

Chrysler Uses 3D to Move Manufacturing Process Forward

TRAVERSE CITY, Mich. – It's been transforming how people watch movies and TV for years. Now, Chrysler Group LLC is using the world of 3D to change the way it looks at planning for future products.

Chrysler also implements World Class Manufacturing before a single machine is built or installed.

During a speech at the Management Briefing Seminars in Traverse City on Aug. 6, Chrysler Group's Brian Harlow, vice president, head of NAFTA Powertrain Operations and Global Powertrain Manufacturing Engineering, said that the company has brought 3D into its upfront processes in order to prepare for the launch of two important new transmissions in Kokomo, Ind., – the eight-speed rear-wheel drive and nine-speed front-wheel drive – as well as other new powertrain programs.

"We knew we needed a new way of working in order to get our plants in Kokomo ready at an accelerated pace," said Harlow.

"By using 3D technology, we are in effect injecting the principles of WCM from the very beginning of our planning for production start-ups such as the ones in Kokomo."

WCM is a rigorous, integrated system that encompasses all plant processes. The goal of WCM is to continuously improve performance in order to reach the objective of zero waste, which includes zero accidents, zero breakdowns, zero waste of

motion and zero inventories.

With the help of Auburn Hills-based Strategic Manufacturing Solutions (SMS), Chrysler Group is utilizing a three-dimensional modeling system specifically for powertrain manufacturing to help everyone see the shop floor as it really is and not how one might imagine it is.

"We live in three dimensions, not two, so with a two dimensional drawing, you had to imagine the third dimension," said Harlow.

"Engineers have good imaginations, but those imaginations don't all work the same way. If you have 10 engineers looking at a 2D drawing, they will all see it a little differently."

By turning the view, Harlow said that engineers can see the manufacturing environment, including equipment, materials and operators, as it really is. In this way, issues that may delay a program or cost money to fix are addressed even before the first piece of equipment arrives at the plant.

"Three-dimensional modeling allows us to make our actual investments as late as possible in the launch process," said Harlow. "The goal is to make the launch process as vertical as possible because this shortens the time it takes to recover our investment."

Three-dimensional layouts are used to help figure out where racks and materials should be stationed to bring parts to operators in the Golden Zone, a 60-de-

gree window that is ideal to present parts.

They can also be used to eliminate conditions on the line that might be unsafe or could cause injury or strain for the operator.

The software also has the capability of showing an exploded view of a machine. By de-contenting the machine, an operator can see all of the nuts and bolts, making it easier to understand how it goes together, and how to maintain and repair it.

"Animation is another critical aspect of the 3D programming," said Harlow. "It allows us to validate cycle times and to discover system-related issues even before the machinery is made."

"If there is a situation anywhere that compromises production, we can identify it up front in the process, something we ordinarily wouldn't know until the

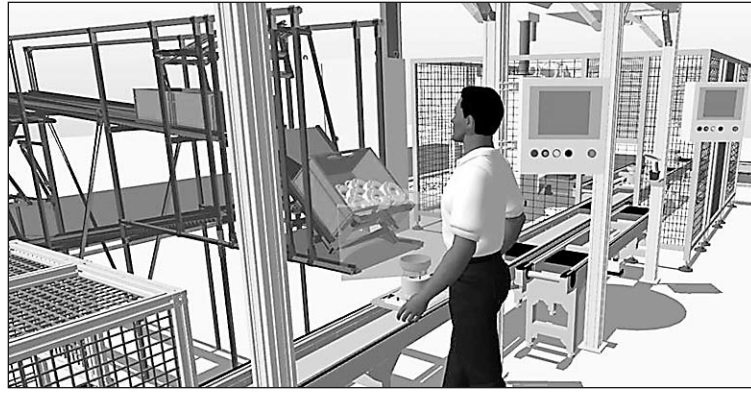
first day of production," continued Harlow.

"Now we can be proactive. We can change cycle times by moving content or by making changes with the machine tool builder."

One of the other benefits of the technology is the immediate information exchange between the plants around the world, machine tool builders and SMS.

Using a computerized white board, people at the plant can write directly on layouts, then that information goes back to SMS where people immediately integrate the changes into a master layout. At any point in time, those layouts are available through a remote access system to anyone anywhere in the world.

Much of Chrysler's World Class Manufacturing methodology is being studied and hashed out at the WCM facility in Warren.



Chrysler is using 3D for the launch of two new transmissions.

MWW to Continue Work on F-150s

HOWELL, Mich. – MWW Automotive Group, a global design, engineering, and manufacturing firm serving some of the world's leading automotive and industrial manufacturers, has been awarded the continuation of the currently ongoing production for the painting and fulfillment of interior parts for the Ford F-150 series line of trucks through 2013.

The MWW interior package produced for the Ford F-150 includes several dashboard components, which are to be produced and delivered from the MWW Class-A painting facility in Baroda, Mich. This is the first extension of this program for MWW, which will run through 2013.

Charles Pinkerton, CEO of MWW Automotive stated: "We are happy that we have been able to meet our client's stringent quality requirements for this high-end program."

"We appreciate their recognition for the quality of work that we have delivered consistently and our capacity to reliably meet the client's 'just-in-time' logistics conditions during the first production run."

"This new award is the result of the implementation of our company-wide restructuring efforts and continuing commitment to deliver only the highest quality product to our clients."

MWW is headquartered in Howell, Mich., with a "Class A" painting-assembly-logistics facility in Baroda, Mich.

Diesels to Remain H-Ds' Powertrain of Choice for Decades

WASHINGTON – Clean diesel engines will continue to be the dominant power source for heavy-duty vehicles in the United States for "decades to come because of their power and efficiency," according to a newly released study prepared for the U.S. Department of Energy.

The report – "Advancing Technology for America's Transportation Future" – was authored by the National Petroleum Council (NPC) at the request of Energy Secretary Stephen Chu.

The two-year study examines fuels, technologies, industry practices, and government policies through 2030 for auto, truck, air, rail, and waterborne transport and potential industry and government actions that could reduce Greenhouse gas (GHG) emissions from American transportation by 50 percent by 2050.

"The National Petroleum Council findings confirm what transportation officials and industry leaders have already determined – that the continued advancements in clean diesel technology will continue to make diesel the dominant power source for heavy-duty trucks throughout the United States for decades to come," said Allen Schaeffer, executive director of the Diesel Technology Forum (DTF).

The NPC report states: "Diesel engines will remain the powertrain of choice for HD vehicles for decades to come because of their power and efficiency. There are, however, opportunities to improve the technology."

"Significant fuel economy improvements in diesel-powered trucks are possible. Indeed, the fuel economy (mpg) for new Class 7&8 HD vehicles, which consume more than 70% of the fuel in the trucking fleet, could be doubled."

As *The New York Times* reported: "(A)t a briefing by the council, one member, William Reinert, the national manager in charge of the advanced technology group for Toyota's American sales unit, put it bluntly: 'Internal combustion engines are likely to be the dominant propulsion system for decades to come,' he said. Hybrids like his company's Prius and vehicles running on natural gas, diesel or cellulosic biofuels

have internal combustion engines at their heart, he pointed out."

"Today, diesel powers more than 80 percent of freight movement in the U.S. and internationally more than 90 percent of global trade is moved by diesel engines," Schaeffer said.

"There is a reason today that diesel powers the overwhelming majority of the nation's commercial trucking, school and transit bus fleets," Schaeffer said.

"Diesel's unmatched combination of availability, safety, energy efficiency and economical operation and performance has made it the technology of choice, but it is also the environmental performance and prospects for even greater energy efficiency that make it the technology of choice for the future."

"The advances in diesel technology have improved efficiency and significantly reduced emission to the point that diesel engines are now near zero emissions."

"The NPC report also highlights that diesel technology will continue to advance in the coming years. These are all reasons

why the National Petroleum Council and transportation officials' project diesel will be the primary power behind freight transportation for many decades to come.

"Diesel's role as a technology to increasingly power light-duty vehicles in the future was also recognized in the report."

The NPC report examined several alternative fuel sources including natural gas, which NPC said could make inroads into heavy-duty trucking "assuming that the current price spread between diesel and natural gas persists over time."

The clean diesel report also highlighted the major infrastructure problems natural gas and other alternative fuel sources face moving forward.

"Deployment of a new fuel infrastructure is a significant hurdle to the adoption of new fuel-vehicle systems. It could cost tens to hundreds of billions of dollars to provide similar alternative fuel availability as the current gasoline infrastructure and will take decades to fully deploy."

"Some fuels also require advances in supply-chain infra-

structure technology to aid deployment.

"Specifically, advanced biofuels must overcome technology hurdles related to fuel manufacturing, and hydrogen must overcome technology hurdles related to dispensing infrastructure."

Many Children Placed at Risk: Not Being Given Proper Use Of Appropriate Restraints

ANN ARBOR – Despite the fact that car crashes are the leading cause of death for children older than three years in the U.S. and send more than 140,000 children to the emergency room each year, new research has found that low proportions of U.S. children are using age-appropriate safety restraints and many are placed at risk by riding in the front seat.

The research is published in the September issue of the *American Journal of Preventive Medicine*.

The American Academy of Pediatrics issued new Guidelines for Child Passenger Safety in 2011. They called for rear-facing car seats at least until the age of two; forward-facing car seats with a five-point harness for as long as possible until the child is the maximum weight and height suggested by the manufacturer; booster seats until an adult seat belt fits properly, when a child reaches around 57" in height, the average height of an 11-year-old; and riding in the back seat until the age of 13.

"We found that few children remain rear-facing after age 1, fewer than 2% use a booster seat after age 7, many over age six sit in the front seat," says Michelle L. Macy, MD, MS, co-author of the study along with Gary L. Freed, MD, MPH, both of the Child Health Evaluation and Research Unit, Division of General Pediatrics, C.S. Mott Children's Hospital at the University of Michigan, Ann Arbor.

The investigators evaluated three years of data from the National Highway Traffic Safety Administration (NHTSA) National Survey on the Use of Booster Seats (NSUBS) collected prior to

Hamtramck Walk Set

Join Greg Kowalski, chair of the Hamtramck Historical Commission as he guides a walking tour through downtown Hamtramck. It's scheduled for Saturday, Aug. 25 at 10 a.m. See Detroit Historical Soc. website.



U-M says parents are confused how best to secure their youngsters.

the release of the new guidelines. Trained data collectors observed and recorded drivers with child passengers as they arrived at community sites including gas stations, fast food restaurants, recreation centers, and child care centers.

They recorded child restraint type and seat row, adult and child gender, driver restraint use, and vehicle type. Drivers were interviewed to report their own age, the ages of the children they were transporting, child race, and Hispanic ethnicity. Analyses were conducted on data obtained for 21,476 children.

As children aged, a decline in child safety seat use and an increase in being unrestrained were observed.

Within each age group, minority children demonstrated lower proportions of age-appropriate restraint use compared with white children.

And there were persistent differences in the proportions of black and Hispanic children who were unrestrained versus whites.

Motorsports Hall of Fame Induction Ceremony at Fillmore on Aug. 29

DETROIT – The list of motorsports stars set to usher in this year's inductees into the Motorsports Hall of Fame of America on Wednesday, Aug. 29, is as accomplished as the Class of 2012 itself.

Hall of Famers Don "The Snake" Prudhomme and Bobby Allison are scheduled to be among the presenters at the black-tie event at the Fillmore Theater in Detroit.

Hall member Prudhomme (Class of 1991) is scheduled to present Ed Pink during induction ceremonies in the Drag Racing discipline. Pink supplied engines to "The Snake" during his most successful years as a dominant NHRA funny car driver.

Hall of Famer and NASCAR icon Allison (Class of 1992) will present for the second-consecutive year after having the honor of inducting his brother Donnie Allison in 2011.

This year, Bobby Allison will enshrine fellow "Alabama Gang" member, the late Neil Bonnett, into the Hall's stock car wing.

Bonnett was one of the most affable drivers in NASCAR history, earning 18 series victories during his 18-year career.

Additional NASCAR legends scheduled to present include Leonard Wood, a Hall member enshrined with his brother Glenn Wood in 2000 as the leaders of the famous Wood Brothers racing team and pit crew.

Leonard Wood will induct the late Vic Edelbrock, Sr., in the At Large category.

Edelbrock was considered one of the founders of the American hot rod movement and built a small auto repair shop into one of the world's premier parts suppliers for racers and auto hobbyists. Pop Dreyer will be enshrined in the Historic category by Dennis Reinbold of IndyCar.