



**Second Annual**

**Advanced Safety and Energy Technology Ride & Drive**

**October 4-5, 2007 • RFK Stadium, Parking Lots 6 and 7 • Washington, DC**

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*Participating Companies:*

**Bendix Commercial Vehicle Systems LLC**

**BorgWarner Inc.**

**The Bosch Group**

**Delphi Corporation**

**Gates Corporation**

**Gentex Corporation**

**Magna International of America Inc.**

**Meritor WABCO Vehicle Control Systems**

**PPG Industries**

**SABIC Innovative Plastics**

**Valeo Inc.**

**Webasto Product North America Inc.**



October 4, 2007

TO: Ride & Drive Guests

FROM: Ann Wilson, Vice President, Government Affairs, MEMA

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Thank you for taking time to attend the Motor & Equipment Manufacturers Association's second annual Advanced Safety and Energy Technology Ride and Drive. The motor vehicle parts supplier industry is the nation's largest manufacturing sector, directly employing some 783,000 people in the United States and contributing to 4.5 million domestic private industry jobs. We are the largest manufacturing employers in Indiana, Kentucky, Michigan, Missouri, Ohio, South Carolina and Tennessee.

While our economic footprint is large, we would like to focus your attention during this event on what we believe to be the future of the motor vehicle parts supplier industry. Today's suppliers are at the forefront of making vehicles safer and more fuel efficient, taking on a much greater role in developing the intellectual capital required for designing, testing, and engineering new parts and systems. Suppliers alone account for 40 percent of total automotive research and development investment.

On behalf of MEMA and our participating companies, we are very pleased to showcase this impressive range of advanced safety and energy-saving technologies. We encourage you to ask questions, drive vehicles, and experience today's demonstrations for yourself to gain an increased awareness of how this technology can improve fuel efficiency and vehicle safety.

Again, thank you for coming and please enjoy your experience today. If you have any questions after the event, or require any further information, please contact me at (202) 312-9246.

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**Motor & Equipment Manufacturers Association**

1225 New York Avenue, NW, #300, Washington, DC 20005

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**Bendix Commercial Vehicle Systems LLC**  
**Bendix Spicer Foundation Brake LLC**

Headquarters: Elyria, Ohio

U.S. Facilities: Huntington, Ind.; Bowling Green, Ky.; Glasgow, Ky.; Sparks, Nev.

Employees: 2,100

Every day, somewhere in the U.S., over 40 heavy truck jackknives or rollovers take place. When a big rig has an accident it can be a major cost, not to mention the impact on the thousands of passenger cars with which it shares the road. Government studies report that over 80,000 fatal and injury-related crashes involving large trucks occurred in 2005. Accidents involving injury can cost an average of over \$200,000 per event, while fatalities average over \$3 million per incident. Bendix safety systems – including our electronic stability systems, adaptive cruise control, and air disc brakes – can dramatically enhance highway safety.

**Avoiding Accidents By Keeping Control**

The Bendix<sup>®</sup> ESP<sup>®</sup> system is the only electronic stability program widely available today on commercial vehicles that recognizes and mitigates potential rollover and jackknife (under- and over-steering) situations in a variety of driving conditions, including dry, wet, snow- and ice-covered surfaces. It's designed to detect a heavy truck's impending loss of stability before the driver senses it and automatically intervenes by selectively applying tractor and trailer brakes as well as by de-throttling the engine to decrease incident risk and loss of control.

The Bendix<sup>®</sup> ESP<sup>®</sup> system is available now as standard or optional equipment on a variety of Mack, Volvo, Peterbilt, Kenworth and International Class 8 tractors, for use with a wide variety of trailers including doubles and triples. The Bendix ESP stability system is also available on select vocational vehicles (e.g. cement mixers) and coach buses.

**Avoiding Accidents By Watching And Reacting To What's Up Front**

U.S. statistics report that over 37,000 passenger cars were rear-ended by trucks in 2005, with over 1 in 5 resulting in an injury or fatality. By combining radar technology with brake application, the Bendix approach to Adaptive Cruise Control (ACC) can help reduce these numbers and their related costs for fleets. Launching in 2008, Bendix<sup>®</sup> ACC will combine a radar sensor – to track up to 32 objects in front of the truck, and use throttle reduction – the engine retarder – and the vehicle's brakes to slow the truck quickly and help mitigate rear-end collisions.

**Avoiding Accidents By Enabling Shorter Stopping Distances**

Large trucks may take twice as long to stop as passenger cars in instances of panic braking. The NHTSA has identified the difference in mass between large trucks and passenger vehicles as a leading factor in the intensity of highway accidents. In its recent proposed rulemaking, NHTSA calls for a 20 to 30 percent reduction in the required stopping distance for large truck tractors.

Bendix Spicer Foundation Brake LLC has a variety of foundation brake configurations with the necessary performance to meet and exceed a 30 percent reduction in stopping distance. We produce these brakes in the United States today. Testing proves truck tractors equipped with our air disc brakes have consistently been able to stop within today's regulatory standard for passenger cars (216 feet) compared to the current FMVSS 121 requirement of 355 feet for truck tractors.

**About Bendix**

Bendix Commercial Vehicle Systems LLC, part of the global Knorr-Bremse Group, develops and supplies leading-edge active safety technologies, air brake charging and control systems and components under the Bendix<sup>®</sup> brand name for medium- and heavy-duty commercial vehicles. We deliver solutions for improved vehicle performance, safety and overall operating cost. For more information about Bendix and Bendix Spicer Foundation Brake LLC – our joint venture with Dana Corporation – visit [www.bendix.com](http://www.bendix.com).



Auburn Hills, Michigan-based BorgWarner Inc. (NYSE: BWA) is a product leader in highly engineered components and systems for vehicle powertrain applications worldwide. The FORTUNE 500 company operates manufacturing and technical facilities in 64 locations in 17 countries and has over 17,500 employees worldwide. 17 of those locations are in the US representing over 7,000 employees. Customers include VW/Audi, Ford, General Motors, Toyota, Hyundai/Kia, Daimler, Renault/Nissan, Chrysler, Navistar International, Fiat, BMW, Honda, Peugeot, and Caterpillar.

BorgWarner has two operating segments: Engine and Drivetrain. The Engine Group develops products to manage engines for fuel efficiency, reduced emissions, and enhanced performance. Its products currently fall into the following categories: turbochargers, chain products, emission systems thermal systems, diesel cold start and gasoline ignition technology, tire pressure monitoring systems and diesel cabin heaters. The Drivetrain Group leverages the Company's expertise in wet friction clutches, mechanical coupling devices, and control systems, enabling efficient transmission of engine torque to the vehicle drivetrain, and management of torque distribution to the driven wheels. Its major products are transmission components and systems, and all-wheel drive (AWD) torque management systems.

The Internet address for BorgWarner is: <http://www.borgwarner.com>.

**Active Safety and Vehicle Stability:**

On-demand All-Wheel Drive with vehicle dynamics control greatly expands the range of stable acceleration and cornering compared to standard two-wheel drive. Utilizing advanced controls, available driveline torque is intelligently managed to greatly enhance vehicle stability and active safety as well as driving comfort and performance. A 2008 Cadillac CTS AWD equipped with BorgWarner's production InterActive Torque Management<sup>®</sup> AWD / Vehicle Dynamics Control system will demonstrate this technology advancement.

**Fuel Economy Without Compromising Performance:**

BorgWarner's high efficiency turbocharger and Dual Clutch Transmission technology is featured on a front wheel drive (FWD) four cylinder Audi TT. These technologies deliver reduced fuel consumption and increased performance vs. a non-turbocharged gasoline engine with a traditional automatic transmission

BorgWarner also highlights a Regulated Two-Stage (R2S<sup>®</sup>) turbosystem delivering boosted fuel savings and increased engine performance compared with a non-turbocharged gasoline engine. These technologies will be showcased on a rear wheel drive (RWD) BMW 535d, inline six cylinder diesel engine.

The Bosch Group is a leading global supplier of technology and services. In the areas of automotive and industrial technology, consumer goods, and building technology, some 260,000 associates generated sales of 43.7 billion euros, or \$54.7 billion, in fiscal year 2006. The Bosch Group comprises Robert Bosch GmbH and its roughly 300 subsidiary and regional companies in over 50 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth. Bosch spends more than three billion euros each year for research and development, and in 2006 applied for over 3,000 patents worldwide. The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as “Workshop for Precision Mechanics and Electrical Engineering.”

In North America, the Bosch Group manufactures and markets automotive original equipment and aftermarket products, industrial automation and mobile products, power tools and accessories, security technology, thermo-technology, packaging equipment and household appliances. Bosch employs 24,750 associates in more than 80 primary and 20 associated facilities throughout the region with reported sales of \$8.8 billion in 2006.

### **Combined Active and Passive Safety**

CAPS – Combined Active & Passive Safety – is an intelligent modular safety system that protects vehicle occupants and other road users via new functions. Through the networking of active and passive safety, as well as driver assistance systems (which had previously operated independently), CAPS contributes to crash avoidance and mitigation.

### **Gasoline Direct Injection**

Direct Injection (DI) has many advantages over Port Fuel Injection (PFI). Greater fuel economy is achieved due to an improved start-stop concept with starter supported direct start, a spray-guided combustion concept (MLV or Piezo), and the high level of synergies of DI and Turbo-charging. With increased torque and power, drivers enjoy higher performance, which makes for a fun driving experience. DI additionally offers more driving comfort due to improved noise-characteristics and drivability.

### **Clean Diesel Technology**

Clean diesel technology is one of the solutions to America's transportation and energy challenges. Advancements in engine and exhaust after-treatment technology have turned the diesel of yesterday into the clean, powerful and economical modern diesel of today. Clean, modern diesels provide 30 percent better fuel economy, emit 25 percent less greenhouse gases, and increase torque by as much as 50 percent for that fun-to-drive performance. Bosch is a technology leader committed to providing innovative products, such as clean diesel fuel injection systems, to its customers in the automotive industry.

### **Start-Stop Technology**

Bosch Start Stop System is a cost effective way to reduce Fuel Consumption /CO2 utilizing conventional starter motor technology. This technology provides minimal impact to the OEM while providing fuel savings of up to 5%. The system consists of an Enhanced Starter Motor with improved durability/noise counter-measures, Battery Sensor, Intelligent Crank Sensor, and Software utilizing the Bosch Direct Start Algorithm.

# DELPHI

Delphi is a leading global supplier of mobile electronics and transportation systems, including powertrain, safety, steering, thermal, and controls & security systems, electrical/electronic architecture, and in-car entertainment technologies. Engineered to meet and exceed the rigorous standards of the automotive industry, Delphi technology is also found in computing, communications, consumer electronics, energy and medical applications. Headquartered in Troy, Mich., Delphi has approximately 170,000 employees and operates 163 wholly owned manufacturing sites in 35 countries with sales of \$26.4 billion in 2006.

## **Active Safety Systems**

Delphi integrates safety systems to help provide a cocoon of safety around the vehicle. Our safety technologies include front, rear, side and interior protection systems that help drivers avoid accidents and help protect occupants during and after an accident. Delphi can even integrate the driver into the system to help reduce distraction-related crashes and enhance safety warning effectiveness. From warnings that help alert drivers to potentially hazardous situations to automatic braking, Delphi offers one of the broadest portfolios of safety products in the world.

## **Side Alert Demonstration**

Demonstrated on a Dodge Ram, Delphi's Infrared Side Alert system uses a near-range IR sensor to help drivers detect vehicles hidden in the side blind spot and assist in avoiding lane change accidents. Participants will experience how the system discriminates between moving and stationary objects, ignoring unmoving roadside objects and on-coming traffic.

## **Collision Detection System Demonstration**

Demonstrated on a Cadillac DTS, participants will experience Delphi's Adaptive Cruise Control, Lane Departure Warning and Pre-Crash Warning systems. This next-generation system enhances typical cruise control and provides speed and following distance management for nearly all traffic conditions, including stop and go. Participants will also experience automatic countermeasures deployed in a collision, including resettable motorized seat belts and automatic vehicle braking.

## **Integrated Safety System Demonstration**

In this demonstration, Delphi Headway Alert, Forward Collision Warning, Lane Departure Warning and Side Alert are integrated on a heavy-duty Freightliner tractor to show how multiple proven features can be integrated into one system to enhance safety.

## **TASI**

The Transportation Active Safety Institute (TASI) is university/industry consortium conceived to accelerate the development and introduction of active safety products. Utilizing the resources of academic and industrial participants, TASI's work will help to enhance vehicular safety and reduce fatalities, injuries and property damage.

## **Hybrid Vehicle Electronics**

Delphi is committed to lower-cost, high-performance hybrid electric vehicles. We designed and manufactured the major electronic and electrical components for the first modern electric vehicle in the early '90s, and after more than 20 years, we remain committed to developing innovative hybrid electric vehicle technologies that will increase fuel economy, reduce emissions and help make hybrid vehicles an appealing choice for consumers.

## **Energy-Efficient A/C System**

Delphi's energy-efficient air conditioning system represents a package of innovative approaches that includes various control methods and sensor sets that minimize the energy required to condition the vehicle's interior to the desired temperature. Patented air conditioning compressor control algorithms and microprocessor-driven air inlet mixture control strategies are coupled to reduce compressor power consumption by up to 60 percent at road speeds, depending on the environmental conditions and the application. The result is a system that offers fuel economy improvement reaching 10 percent when the vehicle's air conditioning is operational, while also offering a reduction in emissions and enhancing passenger comfort.



## Gates Corporation

Gates Corporation is one of the world's leading manufacturers of automotive and industrial products, systems and components. Founded in 1911 and headquartered in Denver, Colorado, it employs 13,000 associates in 82 manufacturing, distribution and technical centers in 21 countries around the world. In the U.S. Gates employs nearly 5,000 people in 18 states across the country. Gates is committed to actively addressing critical national issues relating to energy through its environmentally-focused Energy Solution technologies that are available.

### GATES HYDRAULIC HYBRID DRIVE SYSTEM

This technology replaces a vehicle's traditional drive system with a hydraulic pump that drives a hydraulic motor for propulsion. Unlike electric hybrids which store energy in batteries, Hydraulic Hybrids store energy in *Hydraulic Accumulators*. During braking, the drive motors act like pumps to re-charge the accumulators, enabling approximately 70% of braking energy to be recovered instead of being wasted in the form of heat. And because the vehicle engine is not directly coupled to the drive wheels, the engine can run at its most efficient operating level. This developing technology offers potential fuel savings of between 50-70 percent and will be demonstrated in a Hummer H1.

### GATES ELECTRO-MECHANICAL DRIVE™ (EMD)

This road demonstration in a 2007 Saturn Vue Green Line will allow participants to learn how fuel consumption and emissions can be significantly reduced through Gates stop/start technology for hybrid cars. Independent studies have shown fuel savings of 6 – 10%, depending on the application, and more than 20% savings in urban traffic. Gates EMD enabling technology will also be used in the 2008 Saturn Aura and 2008 Chevy Malibu.

### Gates E3 Drive™ System

This technology demonstrates how fuel consumption can be reduced in passenger vehicles via Gates two-speed drive system. This unique belt drive system allows accessories such as the air conditioning compressor and alternator to operate at idling speed, where fuel is used most efficiently by these accessories, while the engine still operates at drive speed. The driver does not notice a difference in the vehicle operation but sees their fuel consumption reduced by 5% or more. This energy-saving solution is compatible with other fuel consumption reduction technologies and Gates is working with truck and auto manufacturers to implement the Gates E3 Drive™. It is also a simple aftermarket solution easily added to today's vehicles.

### Gates CabRunner™ Integrated Power System

This Energy Solution technology reduces fuel use and emissions by eliminating the need for semi-truck drivers to idle their engine while sleeping during a long-haul trip in order to power cab accessories such as air conditioning, heat and lights. Every year more than 960 million gallons of diesel fuel is consumed due to idling. The CabRunner™ Integrated Power System can reduce this idling fuel consumption by 60% and greatly reduce idling emissions. Gates CabRunner IPS units are currently available for aftermarket sale.

**Driving Today's Energy Solutions**





A Smarter Vision®

## **GENTEX CORPORATE PROFILE**

Gentex is the recognized world leader in the manufacture of electrochromic, automatic-dimming mirrors for the auto industry, selling to nearly every automotive manufacturer worldwide.

Gentex automatic-dimming mirrors are based on the science of electrochromics, which is the process of reversibly darkening materials by applying electricity. During nighttime driving, the mirrors use a combination of sophisticated sensors and electronic circuitry to detect glare from rearward approaching vehicles and darken accordingly to eliminate the glare and protect driver vision.

Today, Gentex is making auto-dimming mirrors even smarter, helping them eliminate blind spots, display the compass heading and outside temperature, make a phone call, provide navigational assistance and turn on your high beams. They're rapidly becoming the preferred location as the driver interface for advanced electronic features and displays.

Gentex mirrors are offered as standard or optional equipment on over two hundred seventy 2007 model year vehicles around the world. The Company is producing mirrors at a rate of over 14 million units a year, with the current estimated capacity to produce 25 million units annually. Over 95 million mirror units have been shipped since 1987.

Founded in 1974, Gentex operates out of three facilities in Zeeland, Michigan; an automotive sales office in Livonia, Michigan; automotive sales and engineering offices in Germany, Japan, Korea, Sweden, China, England, and France; and four regional U.S. sales offices for the Fire Protection Products Group. The Company is recognized for its quality products, its application of world class manufacturing principles, for its commitment to developing and maintaining a highly skilled workforce, and for encouraging employee ownership of the Company's stock. At February 1, 2007, Gentex had approximately 2,393 full time employees worldwide.

### **The Rear Camera Display Mirror**

The Gentex Rear Camera Display (RCD) Mirror will be demonstrated on the Safety Track in a Toyota Sienna. The RCD Mirror makes backing up safer by allowing drivers to view camera images of an area behind the vehicle in their rearview mirror while backing up. Because of its location in the Gentex mirror, automakers can now offer the safety and convenience benefits of rear camera systems on more vehicles because the camera feature is no longer exclusive to luxury vehicles with expensive navigation systems. Research shows that drivers consider the rearview mirror a more intuitive and natural display location compared to the navigation system display typically located in the instrument panel or center console.

### **Aspheric Outside Rearview Mirrors**

Aspheric mirrors use a combination of glass curvatures to display a much wider field of view compared to convex and flat surface mirrors. The wider field of view helps reduce blind-spot-related lane change accidents. The mirror size is also significantly smaller, resulting in energy-saving benefits through reduced wind resistance and mass reduction. Aspheric mirrors are currently not approved for use in the U.S., but are widely used in Europe and Asia. Gentex will demonstrate aspheric mirrors on the Energy Track in a Dodge Durango.

VISIT OUR WEB SITE AT <http://www.gentex.com>



Magna, the most diversified automotive supplier in the world, designs, develops and manufactures automotive systems, assemblies, modules and components, and engineers and assembles complete vehicles, primarily for sale to original equipment manufacturers of cars and light trucks in North America, Europe, Asia, South America and Africa. Our capabilities include the design, engineering, testing and manufacture of automotive interior systems; seating systems; closure systems; metal body and chassis systems; vision systems; electronic systems; exterior systems; powertrain systems; roof systems; as well as complete vehicle engineering and assembly. Magna has approximately 83,000 employees in 236 manufacturing operations and 63 product development and engineering centers in 23 countries.

## **ENERGY**

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### **MILA – Magna Innovative Lightweight Automobile**

MILA is a single-seater sports car with a mid-engine and rear-wheel drive. The concept vehicle's technical highlights include:

- Eco-friendly CNG (Compressed Natural Gas) powered engine combined with sporty performance
- Consistent lightweight construction
- Modular design principle enabling different models to be built (single or two-seater, normal or high-power engine, etc.)
- Advanced vehicle safety thanks to the monocoque body's high stiffness.

### **HySUV - MAGNA STEYR HySUV Demonstrator Vehicle**

The MAGNA STEYR HySUV hybrid demonstrator (hybrid SUV), developed in cooperation with Siemens VDO and MAGNA POWERTRAIN, is a modular, full hybrid luxury vehicle. Given the high modularity and scalability of the concept and its components, a broad range of applications can be covered. The key benefit of this hybrid is that the power of a 5 liter V8 petrol engine can be combined with the fuel economy of a 3.2 liter V6 diesel engine and therefore value added achieved in terms of drivability, safety, consumption and emissions.

### **Hydrogen Demonstration Vehicle**

The current series product is the L-H2-tank for the BMW „Hydrogen 7“ with bivalent-drive system. Based on the cryogenic and material technology of MAGNA STEYR Space Technology, MAGNA STEYR Fahrzeugtechnik developed the L-H2-tank according to automotive requirements from BMW. By combining the experience in hydrogen-ready materials and manufacturing processes with the processes and systems of MAGNA STEYR Fahrzeugtechnik, the MAGNA STEYR Space Technology manufactured the L-H2-tanks.

### **Other Displays in Energy Tent**

Hydrogen Tank; CNG Tank, and a hybrid demonstrator are available for review in the energy tent.

## **SAFETY**

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### **TotalBlindZoneManagement™**

Magna Donnelly and Magna Electronics cooperatively bring to the market integrative solutions to enhance vision and eliminate blind zones circling the vehicle. By using enhanced vision systems, warning systems, and driver aids, TotalBlindZoneManagement™ visually identifies and warns the driver of all obstructions around the vehicle that the driver would otherwise not be able to see. Included in the TotalBlindZoneManagement™ vision system are:

- ReversAid™ Camera with Graphic Overlays & Integrated Ultrasonic Sensors
- Display on Demand VideoMirror™
- BlindZoneMirror™
- Intelligent Headlamp Control (IHC) & Lane Departure Warning (LDW)

### **Other Displays in Safety Tent**

Integrated Child Booster Seat, clek™ belt-positioning booster seat, Electronic Traction Control Coupling, Transfer Case with Active Torque Control, ClimateTrac™ Traction Control, Active Rear Wheel Steering

## Meritor WABCO Vehicle Control Systems

The Meritor WABCO mission is to be the Leading Commercial Vehicle Controls and Complete Braking System Supplier in North America.

Meritor WABCO offers a comprehensive line-up of systems to aid in vehicle control and reduction of rollovers. From stability enhancement to collision mitigation, our systems offer fleets and vehicle operators the freedom to choose the systems that are right for their operation. For more information, visit our company's Web site at: <http://www.meritorwabco.com>

### Technology Overview

Our **stability enhancement systems** offer a multifaceted approach to reducing rollovers with three unique options: Roll Stability Control (RSC), Electronic Stability Control (ESC) and Roll Stability Support (RSS).

**Roll Stability Control** is integral to the anti-lock braking system (ABS), an accelerometer is mounted directly to the electronic control unit (ECU) to monitor the vehicle's lateral acceleration. The RSC system focuses on a vehicle's center of gravity, the lateral acceleration limit (rollover threshold) and wheel speed. When critical lateral acceleration thresholds are exceeded, RSC intervenes by reducing engine torque, and engaging the engine retarder, while automatically applying drive axle and trailer brakes. The deceleration resulting from the intervention reduces the vehicle speed and rollover threshold allowing improved maneuverability and stability.

**Electronic Stability Control** combines the proven features of the company's RSC system with added yaw (rotational) sensing. This improves vehicle handling and performance if there is an impending loss of control due to rotational forces. These forces may occur as a result of rapid lane change, or cornering maneuvers on slippery surfaces.

**Roll Stability Support** is an independent system for trailers and offers electronic assistance to reduce the likelihood of rollover. The technology is integrated in the trailer ABS system, requiring no additional hardware. Similar to RSC, RSS focuses on the lateral acceleration and wheel speed, monitoring the critical acceleration limit. If this limit is exceeded, the trailer brakes are automatically applied helping to reduce the vehicle's speed.

**Collision Mitigation System (CMS)** is an extension of the Meritor WABCO Adaptive Cruise Control/Collision Warning System. The system is based on forward-looking radar sensor technology and includes a number of functionalities. Together with the Meritor WABCO anti-lock braking system, the CMS automatically commands a partial foundation brake application if a potential frontal impact situation is detected. In addition, while in cruise control mode, the system automatically maintains a safe following distance to a forward target vehicle by controlling engine, engine brake and making foundation brake applications. Finally, the system is capable of providing visual, audio and tactile warnings if a potentially dangerous frontal situation is detected while driving.

### About the Company

Meritor WABCO is a joint venture of ArvinMeritor Inc. (NYSE: ARM) and WABCO Vehicle Control Systems (NYSE: WBC). ArvinMeritor, Inc. is a premier global supplier of a broad range of integrated systems, modules and components to the motor vehicle industry. The company serves light vehicle, commercial truck, trailer and specialty original equipment manufacturers and certain aftermarkets. Headquartered in Troy, Mich., ArvinMeritor employs approximately 20,000 people at more than 120 manufacturing facilities in 25 countries. Arvin Meritor common stock is traded on the New York Stock Exchange under the ticker symbol ARM. For more information, visit the company's Web site at: <http://www.arvinmeritor.com>

WABCO Vehicle Control Systems is the world's leading producer of electronic braking, stability, suspension and transmission control systems for heavy duty commercial vehicles. WABCO products are also increasingly used in luxury cars and sport utility vehicles (SUVs). Customers include the world's leading commercial truck, trailer, bus and passenger car manufacturers. Founded in 1869 as Westing House Air Brake Company, WABCO is now headquartered in Brussels, Belgium. WABCO is a \$2 billion global supplier that employs 7000 people in 34 office and production facilities worldwide. Web site: [www.wabco-auto.com](http://www.wabco-auto.com).



# PPG Industries Automotive OEM Glass

Pittsburgh-based PPG is a global supplier of paints, coatings, chemicals, optical products, specialty materials, glass and fiber glass. The company employs more than 34,000 people and has 125 manufacturing facilities and equity affiliates in more than 25 countries. Sales in 2006 were US\$11 billion. PPG Industries leads the way in automotive glass technologies that improve the comfort of passengers, protect interior surfaces, provide multi-functionality, and contribute to the vehicle's design and aesthetics. PPG Industries is the leading automotive glass supplier in North America. PPG Automotive OEM Glass has been a technology leader in the glass industry for decades.

## **Sungate Infra-Red Reflective Glazing**

The Sungate Infra-Red Reflective glass provides thermal load reduction in the automotive environment. The glazing is composed of two pieces of glass laminated with a layer of PVB. The Sungate coating is a metallic coating that is sputtered on one of the pieces of glass before the lamination. The coating is extremely thin, with total coating thickness of around 1500 Å (0.15 μ). The metallic layer of coating reflects the infra-red energy of the sun, while still allowing the visible light to get through. This combination of visible light transmission and infra-red reflection enables the glass to keep the vehicle cooler in the summer time, while still meeting the Federal requirements of FMVSS205.

Thermal load reduction has many benefits. By keeping the vehicle cooler, it provides a more comfortable environment for the consumer both upon entry into a parked vehicle, and during continuous driving. The reduced thermal load also means a lower load for the air conditioner. This reduced load on the air conditioner then results in lower fuel consumption during the air conditioning use. The consequence of the lower fuel consumption is lower greenhouse gas emissions.

Infra-Red reflective glass has been shown to reduce air conditioning load by as much as 24%, thus resulting in about 20% lower fuel consumption for air conditioning. The fuel savings on a national level for the United States could be as much as 3 Billion Gallons per year.

## **Safe and Sound Laminated Door Glass**

Safe and Sound laminated door glass is used in the automotive market to provide consumer benefits such as improved quietness, better protection from break-ins, and protection from UV radiation. In addition, Safe and Sound laminated door glass reduces weight when compared to similar thickness tempered door glass. This reduced weight consequently results in lower fuel consumption and lower greenhouse gas emissions.

## **Sungate® fR Infra-Red Reflective Roof Glass**

Sungate fR Infra-Red Reflective Roof Glass is designed to minimize the thermal loading in the vehicle from the increasing glass roof systems in the automotive market. As the size of the glass roof increases, the heat load of the vehicle also increases. With the Sungate fR roof glass, the interior is kept cooler, keeping the occupants more comfortable and reducing the load on the air conditioner. With the advanced switchable roof glass, the ability to darken the roof glass adds even more solar performance. This functionality can help eliminate the sliding shades, thus reducing the weight and complexity of the roof systems, resulting in improved fuel economy from both reduced solar loading and reduced weight.

### **About SABIC Innovative Plastics**

SABIC Innovative Plastics' Automotive division, formerly GE Plastics, Automotive, is a leading global automotive supplier of bumper-to-bumper solutions in engineering thermoplastics. For over 50 years they have been delivering unique, groundbreaking design, and constantly strive to meet today's demand for lightweight and environmentally conscious solutions for current automotive needs. SABIC Innovative Plastics' dedicated Automotive organization is an experienced, world-wide competitor, fully committed to serving an industry that manufactures products for the world's most demanding customers.

### **Exterior Body & Glazing**

For automotive manufacturers seeking to differentiate themselves with top technological advancements for automotive exteriors, SABIC Innovative Plastics' Automotive business offers a variety of innovative solutions to reduce weight and rejuvenate design.

By adopting materials like HMD Xenoy\* resins, IXIS high performance plastic composite, and the next generation of Noryl\* body panels, manufacturers can reduce part weight up to fifty percent, helping improve fuel economy. With Lexan\* polycarbonate resin for innovative new glazing designs, OEMs are finding ways to reduce weight and cost while enhancing the "open-air" experience for drivers and passengers, in addition to offering improved safety due to the outstanding impact resistance of Lexan resin and lowering the center of gravity to help provide greater stability.

### **Exterior Components, Trim & Accessories**

From bumper to bumper, SABIC Innovative Plastics offers a wide variety of high performance engineering thermoplastics and composites for exterior and interior component applications. Geloy\* XTW resin, for example, is a game-changing material that may deliver three- to five-times better color and gloss retention than conventional acrylic-styrene-acrylonitriles (ASAs).

The Visualfx\* resin solutions offers OEMs and molders reduction of total systems costs without compromising styling by eliminating metallic paints in exterior and interior trim. Visualfx resin is SABIC Innovative Plastics' premium resin formulated with a variety of effects (i.e. luminescent, diffusion, and many more) inherent in the pellet to create colorful and exceptionally rich looking parts.

### **Structures, Interiors & Safety**

The experience of SABIC Innovative Plastics, Automotive in structural and safety systems is broad; encompassing new instrument panels made with Lexan\* polycarbonate, energy absorption systems made with Xenoy iQ\* resin technology, steering wheels, and solutions to meet Pedestrian Impact Protection requirements across the globe. Structures and materials for use in integrated airbag design, which help to contribute to safety by facilitating robust, fragment-free air bag deployment, even at -40 C.

### **Lighting**

SABIC Innovative Plastics meet the demanding set of materials requirements for illuminating both roadways and pedestrians at high speeds and in inclement weather while maintaining an aesthetically pleasing design. Heat resistance, optical-dimensional stability and beautiful molded appearance are all hallmarks of SABIC's engineering plastics that enable headlamp performance.

### **Powertrain**

Powertrain and chassis high performance components also provide benefits that may reduce cost, weight, integrate parts, and maintain high dimensional stability versus metal. Wire coating made with Flexible Noryl\* resin meets the global automotive industry's need for an ultra-thin high-performance wire/cable insulation that also meets the requirements for halogen-free parts. This unique technology helps meet international standards to meet recycling and reuse requirements in Europe and Asia.



Valeo is fully focused on the design, production, and sale of components, systems, and modules for automobiles and trucks, both on the original equipment market and the aftermarket. Valeo is an independent and international industrial group. It is one of the world's leading automotive suppliers. "Valeo strives to be a benchmark in the automotive world in terms of operational excellence, total quality, global presence and technology. More than ever before, Valeo is committed to enabling a better automotive world." Thierry Morin, Chairman and CEO.

The Group has 133 production sites, 67 R&D centers, 9 distribution platforms, and employs 72,300 people in 29 countries. Valeo's objective is to offer global solutions which enhance comfort, safety and driving pleasure, and reduce fuel consumption and emissions. Its approach is based on three Domains. Driving Assistance: Solutions for safer vehicles. Powertrain Efficiency: Solutions for cleaner, more efficient, more economical vehicles. Comfort Enhancement: Solutions for more comfortable vehicles.

### **StARS micro-hybrid**

Valeo, first on the market in 2004 with its micro-hybrid starter-alternator technology StARS™, announced in July, this system will now be standard equipment on the smart fortwo mhd (micro-hybrid drive). The StARS™ system features the capacity to stop the engine at a red light or in a traffic jam and then restart it immediately and silently when the brake pedal is released. This technology offers significant fuel savings and emission reductions without disrupting the driver's normal driving habits. On the smart mhd, the Valeo system offers up to 13% fuel economy in urban driving conditions. In 2006 this technology received a PACE Award in the European Products category.

### **Blind Spot Alert System**

Valeo's 2007 PACE Award winning side blind-spot alert system is designed to facilitate lane change maneuvers by providing additional warning of vehicles in the blind spot during lane changes. The system continuously monitors the side blind spots on both sides of the vehicle. When a vehicle is present in either blind spot, the driver is alerted to this potential hazard by a visible icon displayed in the side rear-view mirror. With Valeo Raytheon Systems' Blind Spot Detection, the driver's awareness is extended into areas not visible in the vehicle mirrors. The alert signals are driver friendly and the equipment is not visible on the exterior of the vehicle. Drivers will find that the system is a natural and easy to use tool, providing the assurance that their driving will be comfortable and safer. The launch of this system is on select models of 2008 Model Buick and Cadillac vehicles.

### **LaneVue™ Lane Departure Warning System**

The LaneVue™ system developed with Iteris technology consists of a miniature video sensor that uses complex proprietary software algorithms to continuously monitor the lane markings in front of the vehicle. During unintentional lane departures, detected when the driver fails to signal, the driver is warned to take immediate corrective action. Valeo has won several prestigious awards for LaneVue.™ These include the Premier Automotive Suppliers Contributions to Excellence, the 2005 PACE Award in the product innovations category, the 2004 Automechanika Innovation Award in the systems modules category, and a 2005 Nissan Global Innovation Award. Currently LaneVue™ is equipped on Infiniti FX & Infiniti M models.

### **Park4U™**

This ultrasonic technology-based driving assistance system, a world premiere, automatically steers the car into the parking slot in a few seconds. Drivers can take their hands off the wheel, but keep their eyes on the road as they control the braking and acceleration of the operation at any time. The Park4U™ is a new standard of simplicity for parking, as it provides increased comfort and ease of use. This safe and affordable technology developed by Valeo, world leader on the global ultrasonic park assist market, relies on only two additional ultrasonic sensors compared to the four front and four rear sensors commonly used for parking assistance.

### **Cross Traffic Alert**

In crowded parking rows across North America, backing out of a blind parking slot is increasingly dangerous and results in fender-bender accidents. Valeo's Blind-Spot System sensors can be equipped to alert the driver when a vehicle is approaching. This application uses a portion of the narrow scanning radar beams of the Blind-Spot sensor, monitoring 30 meters down the travel lane when the vehicle is in reverse. The CTA application does not monitor directly behind the vehicle, but operates in conjunction with ultra-sonic or camera back-up assist products to provide enhanced awareness of the environment when the vehicle is in reverse gear.

Webasto is a global leader in idle reduction technologies for the transportation industry. Webasto's technologies are designed specifically for vehicles used in nearly all segments, including passenger cars, cargo vehicles, off-highway equipment, school and transit busses, defense vehicles, commercial trucks, and recreational vehicles. Webasto's Engine-Off Technologies such as Fuel Operated Heaters, air cooling systems, and Liquid Heat Generators help companies save millions of dollars annually on fuel costs, thus reducing U.S. dependency on foreign oil. In addition, they play a significant role in reducing emissions (Green House Gases) globally, protecting public health, creating revenue for state and local municipalities, and creating job opportunities. Finally, operator comfort, whether in a commercial vehicle or a personal vehicle, is greatly increased with the use of Webasto pre-heaters, supplemental heaters, and air cooling systems.

Webasto was founded in 1901, and has been a supplier to the global vehicle market since as early as the 1930s. Current OE partners include PACCAR, Freightliner, Ford, Chrysler, General Motors, Toyota, Honda, Mercedes-Benz, Volkswagen, and others. Webasto North American headquarters are located in Michigan, with other facilities in Kentucky and California. Webasto globally maintains offices and manufacturing facilities in 43 countries, employing 6,285 people worldwide.

Webasto's strengths lie in the engineering and application development of idle reduction technologies that provide environmental and economic benefits to its partners and customers. Fuel Operated Heaters provide pre-heat and supplemental heat for all types of vehicles, readying school busses, snow plows and passenger cars for their upcoming trips without wasting fuel and creating unnecessary emissions. BlueCool Truck provides engine-off cooling for truck drivers as they sleep in their bunks, greatly reducing fuel costs, emissions, and increasing comfort. Liquid Heat Generator (LHG) is a revolutionary technology and breakthrough in rapid cabin heating that is setting a new benchmark in interior warmth and defrost. LHG provides rapid "time to comfort" drastically reducing the need to idle for heat, resulting in reduced fuel consumption and reduced emissions.

Collectively, Webasto's products increase operator comfort, the company's bottom-line, and decrease fuel use, emissions, and unnecessary idling.

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