

Evolving Trailer Technology

Volume • 9 / Issue • 4



Developing a Nose for Business

Electrical Box Design Improves

Making the Competition "Green" with Envy

Great Dane's ThermoGuard Liner

Blowing Past the Competition

Foam Insulating Agents Meet Higher Environmental Standards



Great Dane Trailers

February

February 4-6
TMC – Technology and
Maintenance Council
Annual Meeting
Orange County Convention
Center
Orlando, Florida

February 7-9
Mid-West Truckers Association
Annual Truck Show
Peoria Civic Center
Peoria, Illinois

March

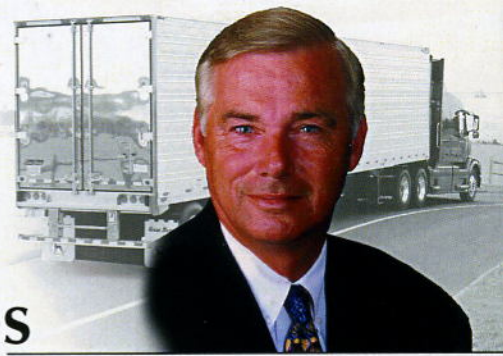
March 4-8
TCA – Truckload Carriers
Association Annual Convention
The Atlantis Resort
Paradise Island, Bahamas

March 27-29
Mid-America Trucking Show
Kentucky Fair and Expo Center
Louisville, Kentucky

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Innovation Drives Greener Products and Superior Quality

Dear Customer,

Protecting the environment is becoming of increasing importance, and at Great Dane Trailers, our goal is not only to provide our customers with superior quality products and service but also with technologies that focus on environmental sustainability, developed by the industry's most advanced Research and Development team.

Great Dane is already taking steps to reduce its environmental footprint. In this issue of *Evolving Trailer Technology*, our engineering experts share how our foam insulation process on reefer trailers is changing to meet new environmental protection standards. Great Dane's exclusive ThermoGuard lining for reefers further adds the benefit of increased fuel efficiency. Other topics include understanding flatbed ratings and improved electrical connection options, both of which can extend a trailer's service life.

Some of our loyal customers are featured in our case studies, and they continue to depend on Great Dane to provide reliable, quality trailers. Our commitment remains strong to living up to our reputation as the industry leader in innovation and technology.

Our ongoing collaborative efforts with our customers and industry partners to develop "greener" products and trucking solutions only strengthens our dedication to exceeding your expectations while contributing to a brighter future for us all.

Regards,

Scott Lamb
President
Atlantic Great Dane, Inc.



Running Clean to Go Green

EPA SmartWay Designation to Mark Most Fuel-Efficient Vehicles

The benefits are as clear as a bright blue sky. Fleets taking part in the U.S. Environmental Agency's SmartWay Transport Partnership and Natural Resources Canada's (NRCan) FleetSmart program are realizing improved fuel efficiency, reducing their environmental footprint and earning the respect of customers, lowering energy consumption and helping enhance national security, and demonstrating corporate citizenship that brings about well deserved distinction and recognition.

SmartWay is an innovative market-based partnership between EPA and the freight industry designed to increase energy efficiency while significantly reducing greenhouse gases and air pollution. EPA and NRCan have joined forces to encourage voluntary action by the international freight industry that will result in measurable fuel savings, verifiable emissions reductions, energy security and improved public health. In Canada, FleetSmart, a component of the ecoENERGY for Fleets program offered by NRCan, is introducing fleets to energy-efficient practices that can reduce fuel consumption and emissions.


As key partners in the programs, trucking companies commit to measuring and improving the efficiency of their freight operations, in part by adopting tractor and trailer systems and components that can significantly lower emissions and fuel consumption. With the help of manufacturers, performance specifications for new and existing tractors and trailers have been developed.

Those include aerodynamic devices for trailers, which reduce drag and in turn engine load. Fairings, for instance, can be added to the front, sides, underside and rear of trailers to improve airflow. Some of these options, which have been showcased by Great Dane on experimental trailers for customers like Wal-Mart, are undergoing evaluation.

Other fuel-saving technologies are already available from Great Dane. For example, single wide-base tires that replace traditional dual tires save fuel by reducing weight and rolling resistance, and there is a slight aerodynamic benefit to this technology as well. Automatic tire inflation systems, such as the Meritor Tire Inflation System (MTIS) by P.S.I., eliminate fuel efficiency losses caused by

under inflated tires. Tools developed by EPA-developed can help quantify the benefits of these fuel-saving options.

The three-year-old SmartWay Transport program has already conserved more than 600 million gallons of diesel fuel per year - saving the industry nearly \$2 billion in annual fuel costs-- and has eliminated nearly seven million metric tons of carbon dioxide (CO2) emissions. By 2012, the initiative aims to reduce between 33 and 66 million metric tons of CO2 and up to 200,000 tons of nitrogen oxide (NOx) emissions per year. At the same time, the effort will result in fuel savings of up to 150 million barrels of oil annually.

SmartWay partners can also apply 2007 SmartWay Trailer and Tractor logos to their equipment, identifying them as the cleanest, most fuel-efficient vehicles on the road and sending a clear message to customers and the public that they are taking action to save energy, reduce emissions and protect the environment. 



Blowing Past the Competition

Great Dane's Foam Insulating Agents Meet Higher Environmental Standards

In effect since January 1, 1989, the "Montreal Protocol on Substances That Deplete the Ozone Layer" is an international treaty designed to protect the ozone layer by phasing out the production of substances believed to be responsible for ozone depletion. While those products include the gases or foam blowing agents used to manufacture insulated trailer panels, Great Dane has risen to the challenge, meeting new requirements that help protect the environment while maintaining the highest levels of thermal efficiency in trailer design.

Foam blowing agents are used in a wide variety of applications, including insulated trailer manufacturing. The agents, which are typically classified as Ozone Depleting Substances (ODS), are used to propel foam for insulation and can function as an insulating component of the foam as well.


The ODS blowing agent family used by Great Dane until the early 1990s consisted of chlorofluorocarbon-based products such as CFC-11 and CFC-12.

Use of those agents was phased out in compliance with the Montreal Protocol, and from the early 1990s until about 2003 Great Dane and much of the trailer manufacturing industry used products such as HCFC-141b. In 2003 many trailer manufacturers were forced to change the material used for foam blowing once again, in this case to HCFC-22. For a second time the phase-out of materials in use mandated changes in foam systems in order to reduce their Ozone Depleting Potential (ODP), and reduce the possibility of atmospheric damage and global warming.

While the use of HCFC-22 as a blowing agent was scheduled to be allowed until 2010, the deadline for its discontinuation has been pushed up to March 2008. By that time, supported by the work being done by allied industries in the chemical and foam manufacturing sector, Great Dane will be using the next generation of less harmful foam blowing agents, including HFC 245fa.

Staying ahead of the curve, Great Dane has been evaluating HFC-245fa in

multiple trials on test and production trailers for quite some time. Test results indicate that in addition to offering environmental protection, this blowing creates insulating foam with an excellent cell structure and a low thermal conductivity.

Due to this proactive approach to meeting environmental protection standards, new insulated trailers from Great Dane will utilize state of the art foam systems with optimal thermal efficiency. The changes will also bring added value transparently, making this effort a win-win for customers and the environment. 

Developing a Nose for Business

Improved Electrical Box Design Reduces Pin Damage

Beginning in November 2007, whenever interior lights and/or a pintle hook are specified by customers, Great Dane Classic Reefers, SLT Reefers and Classic Dry Vans will feature an improved, larger electrical nose box. The new box, supplied by Grote Industries, provides more room for making connections and for the increasing number of light and accessory wires being used by many customers.

In many applications, the current 28-pin nose box has become overly crowded. The new box provides 42 bullet connections (12 white, 10 black, and 4 each blue, green, yellow, brown and red). The new design will also increase reliability and serviceability. To simplify and aid field repairs, for example, one pin on each circuit will also accept a ring terminal.

Improvements to the design of electrical nose boxes on Classic Reefer and Dry Van and SLT Reefer models also benefit installation processes. While the current design required extra slack in wires to make connections while the box was not attached to the trailer, the new design

enables the box to be bolted to the front wall before any connections are made. All connections are then made on the stationary rear of the mounted box, which also eliminates the need to fold excess wire into the box.

Another important change being made to electrical nose boxes include a hinged front panel with a J-560 receptacle that can be replaced without disconnecting the wiring harness. Additionally, on all Great Dane refrigerated models the nose box and air couplings will now be mounted on a stainless steel hat. Also improving trailer nose box electrical connections is a decision to use

solid pin connectors exclusively. While the original intent of split pin designs was to provide outward force that would assure the integrity of electrical connections, real world use has proven that over time the electrical cord tension band crushed the split pins, resulting in loose rather than tighter connections. With solid pins, outward force is provided by a ring/sleeve assembly in each of the sockets, keeping tension on the connection without causing pin damage. 