

**Arkansas Trucking Association**  
**Maintenance & Technology Council Meeting – Annual Conference**  
**“Down to the Wire – A New Approach to Trucks’ Electrical Systems**  
**5/15/09**

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*Notes from moderator Carl Tapp:*

Good Afternoon!

In 2005 after our EPA2007 engine presentation I left you with three things –

1<sup>st</sup> AN ENGINE THAT INTAKES IT’S OWN EXHAUST DIES... By now, y’all have seen all the ill effects of EGR and I won’t belabor the issues

2<sup>nd</sup> RAISE YOUR RATES NOW to accommodate the increase in operating costs. Some of you did but then your shippers beat you back down

3<sup>rd</sup> BY 2008 YOUR TRUCK OPERATING COST PER MILE WOULD RAISE 12 cents... Check your records, I’ll bet I’m pretty close

The point of that presentation was to scare you and brace you for the expense of the new emissions technology.

Today we are going to discuss Multiplexing that is reducing material costs, envelope size, and providing a flexible vehicle to add new technology

I can’t stress the importance of proper training.

The following is the beginning of Multiplexing in the late 60’s early 70’s. Collecting audio voice from multi services and various means, Hand Held, Back Pack, Tactical Mounted, and Aircraft, converting it to a synthetic digital voice, encrypting it, transmitting packets of information, catching them at the other end and reversing the process back to the audio voice. These next slides show the process - Infantry, Mechanized, and Forward Observers calling for Fire Support, the various equipment and antenna arrays, and the Results. Some of you no

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doubt have lived various parts of this. I worked on Tactical Communications Security Equipment and the communication piece was my world.

Here’s vehicular multiplexing in Shanghai circa 2003.



I won’t read my panel’s complete Bio’s as but will point out a few things –

Wes Mayes with Peterbilt/Paccar has had an interesting career in various areas of electronic and holds several patents. What really caught my eye was that he earned the Distinguished Eagle Scout Award and then was awarded the Silver Beaver Award. While the Eagle Scout is still the highest award, he had to work for that, the Silver Beaver is presented for distinguished service to young people as a registered adult member of Boy Scouts of America

Jay Bissontz with International Truck and Engine Corporation holds multiple US and Foreign Patents and is particularly versed in Hybrid Vehicle Controls as you’ll soon see.

Greg Pittman with Daimler is responsible for Powernet Design among their various platforms. His Department is called “Mechatronics”. The definition of Mechatronics is interesting... Mechatronics combines mechanical engineering, software design, electronic hardware, brakes, sensors, pneumatics, and electrical harnesses and makes sure... ***It Just Works!***

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I’ve enjoyed working with them on this presentation and want to thank them and their companies for supporting our Maintenance Council and The Arkansas Trucking Association. Let’s give them a hand before we get started.

1 - So, we need to start at the beginning. Wes could you start us off with the History and evolution of Multiplexing... why are we using the technology?

Thanks Wes

2 - Jay - to build such a system, common in the industry, y’all must have encountered some challenges, the J1708 bus, J1587 bus, the 2 J1939 buses, incorporating other supplier’s components, etc. Clue us in.

3 - While you’re on a roll... tell us about “Where we are Today with Multiplexed Electronics”? Maybe something about hybrid vehicle controls.

Thanks Jay

4 - Wes - at the start I said Training was most important. What specifically is Peterbilt doing to get the technicians, dealers, and fleet customers up to speed?

Thanks Wes... I’ve done some additional research and found that the other OEMs have similar training programs in place... training technicians to get to the right place faster, without changing unnecessary components. Eaton is even making service literature available to dealers by fault code to do the obvious inspections first i.e. grounds, power connections, J1939 corrosion issues before letting someone dive in to the transmission.

5 - Greg – You just thought you’d get off easy, but now it’s your turn... Tell us about what we shouldn’t take for granted in multiplexed electrical systems. I know some things have been a learning curve for us already!

6- Greg – Like Colombo, I have one last question... all of this seems to be evolving exponentially. What does the future hold for us?

Thanks Guys – Good Job!

We’ve thrown a lot at you in a short period of time, hopefully explained away some of the mysteries and if there are a few questions lets take advantage of our panel and ask them. Anyone?