal conditions, but fails regularly.



(Con't on page 15)

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The new **UV Phazer NEO™** UV light finds leaks others miss.



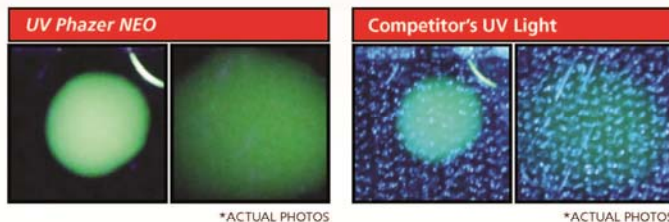
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Vehicle Serviceability — A Real Issue (con't from page 12)

A Mechanic's Take

Unnecessary disassembly:

- Increases the likelihood of comebacks
- Adds to repair bill totals, vehicle down time, labor and additional parts costs (like the EGR donut that tore when we removed the intake).

Customer complaints about excessive repair costs are usually aimed at mechanics and the parts department. But many of today's biggest repair order totals are the direct result of poor vehicle design that limits component access, leading to unnecessary vehicle disassembly.

I'm bushed, so don't even get me started on the lower radiator hose access, a chain-driven water pump located inside the timing cover whose replacement requires major engine disassembly, a fuel filter that requires tank removal for servicing....

Article by Ralph Birnbaum

Rapid Fire Case Studies

1999 Chevrolet Trailblazer Starting in Second Gear

This Blazer reported a transmission problem after a DIY installed his own 1-2 shift solenoid. Of course, we assumed he screwed it up. After dropping the pan and testing the part, to our surprise the solenoid was good. We made sure it was connected properly and found that the vehicle still started out in second gear.

(Con't on page 16)

Rapid Fire Case Studies (con't from p. 15)



The fix? A new PCM. In the picture you can see how we proved in out. Using a Tech 2, we commanded on all of the shift solenoids, besides the 1-2 one of course because it was still inoperative. However, when we jumped it, it clicked.

What did we do? We proved that there was nothing wrong with the wiring itself. Who knows, maybe the old solenoid burned out that part of the PCM. Well, the past is the past. This vehicle needed a new PCM.

Nissan Pathfinder's Exploding Battery

This one is a simple one, but the concept is important.

Nothing like a Monday morning started by a quick money maker. The customer just put in a new battery...

(Con't on page 18)



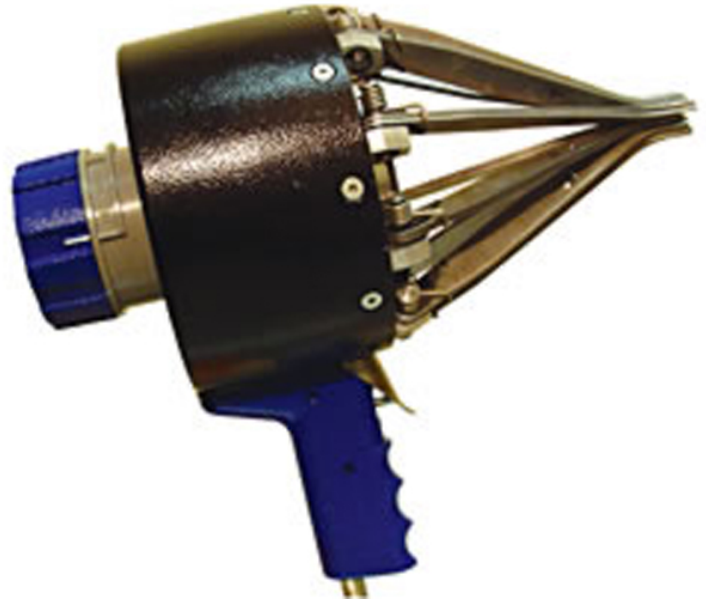
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Rapid Fire Case Studies (con't from p. 16)

He says that his battery light is back on. Upon looking at it, I wonder why...



The first thing I thought was that the alternator was overcharging the battery. We used our Midtronics GR8 and it confirmed what our eyes saw. Curiously, the alternator also had relatively high AC ripple (about 200 mV).

The specification for high AC ripple is 500 mV, but that's when you test from the alternator itself. In the real world we test from the battery.

The battery in my honest opinion acts as a buffer, and anything in the 200-300 mV range is bad. Quite frankly, a new alternator usually has 0 mV of AC ripple! Anything above 100 mV would make me very suspicious and quick to sell a new alternator if the *conditions* call for it.

Article by Craig Truglia and Kevin Quinlan

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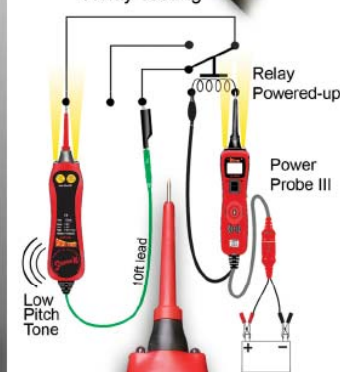
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