SAE UPdate®

NEWS FOR THE MEMBERS OF SAE

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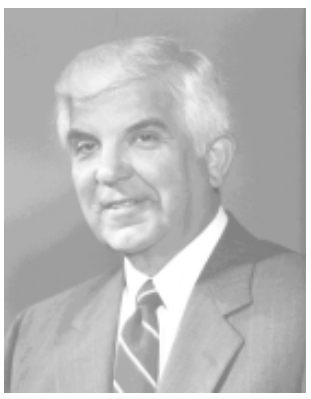
Duane F. Miller receives 2003 SAE Medal of Honor



Duane F. Miller

Duane Miller, a retired Executive Vice President of Nissan, was recognized as the recipient of the 2003 SAE Medal of Honor at the Honors Convocation Luncheon held during the SAE 2003 World Congress in March.

Established in 1986, the SAE Medal of Honor recognizes and honors a living SAE member for unique and significant contributions to the Society. Unlike other SAE awards that honor technical achievements or outstanding accomplishments in the various fields of mobility, this award recognizes an individual's contributions to the overall SAE organization.

Miller was selected as this year's Medal of Honor recipient for his contribution to the successful globalization and financial performance of SAE. As Chair of the Publication Committee, Miller championed the globalization and expansion of SAE's publishing program. As Treasurer of the SAE Board of Directors and as Chair of the Finance Committee, he provided leadership guidance and was a strong advocate for sound business practices in providing added value to SAE products and services for both members and customers.

Miller joined SAE in 1958 and has served in a variety of capacities, most notably as Treasurer and member of the SAE Board of Directors. Additionally, he was Chair of both the Publication and Finance Committees and a member of the Motor Vehicle Council, Membership Services Board, and the SAE Foundation Board of Trustees. Miller was also Chair of the SAE Passenger Car Meeting in 1981.

With more than 45 years experience in the automotive industry, Miller's first significant assignment as a chassis designer at Pontiac Engineering, GMC, was designing front suspensions for 1961 Pontiacs. Several years later, he developed the ride and handling for the 1964 GTO, the industry's first "muscle car." Miller eventually became Pontiac's Chief Body Design Engineer.

In 1977, he joined Volkswagen of America to help establish and develop the company's American product engineering operation. As the senior

See MEDAL OF HONOR page 4

Ford to host SAE 2004 World Congress

Ford Motor Co. has agreed to be the host company for the SAE 2004 World Congress, March 8-11, 2004, in Detroit, MI. Ford's Phillip Martens (pictured right), Vice President, Product Creation, North America, will serve as the General Chairman of the event.

"We are pleased that Phil Martens and his Ford team will provide the leadership and strategy necessary to continue the transformation of the SAE World Congress that began under Rich Schaum's capable leadership in 2003," said Dave Amati, Director of Automotive Business at SAE.

For more details, check the July issue of *SAE UPdate* or visit www.sae.org/congress.

Emerging Transmission Technologies TOPTEC planned

An SAE TOPical TEChnical (TOPTEC) Symposium titled Emerging Transmission Technologies is scheduled for Tuesday and Wednesday, August 12-13, 2003, at the Michigan State University Management Education Center in Troy, MI.

Development of new transmission technologies is occurring at unprecedented levels throughout the automotive industry. Drivetrain engineers continue to design better systems that yield even greater reliability, energy efficiency, improved driving performance, and customer acceptance and satisfaction. These emerging technologies are the focus of this TOPTEC.

Leading experts from the transmission engineering community, including OEMs, suppliers, government, and academics, have been invited to share their knowledge about the latest, state-of-the art technologies and trends. Topics will include advanced step ratio transmissions, the fading distinction between auto and manual transmissions, CVTs, and hybrid transmissions.

The organizers of this TOPTEC are Eric Burnett, DaimlerChrysler; Ernie DeVincent, Ford; Walter Muench, Ford (retired); and Victor Roses, General Motors.

For questions concerning this TOPTEC, please contact Nancy Eiben, Staff Team Leader, at 1.724.772.8525 or naneiben@sae.org .

You may register for this program online at www.sae.org/contedu/tt_ett.htm or by contacting SAE Customer Service toll-free at 1.877.606.7323 or 1.724.776.4970 (outside the U.S. or Canada) or email CustomerService@sae.org . The ID for this TOPTEC is 2003TT14. Space is limited.

IN THIS ISSUE

POPULAR FEATURES

New book highlights critically important function of tires in racing and high-performance cars

Although it's no secret to team owners, drivers, and engineers on the world's racing circuits, the importance of tires to the success of any high-performance vehicle has been largely overlooked by many others. Author and veteran racing technical correspondent Paul Haney (Inside Racing) takes an in-depth look into the technology of tires.

Based on 15 years of research, Haney's *The Racing and High- Performance Tire* presents clear, non-academic explanations of how and why tires really work. Writing that "the pneumatic tire is arguably the most complicated and useful device man makes," Haney provides new insight into topics such as the complexity of rubber, how a pneumatic tire generates grip, and how to tune grip and balance using the load sensitivity of tires.

The Racing and High-Performance Tire features more than 150 photos and drawings, and includes interviews with racing veterans Mario Andretti, Jim Hall, Paul Gentilozzi, and Al Speyer, Bridgestone-Firestone's Director of Motorsports.

Tires and tire technology have changed tremendously over the past 20 years. Consequently, the importance of tuning a high-performance chassis and suspension to match the new, improved rubber provided poses a challenge to automotive engineers. Haney's own views on the importance of tires in high-performance vehicle and racing preparation are clearly stated. He says, "Tires are by far the most important component on a racecar…and there isn't much good information about tires."

The Racing and High-Performance Tire is a 286-page hardbound book, ISBN 0-7680-1241-4. Member price is $47.96; List price is US$59.95. The Order No. is R-351. To order, contact Customer Service at 1.877.606.7323 (1.724.776.4970 outside the U.S. and Canada), CustomerService@sae.org, or visit store.sae.org.

MORE NEWS

Professional Development launches Drivetrain Systems Certificate Programs

SAE has created fundamental and advanced-level certificate programs in drivetrain systems, which are packages of seminars that address the most salient topics, concepts, and practices within the drivetrain-technology arena. By completing one or both certificates, engineers can deepen their drivetrain-systems expertise and at the same time, enhance their credentials.

The Fundamentals of Drivetrain Systems Certificate Program

Consists of four seminars (seven total seminar days):

- A Familiarization of Drivetrain Components (1 Day)
- Fundamentals of the Passenger Vehicle Transmission (2 Days) or Fundamentals of Truck & Off-Highway Transmission Systems (2 Days)
- The Basics of Internal Combustion Engines (2 Days) or Diesel Engine Technology (2 Days)
- Powertrain Selection for Fuel Economy & Acceleration Performance (2 Days)

Advanced Drivetrain Systems Certificate Program

Consists of three required courses and one elective (seven to eight seminar days):

Required Courses

- Advanced Automotive Driveline Systems (2 Days)
- Advanced Passenger Vehicle Transmission Design (2 Days)
- Advanced Topics in Driveline System Design Capstone Course (three two-hour tele/webcast sessions)

Electives (Choose at least two more seminar days)

- Operational Principles of Continuously Variable Transmission Systems (2 Days) NEW!
- Fundamentals of Truck & Off-Highway Transmission Systems (2 Days)
- Fundamentals of Gear Design and Application (2 Days) NEW!
- The Tire as a Vehicle Component (1 Day)
- Automotive Fuel Cell Systems (3 Days)
- Design of Hybrid Electric Vehicles (3 Days)
- Commercial Vehicle Braking Systems (3 Days)
- Brakes - Design & Safety (2 Days)
- Sensor & Actuator Technology: Module 1 - Powertrain: Engine, Transmission, OBD (1 Day)

After completing the designated courses, the SAE Certificate of Achievement is awarded, listing the courses completed and the Continuing Education Units (CEUs) earned. For more information on Certificate Programs, along with detailed course descriptions, visit www.sae.org/contedu/.

Completing each certificate also equates to four graduate credits toward the SAE/ Kettering University 20-credit Certificate in Automotive Systems and Kettering's 40-credit M.S. in Mechanical Engineering. Visit www.sae.org/contedu/credits/ for more information. Additional certificate programs are being developed on chassis systems and noise, vibration, and harshness.

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Antenor R. Willems, Executive Director

Jennifer L. Newton, Editor

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MESSAGE FROM THE PRESIDENT

Globalization and Presidential travel

SAE International is named on purpose to recognize our global outreach and involvement in mobility industries throughout the world. Our nearly 76,000 members come from 105 countries, and we now have 14 sections outside of North America. With our affiliate societies in Brazil and now in India, we have been expanding the SAE umbrella to areas outside the United States where mobility engineers are designing and producing vehicles, airplanes, spacecraft, tractors, heavy-duty trucks, etc. Where another society already exists supporting mobility engineers, we have sought collaboration to jointly sponsor technical meetings, provide publishing services, arrange reciprocal agreements on member services, and explore common ground for standards development, including interactions with ISO standards-writing bodies. The care and feeding of all of these relationships require some effort by SAE staff and by the President. My predecessors have set a pattern of travel to these worldwide constituencies that re-prioritizes Presidential duties to reflect a dominant "global ambassador" role.

Given that some travel is necessary, we are now finalizing "how much?"and "to where?" We have had, for some time, a "Global Priority Planning Matrix" that assesses the opportunity for SAE to grow our society in a certain country and serve the engineers involved in transportation industries. This has recently been updated to reflect the changing landscape in the automobile, truck, aerospace, and off-highway industries. Consistent with this new matrix and the reduced budgets for travel, we have changed travel plans for this year to concentrate on areas that offer the highest potential for future growth and influence for SAE.

The SAE Board of Directors is also considering a proposal to reduce the need for the President to support this global outreach to make the time commitment of the Presidency more consistent with maintaining a "day job" in industry. Some of this travel may be delegated to the three new SAE Vice Presidents, or the responsibility of the current senior staff officer, Executive Vice President Ray Morris, may be increased. Changes in position titles are being discussed to be consistent with changing responsibilities. These changes would enlarge the field of qualified candidates for the top volunteer position in our society (currently the President) by requiring less time and financial commitment. These discussions are ongoing.

I count it a privilege, as I close out my industry career, to have the opportunity to give back to my profession by being SAE President.

As always, I welcome your comments at jthompson@sae.org.

SAE reaffirms strategic partnerships

American National Standards Institute (ANSI) President and Chief Executive Officer Mark Hurwitz (left) recently visited SAE World Headquarters to meet with SAE Executive Vice President and Secretary Ray Morris and other SAE staff.

WASHINGTON REPORT

Administrator Runge re-emphasizes global harmonization

By Doug Read, Managing Director, Washington, D.C., office

On March 11-13, 2003, National Highway Traffic Safety Administration (NHTSA) Administrator Jeffrey Runge, M.D., traveled to Geneva, Switzerland, to address the United Nations Economic Commission for Europe World Forum for Harmonization of Vehicle Regulations (WP.29).

The NHTSA Administrator's participation in WP.29 was a positive signal to other countries about the United States' commitment to improving vehicle safety and to the global harmonization of vehicle safety regulations. Runge focused his remarks on the importance of manufacturers and governments working together on solutions to some of today's vehicle safety challenges. He emphasized the importance of implementing the program of work of the 1998 Agreement. He also stressed the need for greater exchange of information among governments in areas such as compatibility and rollover as well as emerging technologies, such as hydrogen-powered vehicles. Runge also met with officials from the World Health Organization to discuss issues related to injury-control initiatives and the potential collaboration between the two organizations to reduce crash-related fatalities and injuries worldwide.

U.S. Transportation Secretary Mineta announces grants of $40.7 million to increase safety-belt use

U.S. Transportation Secretary Norman Y. Mineta recently announced that 43 states, the District of Columbia, and Puerto Rico will share approximately $40.7 million in NHTSA grants for states that develop innovative projects to increase safety-belt use. "I am pleased to see these funds provided to states to promote safety-belt use," Mineta said. "Everyone should buckle up for every trip because safety belts are the best protection available in a crash. Their use prevents injury and death on our roads and reduces the economic drain caused by traffic injuries."

According to NHTSA, safety belts are the most effective safety device in vehicles and would save thousands more lives annually if everyone buckled up. In 2002, safety-belt use in the United States was about 75%

The goal of this grant program is to implement proven methods of increasing safety-belt use across the nation with a major focus on highly visible enforcement of safety-belt laws, coupled with public information and education campaigns delivering a clear enforcement message.

The grants are authorized by the Transportation Equity Act for the 21st Century (TEA-21). The act provides $500 million over five years for states to increase safety-belt use and another $700 million over six years for states to enact and enforce tough laws to prevent alcohol-impaired driving.

Hydrogen: "The Basics and the Advanced" briefing held on Capitol Hill

The Global Legislators Organization for a Balanced Environment USA (GLOBE USA), the Worldwatch Institute, and UTC Fuel Cells recently sponsored a luncheon briefing to discuss hydrogen as an energy carrier. This event, held on April 3, 2003 at the Rayburn House Office building, was also organized by Representative Christopher Shays (R-CT), Representative Frank Pallone (D-NJ), Representative Wayne Gilchrest (R-MD), Representative Tom Allen (D-ME), and Representative Mark Udall (D-CO), as well as the House and Senate Renewable Energy and Energy Efficiency Caucuses.

In recent months, hydrogen has surfaced as a possible answer to America's energy needs. In his State of the Union address, President Bush proposed $1.2 billion for hydrogen development and introduction of fuel-cell cars to market. Exactly how to proceed and how best to utilize this emerging technology is an issue that will be hotly debated in the current Congressional session.

Hydrogen is a clean energy carrier; however, many questions arise in the hydrogen debate as the details of implementation are discussed. Issues included in this policy briefing included:

- How is hydrogen produced and used as an energy carrier?
- What is a fuel cell—how is it powered by hydrogen?
- Are there infrastructure and safety concerns for hydrogen?
- What exactly will the $1.2 billion proposed by the Bush Administration fund?
- Are American industry's leaders involved in hydrogen and fuel-cell technologies?
- What are the international policies and developments in the hydrogen sector?
- How can government involvement help or hinder the emergence of hydrogen as a viable and widely available energy carrier?

GLOBE USA has partnered with the Worldwatch Institute and UTC Fuel Cells to bring experts from the administration, industry, and non-governmental organizations together to discuss hydrogen science and related policy and to open balanced discussion on the issue to a wide array of Congressional members and staff.

Besides House members, other speakers included Jennifer Gangi, Program Director, Fuel Cells 2000; Carolyn Elam, Senior Project Leader, National Renewable Energy Laboratory; Sandy Thomas, President, H2Gen Innovations, Inc.; David Garmon, Assistant Secretary, Energy Efficiency and Renewable Energy, Department of Energy; Judith Bayer, UTC Fuel Cells - Hydrogen Policy and Industry; and Christopher Flavin, President, Worldwatch Institute.

Commerce unveils plan to reduce barriers to trade; standards initiative aims to increase competition in global marketplace

Commerce Secretary Don Evans recently announced an eight-point standards initiative to help break down trade barriers. The initiative is in response to industry concerns that foreign standards and technical regulation issues are becoming among the greatest challenges to expanding exports.

"The Bush Administration remains committed to promoting competition and opening new markets for U.S. goods," said Evans. "Standards and testing are key to our international competitiveness. But more and more we are hearing that foreign standards and testing requirements are keeping our products out of foreign markets. This is the wrong approach that reduces efficiencies, limits competition, and increases prices for the consumer goods. This eight-point initiative is an effort to create a more level playing field around the world."

Foreign standards and methods used to assess conformity to standards can facilitate efficient international trade and its benefits, or they can be used intentionally or unintentionally to impede access to foreign markets. Many in industry view foreign standards and technical regulations as a principal non-tariff barrier in markets around the world. Divergent standards, redundant testing and compliance procedures, and unilateral and non-transparent standard-setting exercises are now recognized as major impediments to free trade—estimated to affect 80% of world commodity trade.

A letter from the Washington Fellow

By Jim Kadtke, SAE Washington Fellow

Greetings fellow SAE members, and welcome to another update from the U.S. Senate. When last I wrote, I had anticipated an extremely hectic schedule for the Congress the last two months, and it has surpassed all expectations. The FY03 omnibus budget bill, the beginning of the FY04 budget process, the start of the war in Iraq, and the legislative log jam over the Estrada nomination are only some of the major issues now consuming the energies of Congress and staff alike.

In my position as a Fellow, I have been lucky enough to be deeply involved in my office in the beginnings of the budget process for the next fiscal year. This process is so complicated that it almost defies full understanding and, in fact, began last summer with the various executive branch agencies starting to assess their resource requirements for next year. During the winter, ongoing negotiations with the Office of Management and Budget (OMB) finalized these requested budgets, with guidance from the office of the President, eventually all being aggregated into the President's budget request for FY04, released this year in late February. Submission of this request to Congress sets off a flurry of activity on the Hill, as the various committees and personal offices try to assess the details and repercussions of the numbers. The respective budget committees in the House and Senate begin to work toward a "top line" as well as general guidelines for each major functional area, while individual committees (*e.g.* Judiciary, Armed Services) start to assess the President's request and gather other requests from individual offices to formulate recommendations for the various areas over which they have jurisdiction.

In the personal offices of Senators and Representatives, a complicated process begins of gathering and vetting requests from constituents for projects that may be added to the President's budget request. In my capacity in Senator Warner's office, I have been fortunate to be centrally involved in gathering and assessing requests from Virginia constituents that could be added to the Senate Armed Services Committee (SASC) budget recommendation. During the last six months, my supervisor and I have met with more than 200 companies and groups seeking funding for defense-related projects, and we have analyzed and summarized each one into a bottom-line request. In negotiation with area-expert staff on the SASC, we then finalize this into a much smaller prioritized list of funding requests to the SASC and to the Defense Subcommittee of the Appropriations Committee (SAC-D). Over the next few weeks, these committees will collect the requests of all members, negotiate through the bill mark-up until a much smaller list is finalized, then attempt to pass them to resolve the final authorization and appropriation committee bills, respectively. While authorization is important, it is not absolutely necessary; however, without passage of the 13 appropriation bills, those respective areas of the government covered by individual bills are not officially funded. Once the appropriations bills pass, they are packaged into a single bill by the budget committee from each chamber and sent to each full floor for a vote. Following this step, the two bills go to a conference committee to resolve differences in the House and Senate version, then again to each chamber for final passage. After this entire process, the finalized bill is sent to the President, who may either sign it or send it back to Congress for another round of negotiation.

One heartening note I want to mention is that science, engineering, and technology commercialization seems to be a relatively higher budgetary priority recently than in previous years, even with overall shrinking discretionary funding. The message that R&D directly fosters economic growth is starting to become generally accepted, and the role of standards as a critical link between research and the marketplace has been surprisingly raised in several contexts. In major initiatives such as nanotechnology, climate change, and in particular homeland security, development of new standards has received major priority. Whether new models for government-industry cooperation in standards development emerge still remains to be seen, however. I am happy to say that in our office, we have stressed funding R&D to bring long-term economic growth to our state, and we should be able to add tens of millions of dollars of funding for research on defense and homeland security to the FY04 budget, which will benefit the United States as a whole.

FROM AUTOMOTIVE HEADQUARTERS

Another mobile A/C refrigerant in the future?

By Jack Pokrzywa, Managing Director, SAE Automotive Headquarters

Recently, representatives from the SAE Interior Climate Control Committee (ICCC) attended various meetings to discuss possible changes in the refrigerant used in mobile air conditioning systems. These meetings were prompted by the concerns raised for the global warming potential of the current R134a refrigerant. R134a is listed in the Kyoto Protocol as a controlled global warming gas whose usage will need to be reported by signatories of the protocol.

Brussels conference

Members of the SAE Interior Climate Control Standards Committee attended the Mobile Air Conditioning (MAC) Summit 2003 in Brussels, Belgium, February 10-11. The meeting was organized by the European Commission and the United States Environmental Protection Agency (EPA).

The purpose of the conference was to identify policy-relevant options on how to reduce greenhouse gas emissions from mobile air conditioning systems and to make recommendations to regulators and vehicle manufacturers in the European Union (EU) and elsewhere.

The results of the conference seemed to indicate, due to its environmental effect, that the use of HFC-134a refrigerant in future mobile air conditioning systems would not be a sustainable option in the EU.

Ward Atkinson chaired a session on the "Environmental challenge of mobile air conditioners" during the summit. Subjects covered in this session included HFC-134a leakage due to manufacturing operations, normal system maintenance, and refrigerant recovery at vehicle end of life. Other presentations included MAC fuel consumption and regulatory strategy for establishing vehicle fuel efficiency standards for mobile air conditioning systems.

In another session, "Industry perspectives on reducing direct and indirect greenhouse emissions from MACs," there were presentations on servicing HFC-134a systems as well as carbon dioxide and HFC-152a as possible alternative refrigerants. Hans Fernqvist's (Volvo) presentation covered "Fuel-efficient, leak-tight HFC-134a systems" and William Hill (GM) presented "HFC-152a as an alternative refrigerant."

The summary of this meeting indicates that all of the alternative refrigerant technologies to replace HFC-134a have system technical and system design concerns that still need to be resolved. In some cases there are also system performance and efficiency issues that must be resolved to be comparable with today's HFC-134a systems. In addition, there are significant cost issues to be addressed.

During the Brussels meeting it was generally agreed that the transition to another alternative refrigerant will require 2 to 4 years for the simplest form to at least 8 to 10 years for any major new refrigerant system. Should the replacement of HFC-134a be required, other alternative refrigerant systems may impact the design of hybrid and fuel-cell vehicle architectures.

It is expected that later this year, the EU Commission will issue directives on the use of refrigerants and service requirements for mobile air conditioning systems. These directives may include establishing a phase-out date for HFC-134a requirements for refrigerant recovery, annual vehicle A/C refrigerant system inspections, and restriction of refrigerant sales to unauthorized personnel.

The MAC Summit was attended by 120 invited or nominated participants, consisting of some 40 policymakers/advisors engaged in developing options to reduce the climate change impact of mobile air conditioning. In addition to the EU countries, Australia, Japan, the United States, China, and India were represented. Some 70 participants represented vehicle and component manufacturers from the EU, Japan, Korea, and the United States. Ten participants represented non-governmental consumer, environmental, and professional organizations.

European VDA Alternate Refrigerant Meeting

Following the Brussels Conference, some of the SAE ICCC members attended the Verband der Automobilindustrie (VDA) Alternate Refrigerant Winter Meeting, February 13-14, in Saalfelden, Austria.

The meeting included more than 20 presentations and technical papers and allowed cold-weather ride evaluations of carbon dioxide demonstration systems that provide a source of heating for passenger vehicles. More than 150 people, including representatives from European vehicle, system, and component makers, as well as governmental representatives, attended the meeting.

This meeting reported the progress of carbon dioxide developments as a mobile air conditioning refrigerant and focused on using carbon dioxide as a source for heating vehicles in cold weather.

Japan SAE-JAMA Meeting

After the European VDA meeting, William Hill and Ward Atkinson traveled to Japan to meet with automotive and industry representatives. On February 18, a joint SAE-JAMA (Japan Automobile Manufacturers Association) meeting was held in Tokyo to provide an overview of the MAC Brussels Conference and its potential industry impact with Japanese automotive industry representatives. Those in attendance included Toyota, Nissan, Honda, Mitsubishi, Japan Refrigeration and Air Conditioning Industry Association (JRAIA), and Denso representatives. Additional meetings discussing the issue were held with Japanese representatives of CalsonicKansei, Denso, General Motors, and Suzuki.

All of the suppliers and OEMs expressed concern for the impact of these potential EU changes on the mobile air conditioning industry and agreed to continue an open dialogue with the global community.

California Air Resource Board AB 1493 Symposium

CARB (California Air Resource Board) conducted an International Vehicle Technology Symposium, March 11-13, 2003, in conjunction with AB 1493 that will be adopted in 2004. One subject was the impact of mobile air conditioning refrigerants on global warming. SAE ICCC members James Baker (Delphi) and Ward Atkinson (Sun Test Engineering) made presentations during the symposium and attended a meeting with CARB staff to discuss mobile air conditioning issues. One of CARB's interests is in conducting vehicle SHED tests to determine the contribution of refrigerant leakage to global warming.

Refrigerant conversion of mobile A/C systems

In just the last decade, it is estimated that U.S. industries spent $5 billion to convert from CFC-12 to HFC-134a. This was a relatively simple conversion for the mobile air conditioning industry compared to some of the alternative refrigerant technologies now being proposed.

The U.S. Clean Air Act required the recovery and recycling of CFC-12 during servicing and vehicle scrapping since 1992; the same was required of HFC-134a refrigerants since November 1995. Japan has recently enacted a law requiring the recovery and destruction of CFC-12 refrigerant. Many other parts of the world have not implemented such conservation requirements. However, refrigerant recovery and recycling is an environmental benefit: it reduces the amount of new refrigerant required by 40% (compared to direct venting during servicing).

The direct refrigerant emissions (converted to equivalent CO_2) from mobile air conditioning systems, over a 12-year life span with no refrigerant recovery, are equivalent to the release from each vehicle of 2.6 t of CO_2. This results in the world mobile air conditioning fleet releasing less than 0.5% of total man-made global warming emissions. It is important that the environmental benefit of any change to an alternative refrigerant be judged based on its total environmental and economic cost. For more information, please contact SAE Automotive Headquarters at automotive_hq@sae.org

MEDAL OF HONOR continued from page 1

American engineer, he was sent to Volkswagen's corporate headquarters in Wolfsburg, Germany, in 1983 for a two-year assignment. In 1988, Miller joined Nissan and was initially responsible for helping to organize and build Nissan's Technical Center in Michigan. He later became Senior Vice President with total engineering responsibility for Nissan vehicles manufactured in the U.S. When he retired from Nissan as Executive Vice President in 1996, he formed D. F. Miller International, Inc. for consulting services.

Miller has a BSME degree from the University of Nebraska and an MBA from Michigan State University.

OFFICER PROFILE

Nicholas P. Cernansky, B.S., M.S., M.P.H., Ph.D., P.E., Hess Chair Professor of Combustion at Drexel University, has been elected to serve a three-year term on the SAE Board of Directors (2003-2005).

Nicholas P. Cernansky

Cernansky studied at the University of Pittsburgh in the Department of Mechanical Engineering (B.S., 1967). He then studied at the University of Michigan under a Public Health Service Air Pollution Traineeship (M.S., 1968). His later graduate and doctoral degree work was at the University of California, Berkeley (M.P.H., 1973; Ph.D., 1974). He served as an air pollution engineer, specializing in vehicular emissions with the Environmental Protection Agency (1968-1970) and, upon completion of his doctoral work, was appointed to the faculty of the Mechanical Engineering and Mechanics (MEM) Department at Drexel University (1975-Present). He was a visiting scientist at the Combustion Research Facility at Sandia National Laboratories, Livermore, CA (1984). He was named as the S. Herbert Raynes Professor of Mechanical Engineering in 1987, and he was appointed as the Frederic O. Hess Chair Professor of Combustion in 1988. He received the Drexel University Research Achievement Award in 1989.

In addition to SAE, Cernansky is a member of the Air & Waste Management Association, American Association for the Advancement of Science, American Chemical Society, American Institute of Aeronautics and Astronautics, American Society for Engineering Education, American Society of Mechanical Engineers, The Combustion Institute, and is a Registered Professional Engineer in the State of Pennsylvania (PE-033220-E). He is an SAE Fellow and is listed in American Men and Women of Science.

As the Hess Chair Professor of Combustion, Cernansky teaches undergraduate and graduate courses in the areas of combustion, propulsion, thermodynamics, and energy conversion and utilization. He was the instructor for the Mechanical Engineering portion of the PRIME PUP summer program for high school students from 1981-96. He served as Acting Head of the MEM Department from April 1985-September 1986, as Interim Director of Drexel's Environmental Studies Institute from February 1992-October 1993, and as Interim Head of the MEM Department from September 1996-August 2000.

Over the past several years, Cernansky has worked on a variety of analytical and experimental research problems in the areas of fundamental combustion studies, practical combustion systems, propulsion, air pollution, vehicular air pollution, energy and fuel conservation, fuels technology, environmental sciences, and others. His current research activities include studies on the following: low and intermediate temperature combustion of hydrocarbons; auto-ignition and knock-in-spark ignition engines; alternative combustion engine technologies, *e.g.*, homogeneous charge compression ignition (HCCI) combustion; and the formation and control of combustion emissions from both conventional and alternative fuels. He is the author of numerous reports and publications arising from this work.

AWARDS

2002 Cole Award recipient announced

David C. Viano

David C. Viano, General Motors Corp. (retired), will receive the SAE Edward N. Cole Award for Automotive Engineering Innovation on June 4, 2003 at the SAE Detroit Section Dinner Meeting at the San Marino Club in Troy, MI.

Viano led a multi-year study of seat designs at General Motors for rear crash safety that involved several patented technologies that went into production. The high-retention seat featured a perimeter frame for severe rear crashes and a soft yielding seatback suspension to prevent whiplash in crashes at lower speeds. The active head restraint raised and rotated forward the head restraint to obtain early support to counter whiplash forces. The all-mechanical design was an industry first in the 1997 Saab. The high-retention seat and active head restraint have reduced fatality and injury risks in field crashes. The Quasistatic Seat Test (QST) improved subsystem testing of occupant safety in rear crashes by measuring energy transfer capability with seatback rotation and twist. It contributed to optimization of future seat designs for weight and cost, while increasing safety in rear crashes. In addition to six seat-related patents, Viano has 10 more on other safety technologies.

Viano chaired 18 SAE Congress sessions that produced 20 special publications. He also chaired the Automobile Body Activity, the Passenger Protection Committee, the Stapp Car Crash Advisory Committee, and the Isbrandt Automotive Safety Awards Board. In addition, he served as a member of the SAE Fellow Committee. He was recognized as author of "best in category" papers by nine SAE Colwell awards, four Isbrandt awards for Distinguished Accomplishment in Automotive Safety Engineering, three Stapp-Siegel awards for Best Stapp Conference Paper, and numerous SAE oral presentation awards.

His university appointments as professor include Wayne State University, Chalmers University of Technology, the University of Virginia, and the Royal Institute of Technology in Stockholm, Sweden.

Nominations are now being accepted through August 1 for the 2003 Edward N. Cole Award for Automotive Engineering Innovation. Submit the online nomination form at www.sae.org/awards/cole.htm.

Visit www.sae.org

CALL FOR NOMINATIONS

Award: Arch T. Colwell Cooperative Engineering Medal

Nomination deadline: July 1, 2003

Description: This award recognizes a unique and outstanding contribution over a period of time to the work of the technical committees under the SAE Technical Standards Board in developing standards, specifications, technical reports, and data through cooperative research.

The medal was named in honor of Arch T. Colwell, 1941 SAE President and the first recipient of the award. Dr. Colwell symbolized the dedication and devotion of members who work to further the objectives of the SAE Technical Standards Program.

Submission: Visit www.sae.org/awards/coleng.htm for a nomination form.

Award: Max Bentele Award for Engine Technology Innovation

Nomination deadline: July 1, 2003

Description: The award recognizes an SAE member whose work has furthered innovation in the manufacture, design, and improvement of engine technology for ground, air, or space vehicles. It is designated for engineers under the age of 35 who have made a major contribution through a new idea, concept, innovation, or application that provides a recognized improvement in engine technology and that has been verified through proof-of-concept demonstrations.

This award was established through the SAE Foundation in 2001 and honors Dr. Max Bentele for his contributions to the field of mobility engines and his encouragement for others to innovate and promote advances in the area. The recipient receives an award, a framed certificate, a copy of Dr. Bentele's book "Engine Revolutions," and a generous honorarium.

Submission: Visit www.sae.org/awards/bentele.htm for a nomination form.

Award: Myers Award

Nomination deadline: July 15, 2003

Description: This award is given annually for the best SAE technical paper presented by a student. The paper must be based on work done by the lead author(s) while he or she is a student and must be presented by the student at a major SAE meeting between June 1, 2002 and May 31, 2003. Papers can be on any topic and from students worldwide.

The award consists of a crystal memento as well as a $3000 monetary prize. The Myers Award is sponsored by the SAE Foundation through the generous support of Dr. Phillip S. Myers. Myers is a renowned expert on internal combustion engines and is professor emeritus at the University of Wisconsin-Madison. Together with his wife Jean, he has encouraged student involvement with SAE and has set a high standard for academic excellence.

Submission: Visit www.sae.org/awards/myers.htm for a nomination form.

Award: SAE/InterRegs Standards & Regulations Award for Young Engineers

Nomination deadline: August 1, 2003

Description: This award annually recognizes a practicing engineer under the age of 40 who is involved in standards, regulations, or conformity assessment systems that have improved safety or reduced emissions in a mobility product.

The award was established in 2000 by InterRegs Ltd. and the SAE Foundation as a way to reward participation in standards and regulations by young engineers, and to encourage increased participation in this area of engineering in the future. The recipient will be presented with an engraved award and will receive a $1000 honorarium. The 2003 recipient of this award was Dr. Chantal Parenteau of Delphi Corp.

Submission: Visit www.sae.org/awards/interregs.htm for a nomination form.

MEETINGS UPDATE

Meetings/professional development schedule

For more information about the meetings, TOPTECs (TOPical TEChnical Symposia), workshops, the engineering academies or clinics, call SAE Customer Service toll-free at 1.877.606.7323 (1.724.776.4970 outside the U.S. and Canada). Additional meeting details can be found on SAE's website at www.sae.org/calendar/meetings.htm; professional development course information at www.sae.org/misc/training.htm.

Ground Vehicle Design & Manufacturing Events		
Diesel Technology Engineering Academy	June 2-6 2003	Troy, MI
Vehicle Recorder TOPTEC	June 3-4 2003	Alexandria, VA
Lean Validation Engineering Clinic: Bridging the Gap-Moving to Lean Validation Clinic	June 3-4 2003	Troy, MI
Vehicle Exterior Noise Engineering Clinic: Practices, Advances & Upcoming Standards	June 11 2003	Plymouth, MI
Digital Human Modeling for Design and Engineering (DHM)	June 16-19 2003	Montreal, Quebec, Canada
Designing Electronic Engine Controls TOPTEC	June 16-19 2003	Turin, Italy
* Future Transportation Technology (FTT) Conference	June 23-25 2003	Costa Mesa, CA
National Intelligent Vehicle Initiative (NIVI) Meeting *(administered by SAE International for the U.S. Department of Transportation)*	June 24-26 2003	Washington, DC
Automotive Alternative Refrigerants Symposium	July 15-17 2003	Scottsdale, AZ
Emerging Transmission Technologies TOPTEC	August 12-13 2003	Troy, MI
Small Engine Technology Conference (SETC)	September 16-18 2003	Madison, WI
Heavy Duty Diesel Emissions Control TOPTEC	September 22-23 2003	Gothenburg, Sweden
12th SAE Brasil Congress and Exposition	October 6-8 2003	Sao Paulo, Brazil
21st Annual SAE Brake Colloquium and Exhibition	October 19-22 2003	Hollywood, FL
International Body Engineering Conference & Exhibition (IBEC) *(* Administered by JSAE, supported by SAE International)*	October 27-29 2003	Chiba, Japan
Powertrain & Fluid Systems Conf./Exhibition	October 27-30 2003	Toronto, Ontario, Canada
DoD Maintenance Symposium & Exhibition *(* Administered by SAE International for the U.S. Department of Defense)*	October 27-30 2003	King of Prussia, PA
Aerospace Design & Manufacturing Events		
Digital Human Modeling for Design and Engineering (DHM)	June 16-19 2003	Montreal, Quebec, Canada
FAA In-flight Icing / Ground De-icing International Conference *(*Administered by SAE International for the Federal Aviation Administration)*	June 16-20 2003	Chicago, IL
33rd International Conference on Environmental Systems (ICES)	July 7-10 2003	Vancouver, B.C., Canada
Aerospace Congress & Exhibition (ACE)	September 8-12 2003	Montreal, Quebec, Canada
DoD Maintenance Symposium & Exhibition *(* Administered by SAE International for the U.S. Department of Defense)*	October 27-30 2003	King of Prussia, PA

**Meetings at which SAE seminars will be conducted. For more information or to register, contact SAE Customer Service at 1.877.606.7323 (724.776.4970 outside the U.S. and Canada); e-mail CustomerService@sae.org; or visit www.sae.org.*

MEETINGS UPDATE

Rollover Avoidance: Cars & Light Trucks TOPTEC slated for September

Scheduled for September 29-30, 2003, the Rollover Avoidance: Cars & Light Trucks TOPTEC will be held at Michigan State University's Management Education Center in Troy, MI.

This symposium will provide a concentrated opportunity to explore the very latest technological developments of passenger car and light truck rollover avoidance, detection, and simulation systems. Recent engineering and research efforts from industry, government, and academia have led to the development of a variety of new onboard electronic stability control (ESC) devices, warning systems, and new methods of simulation and objective testing. The trends for such systems continue to grow at a rapid pace as is evidenced in the numbers of vehicles already in and coming to market with the latest state-of-the-art ESC systems on board. Testing and validation done by the government and the various consumer groups have confirmed that ESC plays an important role in improving a vehicle's rollover performance. Presenters for this event have been selected from a group of leading experts in the field representing industry, government, consumer groups, and the developers of these breakthrough technologies.

This program is currently in development. For questions concerning this TOPTEC, please contact Nancy Eiben, Staff Team Leader, at 1.724.772.8525 or naneiben@sae.org.

To register for this program, contact SAE Customer Service toll-free at 1.877.606.7323 (1.724.776.4970 outside the U.S. or Canada), visit www.sae.org, or email CustomerService@sae.org. The ID for this TOPTEC is 2003TT25. Space is limited.

MEMBER UPDATE

Members on the move

Don Boeckenstedt (Mbr'94) has been appointed to the Operations Team for Dana's Automotive Aftermarket Group's Friction Products, which is part of the Brake & Chassis portion of the business.

Michael Brammer Sr. (Asc'78) has been named President of Carlisle Motion Control Industries, Inc. He will be responsible for strategic planning and development of all organizational activities including sales expansion, product development, and heightened productivity/functionality.

Dan Coker (Mbr'94) has been appointed President and Chief Executive Officer for Amerigon.

Brian Krinock (Asc'86) has been promoted to General Manager, Production Engineering, Project Management Office for Toyota Motor Manufacturing North America, Inc.

Joseph Spielman (Mbr'95) has been named Vice President and General Manager for General Motors Vehicle Manufacturing. Spielman, who prior to this new appointment was Vice President and General Manager of GM Metal Fabricating Division, will have operational responsibility for all of GM's North American assembly plants.

Joseph Spielman

CALL FOR PAPERS

Future Car Congress

Paper abstracts due: September 22, 2003

Event date and location: June 27-30, 2004, Washington, DC

Possible paper topics: Fuel Cell Technology; Powertrain Developments; Fuels & Infrastructure; Advanced Technology Vehicles; Energy Storage Technology; Power Electronics; Lightweight Materials Developments; and Intelligent Vehicle Technology.

Submit abstracts to: FutureCar@sae.org.

Instructions for paper submittal: Papers are to present new and significant facts and should include results achieved, if applicable. Abstracts submitted online are generally to be 300-500 words in length and should include tentative title; name of the author and co-authors; business affiliation; mailing address; e-mail address; and telephone and fax numbers. Questions should be directed to SAE at 1.877.606.7323 (1.724.776.4970 outside the U.S. and Canada) unless otherwise indicated. *Note: Conference paper presenters may be required to pay a nominal registration fee. SAE's website includes paper templates, copyright form details, an area to upload papers, and complete details on paper calls. Visit www.sae.org/calendar/calls.htm.*

PROFESSIONAL DEVELOPMENT

Seminars from SAE

Detailed course descriptions are available online at www.sae.org/contedu/. To register, complete the online registration form, email profdev@sae.org, or call SAE Customer Service at 1.877.606.7323 (1.724.776.4970 outside the U.S. or Canada).

**One of SAE's Top 20 most popular seminars.*

JUNE/2003

Troy, Michigan – SAE Professional Engineering Education Center

Jun 4-6	Geometric Dimensioning & Tolerancing - Level I - I.D.# 86020	TOP 20*
Jun 9	A Familiarization of Drivetrain Components - I.D.# 98024	
Jun 9-11	The Engineer in Transition to Management - I.D.# 94005	TOP 20*
Jun 9-11	Design of Hybrid Electric Vehicles - I.D.# 94031	
Jun 10-11	Automotive Advanced Driveline Systems: Theory & Design - I.D.# C0234	NEW!
Jun 16	The Tire as a Vehicle Component - I.D.# C0101	
Jun 16-17	Fundamentals of the Passenger Vehicle Transmission - I.D.# 99018	
Jun 17	Tire & Wheel Safety Issues - I.D.# C0102	
Jun 18-19	Shock & Vibration Measurement & Calibration - I.D.# 88014	
Jun 18-19	Operational Principles of Continuously Variable Transmission Systems - I.D.# C0248	NEW!
Jun 19-20	Engineering Project Management - I.D.# 99003	TOP 20*
Jun 19-20	Automotive Plastics: Principles of Materials & Process Selection - I.D.# C0135	NEW!
Jun 20	Dynamic Pressure Measurement Technology - I.D.# 91056	
Jun 23	Driver Distraction and Other Human Factors Issues Associated with Telematics – I.D.#C0107	
Jun 23-25	Weibull-Log Normal Analysis Workshop - I.D.# 86034	TOP 20*

Costa Mesa, California - Hilton Costa Mesa

In Conjunction with the Future Transportation Technology Conference & Exhibition

Jun 23-25	Injuries, Anatomy, Biomechanics & Federal Regulation - I.D.# 85049	
Jun 23-25	Fundamentals of Metal Fatigue Analysis - I.D.# 94024	
Jun 23-25	Automotive Fuel Cell Systems - I.D.# C0112	NEW!
Jun 24-25	Ignition Issues and Their Impact on Engine Performance, Efficiency & Emission - I.D.# C013	NEW!
Jun 25	Design Reviews for Effective Product Development - I.D.# C0004	

JULY/2003

Troy, Michigan – SAE Professional Engineering Education Center

Jul 10-11	The Role of the Seat in Rear Crash Safety - I.D.# C0250	NEW!
Jul 14-15	Threaded Fasteners and the Bolted Joint - I.D.# 95030	
Jul 14-16	Hydraulic Brake Systems - I.D.# 96018	TOP 20*
Jul 14-15	Catalytic Converters: Design and Durability - I.D.# 98017	TOP 20*

Continued on page 8

PROFESSIONAL DEVELOPMENT

Continued from page 7

Jul 17-18 Controller Area Network (CAN) for Vehicle Applications - I.D.# C0120 NEW!
Jul 21 Sensor & Actuator Technology: Module 1 – Powertrain - I.D.# 97019
Jul 21-22 Powertrain Selection for Fuel Economy and Acceleration Performance - I.D.# C0243 NEW!
Jul 22 Sensor & Actuator Technology: Module 2 – Chassis - I.D.# 97020
Jul 23 Sensor & Actuator Technology: Module 3 – Body - I.D.# 97021
Jul 24-25 Engineering Safety Specifications: Designing for Safety - I.D.# C0254 NEW!
Jul 31-Aug 1 Brakes - Design & Safety - I.D.# 87037 TOP 20*

AUGUST/2003

Troy, Michigan – SAE Professional Engineering Education Center

Aug 4-5 Selection, Evaluation and Measurements of Acoustical Materials for Vehicle – I.D.# 92032
Aug 4-6 Combustion & Emissions for Engineers – I.D.# 97011 TOP 20*
Aug 5-6 The Basics of Internal Combustion Engines – I.D.# C0103 TOP 20*
Aug 6-8 Automotive Fuel Cell Systems – I.D.# C0112 NEW!
Aug 7-8 Fundamentals of Gear Design and Application – I.D.# C0223 NEW!
Aug 11-13 Motor Vehicle Accident Reconstruction – I.D.# 90001 TOP 20*
Aug 11-12 Automotive Lighting – I.D.# C0202
Aug 18-20 Concurrent Engineering Practices Applied to the Design of Chassis Systems – I.D.# 96016 TOP 20*
Aug 18-20 Motor Fuel: Technology, Performance, Testing, and Specifications – I.D.# 98003
Aug 20-21 Electronics Packaging: Thermal & Mechanical Design & Analysis – I.D.# 97017
Aug 22 Engine Cooling Design: A System Engineering Approach – I.D.# C0204 NEW!
Aug 25-26 Diesel Engine Technology – I.D.# 93014 TOP 20*

Austin, Texas – National Instruments (NI) Week

Aug 11 Sensor & Actuator Technology: Module 1 – Powertrain – I.D.# 97019
Aug 12 Sensor & Actuator Technology: Module 2 – Chassis – I.D.# 97020
Aug 12 Noise & Vibration Measurement: Instruments & Facilities – I.D.# 86030

CAREER OPPORTUNITIES

SENIOR VEHICLE ENGINEER
We seek a mature vehicle engineer with automotive, truck, bus, or heavy equipment design and/or shop repair experience. Excellent analytical and communication skills required. Interesting assignments determining the causes of vehicle crashes in support of litigation. Full-time: Morristown NJ, Mineola and upstate NY, Lancaster PA, and Pittsburgh PA. Part-time: Richmond VA and Michigan. Robson Lapina provides opportunity for professional and financial growth in an environment that rewards excellence, integrity, and success. More information on and respond via www.RobsonLapina.com.

Senior Project Engineer for an automotive company. Duties include: Develop optimized SI engine combustion systems, including BMEP (knock-limited and MBT), regulated exhaust emissions, fuel consumption (EGR), combustion stability and cylinder balance, for improved engine performance. Coordinate engine testing for compression ratio, combustion chamber, port and valve geometrics, camshaft timing, and injector targeting, on research type single and prototype multicylinder engines. Analyze engine test data. Select optimized combustion system designs for production. Requires a Master of Science in Mechanical Engineering or a related degree. Requires one year experience in the job offered or one year experience as a Test/Testing Engineer. Salary is $66,288 per year. Hours are 8:00 a.m. to 5:00 p.m., 40 per week. MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170. Reference No. 210332. Employer paid ad.

Automotive Engineers
Autoliv ASP, Inc., manufacturer of auto safety restraint systems, has openings for experienced Lead Engineer and Systems Engineer. **Lead Engineer** will guide and lead eng. activities; maintain and improve quality, timing and cost on projects; perform eng. work to provide proper drawings/specs; provide guidance and training to engineers; provide component drawings, identify tooling, eval. req'd. component lead times; and provide component masses. Req: BA or BS or equivalent in Eng. or related; 5 yrs exp (emp. will accept MA and 3 yrs exp); prev. exp must incl. project eng. in seatblts/rstrnts, component design, biomechanics, injury assess, launch exp., and supervising engrs and techs. **Systems Engineer** will provide eng. support and leadership to optimize perform of safety restraint sys; define & dev test plans to design & verify products, incl. forecasting and component modeling; & provide tech expertise on select'n of components (airbags, seat belts, etc). Req: MS in mechanical or biomechanical eng. & at least 6 mos. exp, incl. FMVS Stndrds #208 (frontal impact) & #214 (side impact); tst'g w/crash test dummies & dummy instrumentation, crash test data acqstn & data analysis & accident injury mechanisms. Jobs located in Auburn Hills, MI. Pls. send resumes to ATTN: HR Manager RE: SAE Job Posting, 1320 Pacific Dr., Auburn Hills, MI 48326 or fax to (248) 475-9834.

Sr. Project Engineer. Vehicle dynamics and mechanisms simulation; synthesis and analysis for automotive systems performance; analytical assessment for driveline vibration; suspension components and mechanisms design. Ph.D. or foreign equivalent in Mechanical Engineering. 1 yr experience in job offered or as Project Engineer, Research Engineer or Associate, or related. Experience must include use of ADAMS, MotionView, MATLAB, MATHCAD Software. 40 hours/wk, 8:00 a.m. to 5:00 p.m., $78,000/yr. Send resume to MDCD/ESA, PO Box 11170, Detroit, MI 48202, Ref. #210682. Employer Paid Ad.

Senior System Controls Engineer. Ann Arbor, MI. Competitive Salary; 40 hr. wk. Responsibilities include acquiring new projects with new and existing customers in the gasoline market; technical presentations and marketing activities in advanced technologies such as Variable Valve Timing, Torque Based Engine Management Systems, or new OBD-II features; management of key projects in gasoline department, including calibration of electronic control units in vehicle and on test benches (engine dynos, vehicle chassis, roller dynos, cold/hot/altitude test trips), development of algorithms for torque-based engine control units (including specification of controls architecture, algorithms specification, implementation in MATLAB testing and validation), and drivability evaluation; calibrate emission related diagnostic algorithms to meet OBD II requirements; discussing and proposing algorithm modifications; designing new strategies; developing calibration tools to assist in efficient calibration of diagnostic functions and performing testing; and serving as mentor to less senior engineers. Minimum requirements: B.S. degree in Engineering, plus 5 years experience in job offered or as Mechanical or Electrical Engineer. Experience must include OBD II calibration of gasoline engines. Mail resumes to: 4110 Varsity Drive, Ann Arbor, MI 48108. Reference job code: SSCE. EOE

HYPERCAR, INC.

Hypercar, Inc. develops lightweighting and efficiency solutions for the auto industry. We are expanding our R&D team in the area of lightweight body structure design and manufacture using carbon-fiber composites. Located in the heart of Colorado's Rocky Mountains, employment with Hypercar offers a challenging and rewarding work environment, attractive compensation, and unparalleled quality of life. Hypercar is currently hiring for two positions:

Body Engineering R&D—This position requires experience with body structure engineering, design, and analysis and preferably familiarity with advanced-composite materials.

Manufacturing Systems—Hypercar seeks an individual for this position who can bring practical volume automotive manufacturing experience into an R&D setting.

Visit www.hypercar.com for more information and for additional job listings as they become available. Send all inquiries to jobs@hypercar.com, or by fax to (877) 232-0292.

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PROJECT ENGINEER. Perform Finite Element Analysis on automotive components. Responsibility for prep. of finite element model parts for NVH, CRASH, & Durability analysis. Must have M.S. in Mech. Engineering (incl. thesis or 2 grad-level courses in Finite Element Analysis). Need proof of legal authority to work in U.S. Send resume to G. Skarakis, 31150 Northwestern Highway, Suite 100, Farmington Hills, Michigan 48334.

User Systems Development Specialist. Work Sched 7:00AM-4:00 PM 40 hrs/wk. $84,000.00 P/Yr. Implement, develop & counsel/train mechanical engineers in technologies involved in the Engineering and Manufacturing Modeling Processes for light duty truck & sport utility vehicle (SUV) components. Develop & implement & support new computer software including Visual Product Modeler (VPM), Generative Shape Modeler (GSM), Finite Dimensioning & Tolerance (FD&T) into daily routine to take advantage of technologies in/for development & engineering of truck & SUV components. Provide hands-on support for Design Engineers in the use of Engrg Mfg Modeling tools. Train & present new design methodologies to Design Engineers & pilot new engineering techniques using CATIA. Conduct presentations & training to engineers in the use of VPM, GSM & CDV (Visualization Package). Maintain software applications that support the operations of design & development of software. Provide support for application users. Troubleshoot process problems for internal users. Master (or equivalent) in Mechanical or Manufacturing Engrg. 1 yr exp. in job or in Related Occupation of Engineer. 1 yr. of Related Occupation exp. must include development & implementation of computer software including VPM, GSM, & FD&T in engrg of truck, SUV &/or car components, which may be concurrent with related occupation exp. Employer Paid Ad. Send resume to MDCD/ESA, P.O. Box 11170, Detroit, MI 48202-1170, Ref. # 210864.