

Ralph's Accident Reconstruction Newsletter

Volume 1, Number 3—Page 2

So, here we are approaching 2003 with cars which have higher and higher electrical demands, with more new demands in the design stage and on the way. The more amperage we need, the larger the conductors we will need. But, if we increase the voltage, we can use smaller conductors to deliver the same electrical power. There reaches a point where the reasonable thing to do is to increase the voltage, and we are very near that point with our cars and trucks. Most, perhaps all, manufacturers have agreed that 42 volts will be the system of choice.

So, where does 42 volts come from? What we call a 12-volt battery actually has a voltage of 12.3 to 13.2 volts (or more) when fully charged, and alternators (generators) in common use in automobiles charge at 13.7 to 14.2 (or higher) volts. Three 12-volt nominal/14-volt actual battery "packs" in series would produce 42 volts. Once a vehicle's engine has been started, the alternator generally provides for all of the electrical operating needs.

As this newsletter is being written, no universal solution for the changeover to 42 volts has been accepted by all manufacturers. Although it is possible to design every electrical component of a motor vehicle to work properly at 42 volts, there are tons of parts now on shelves that were designed for 12-volt systems (like headlamps and other bulbs), and it would not be feasible to discard them. One suggestion involves two batteries: one at 12 volts, the other at 24 volts, connected in series, but with a 12-volt tap off the lower-voltage battery to power 12-volt components on the vehicle. If demand were sufficient, a 42-volt battery could be manufactured with a 12-volt tap. But it is very likely that our cars will have 42-volt-based electrical systems before this decade comes to a close.

Some of you may remember cars with six-volt systems; you may have thought the change to 12 volts to have been radical. But look what's coming!

Thank you for reading my newsletter. Please contact me anytime you have a question I might be able to answer or whenever you have need of the automotive-related services I offer.

Ralph Cunningham Accident Reconstructionist

Collision Analysis
On-road, Off-road, Marine
Pedestrian/Bicyclist
Motorcycle Collisions
Conspicuity Evaluations
Lamp Filament Evaluations
Crash Data Retrieval
Tire Failure Evaluations
Brake/Steering Evaluations
Seat Belts/Airbags



1804 Thornhill Pass, SE
Conyers, GA 30013
770.918.0973
Fax: 770.918.8076

Ralph Cunningham
1804 Thornhill Pass, SE
Conyers, GA 30013