Together we drive.

100% Electric NISSAN LEAF®
The most proven EV on the planet.

It is the driver’s responsibility to remain alert with hands on steering wheel, keeping a lookout for other vehicles and pedestrians at all times.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Welcome Letter</td>
</tr>
<tr>
<td>4</td>
<td>Event Overview</td>
</tr>
<tr>
<td>6</td>
<td>Leadership Team &amp; Organizing Committee</td>
</tr>
<tr>
<td>8</td>
<td>General Information &amp; Hours of Operation</td>
</tr>
<tr>
<td>10</td>
<td>Agenda</td>
</tr>
<tr>
<td>14</td>
<td>Special Events</td>
</tr>
<tr>
<td>18</td>
<td>Biographies</td>
</tr>
<tr>
<td>64</td>
<td>Sponsor Profiles</td>
</tr>
<tr>
<td>93</td>
<td>Advertisers Index</td>
</tr>
</tbody>
</table>
Chris Reed  
Senior Vice President  
Nissan Technical Center North America  
2019 NAIPC Chairperson

Dear Colleagues,

I invite you to join me in Chicago for the 2019 North American International Powertrain Conference (NAIPC) to be held September 18-20. This invitation-only event is for powertrain leaders like you and features perspectives from across the industry and around the world. This year’s event will be held at the Fairmont Millennium Park Hotel in downtown Chicago.

As you are no doubt aware, our industry is grappling with massive changes from factors like increasing regulatory stringency, shifts in mobility and customer usage models, connectivity and increasing electrification. In order to address these big issues, we have developed this year’s theme to be “From Internal Combustion to Electrified Propulsion: Finding New Global Equilibriums.”

We have thoughtfully constructed separate sessions covering the future trends that are affecting the transportation sector as a whole, technologies that will be deployed to meet these trends, and strategies to adapt and equip our businesses for future success. The conference will wrap-up with the perennial highlight, the OEM panel, where key executives will have an in-depth discussion of their perspectives on the future.

NAIPC will kick-off with a stimulating keynote address and will offer networking opportunities and structured lunch discussions to foster in-depth discussions. Governed by the Chatham House Rule, the conference will be a protected forum for candid dialogue, and a unique opportunity to develop cooperative solutions to the challenges facing our industry today.

I’m looking forward to meeting with you in Chicago to find solutions to tomorrow’s challenges.

Best Regards,

Chris Reed  
Senior Vice President  
Nissan Technical Center North America
Disruptive technologies are reshaping the mobility ecosystem. As a leader in sustainable mobility, AVL provides powertrain solutions that are tailored to meet your unique needs from development through production. Tackle the industry’s most complex challenges with AVL today.

Discover more at avl.com
# EVENT OVERVIEW

**Wednesday, September 18**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00-7:00 p.m.</td>
<td>Registration</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>Keynote Address</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>Welcome Reception</td>
<td>International Ballroom Foyer</td>
</tr>
</tbody>
</table>

**Thursday, September 19**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 a.m.-5:00 p.m.</td>
<td>Registration</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>7:00-8:00 a.m.</td>
<td>Networking Breakfast</td>
<td>Gold Room</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Opening Remarks</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>8:30 a.m.</td>
<td>Panel Discussion: What Will The Future Look Like? A Discussion of Externalities That Affect Transportation</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Networking Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>10:30 a.m.</td>
<td>Panel Discussion: What Will The Future Look Like? A Discussion of Externalities That Affect Transportation (continued)</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>11:20 a.m.</td>
<td>Consumer Advocate Presentation: The Next EV Buyer</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>12:00 p.m.</td>
<td>Networking Lunch with Table Discussions</td>
<td>Gold Room/International Ballroom/State Room</td>
</tr>
<tr>
<td>1:15 p.m.</td>
<td>Franz F. Pischinger Powertrain Innovation Award Presentation</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>1:30 p.m.</td>
<td>Panel Discussion: Balancing Technologies To Meet Tomorrow's Transportation Needs</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>Networking Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>3:30 p.m.</td>
<td>Panel Discussion: Balancing Technologies To Meet Tomorrow's Transportation Needs (continued)</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>6:00 p.m.</td>
<td>Gala Reception</td>
<td>Mid America Club</td>
</tr>
</tbody>
</table>

**Friday, September 20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30-9:00 a.m.</td>
<td>Registration</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>6:30-7:30 a.m.</td>
<td>Networking Breakfast</td>
<td>Gold Room</td>
</tr>
<tr>
<td>7:25 a.m.</td>
<td>Remarks</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>7:30 a.m.</td>
<td>Keynote Presentation</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Panel Discussion: Survival of the Fittest - How Should The Business Of Powertrain Adapt?</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>8:50 a.m.</td>
<td>Networking Break</td>
<td>International Ballroom Foyer</td>
</tr>
<tr>
<td>9:05 a.m.</td>
<td>Panel Discussion: Survival of the Fittest - How Should The Business Of Powertrain Adapt? (continued)</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>10:25 a.m.</td>
<td>Panel Discussion: Making sense of it all - OEM Panel</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>11:30 a.m.</td>
<td>Closing Ceremony</td>
<td>International Ballroom</td>
</tr>
<tr>
<td>11:40 a.m.</td>
<td>Networking Lunch</td>
<td>Gold Room</td>
</tr>
</tbody>
</table>
WE BUILD GLOBAL PARTNERSHIPS TO DEVELOP FUTURE MOBILITY SOLUTIONS
GENERAL INFORMATION

NAIPC 2019 EXECUTIVE LEADERSHIP TEAM

Frank Abkenar, Director - Global Engine Engineering, Ford Motor Company

Ray Corbin, Vice President, AVL

Chris Cowland, Director, Advanced and SRT (Street and Racing Technology) Powertrain, FCA US LLC

David Filipe, Vice President, Ford Global Powertrain Engineering

Charlie Freese, Executive Director, Global Fuel Cell Business, General Motors

David Ganss, Manager, Powertrain Performance Planning and Market Insights, Nissan Technical Center North America, Nissan North America

Denise Gray, President, LG Chem Michigan Inc Tech Center

Jeff Hemphill, Chief Technical Officer, Americas, Schaeffler Group USA Inc.

Jeremy Holt, President, Means Industries Inc.

Gary Horvat, Vice President - eMobility, Navistar Inc.

Kenneth Howden, Director, 21st Century Truck Partnership, U.S. Department of Energy

Patrick Hupperich, President and CEO, FEV North America, Inc.

Neville Jackson, Chief Technology and Innovation Officer, Ricardo plc

Sujit Jain, President, Powertrain Solutions North America, Market Segments of Passenger Cars & Electric Vehicles, Robert Bosch LLC

John Juriga, Director, North American Powertrain, Hyundai / Kia America Technical Center, Inc.

Jeff Lux, Vice President and Head - Transmission and Driveline Powertrain, FCA - North America

Richard Madden, Senior Manager, Powertrain Performance Planning and Market Insights, Nissan Technical Center North America, Nissan North America

Dan Nicholson, Vice President, Global Electrification, Controls, Software and Electronics, General Motors

Doug Patton, Principal, Jupiter Consulting LLC

David Porreca, Director of Automotive Business, SAE International

Christopher Reed, Senior Vice President, Research and Development, Nissan Technical Center North America

Gary Rogers, Vice President Advanced Technology, Roush Industries Inc.

Ben Schlimme, Powertrain Executive Program Manager, Powertrain Planning & Research, Corporate Strategy & Planning, Toyota Motor North America

Dietrich Sneideraitis, Senior Sales Manager, Powertrain Systems, BMW NA

Wolfgang Warnecke, Chief Scientist Mobility and Director, Shell Global Solutions

Kregg Wiggins, Senior Vice President, Powertrain Division, Continental North America
Future Vehicle Architecture (FuVA)

FuVA brings together knowledge and experience of working with automotive partners in developing high voltage EV platforms.

Integrated product development processes for vehicle subsystems:
- Vehicle primary and secondary structures
- Propulsion and chassis systems
- Mass + energy management

The benefits of a fully scalable multi-energy platform architecture design enable clients to maintain vehicle attributes while reducing vehicle unit costs and time to market.

Find out how FuVA can help your product development
Email: info@ricardo.com   Tel: +(1) 734 397 6666

www.ricardo.com/FuVA
GENERAL INFORMATION

HOURS OF OPERATION

REGISTRATION
International Ballroom Foyer
Wednesday, September 18
3:00-7:00 p.m.
Thursday, September 19
7:00a.m.-5:00 p.m.
Friday, September 20
6:30-9:00 a.m.

FEDEX BUSINESS CENTER
+1.312.938.5425 - 7:30 a.m.-6:00 p.m.

Wi-fi network
Network Name: NAIPC19
Passcode: gobeyondwithnemak
(please note password is case sensitive)

CONNECT TO THE AUDIENCE RESPONSE SYSTEM
URL: naipc.cnf.io
Sponsored by:

EVENT POLICIES

No audio or video recording of presentations is permitted, except by SAE.
Please turn cell phones and pagers to mute or vibrate before entering the meeting room. No children under the age of 16 are permitted to attend.

CONSENT TO USE OF IMAGES

Please note that photographs and video taken by or on behalf of SAE International of event activities and attendees shall be the property of SAE International. By registering for an SAE International event, you consent to the use by SAE International of any photograph or video in which you appear, including for promotional purposes, in print, digital, or other format, without notice or compensation to you.

EMERGENCY HOTLINE
+1.800.581.9295

SAE INTERNATIONAL
Warrendale Office
400 Commonwealth Drive
Warrendale, PA 15096-0001 USA
Phone: +1.724.776.4841
Fax: +1.724.776.0790

Customer Service
+1.877.606.7323 (toll free U.S. and Canada)
+1.724.776.4970
sae.org
customerservice@sae.org

Troy Office
755 W. Big Beaver Rd.
Troy, MI 48084
Phone: +1.248.273.2455
Fax: +1.248.273.2494

This event is being conducted under the Chatham House Rule. Attendees are not permitted to quote nor reference any speech / presenter.

“When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.”

The Rule allows people to speak as individuals, and to express views that may not be those of their organizations, and therefore it encourages free discussion. Speakers are then free to voice their own opinions, without concern for their personal reputation or their official duties and affiliations.

Source: en.wikipedia.org/wiki/Chatham_House_Rule
EVERYTHING CHANGES WHEN YOU CHANGE EVERYTHING

When you completely reimagine a car as iconic as Corvette, you get a beautifully sculpted mid-engine sports car that makes a powerful statement. It’s the sum of each generation before it, but it will stand alone as the new standard of performance.
## AGENDA

### Wednesday, September 18

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:00-7:00 p.m.</td>
<td>Registration</td>
<td></td>
</tr>
<tr>
<td>6:00-6:10 p.m.</td>
<td>Introductory Remarks: David Porreca, SAE International</td>
<td></td>
</tr>
<tr>
<td>6:10-7:00 p.m.</td>
<td>Opening Keynote Address: The Third Industrial Revolution: The Great Disruption in the Transportation Sector, from the Internal Combustion Engine to Electric Vehicles and the End of Fossil Fuel Transportation; Jeremy Rifkin, American Economic and Social Theorist, Writer, Public Speaker, Political Advisor, and Activist</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>7:00 p.m.</td>
<td>Welcome Reception</td>
<td><a href="#">Sponsors</a></td>
</tr>
</tbody>
</table>

### Thursday, September 19

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Sponsor</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 a.m.-5:00 p.m.</td>
<td>Networking Break</td>
<td>Sponsored by: <a href="#">ROUSH</a></td>
</tr>
<tr>
<td>7:00-8:00 a.m.</td>
<td>Opening Remarks: David Porreca, SAE International; Christopher Reed, Nissan Technical Center North America - 2019 NAIPC Chairperson</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>8:00 a.m.</td>
<td>Panel Discussion: What Will The Future Look Like? A Discussion of Externalities That Affect Transportation (continued)</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>8:30-10:00 a.m.</td>
<td>Panel Discussion: What Will The Future Look Like? A Discussion of Externalities That Affect Transportation</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>10:00 a.m.</td>
<td>Networking Break</td>
<td>Sponsored by: <a href="#">TREMEC</a></td>
</tr>
<tr>
<td>10:30-11:20 a.m.</td>
<td>Panel Discussion: What Will The Future Look Like? A Discussion of Externalities That Affect Transportation (continued)</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>11:20 a.m.-12:00 p.m.</td>
<td>Consumer Advocate Presentation: The Next EV Buyer, Mike Dovorany, Escalent</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>12:00 p.m.</td>
<td>Networking Lunch with Table Discussions</td>
<td>Sponsored by: <a href="#">SCHAEFFLER</a></td>
</tr>
<tr>
<td>1:15 p.m.</td>
<td>Franz F. Pischinger Powertrain Innovation Award Presentation: Motohiro Matsumura Ph.D., Chief Operating Officer (COO), Executive Team Director, Nissan Super GT Teams, Nissan Motorsports International Co., Ltd.</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>1:30-3:00 p.m.</td>
<td>Panel Discussion: Balancing Technologies To Meet Tomorrow’s Transportation Needs</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>3:00-3:30 p.m.</td>
<td>Networking Break</td>
<td>Sponsored by: <a href="#">TIMKEN</a></td>
</tr>
<tr>
<td>3:30-5:00 p.m.</td>
<td>Panel Discussion: Balancing Technologies To Meet Tomorrow’s Transportation Needs (continued)</td>
<td><a href="#">Sponsors</a></td>
</tr>
<tr>
<td>6:00-8:00 p.m.</td>
<td>Gala Reception</td>
<td>Sponsored by: <a href="#">AVL</a> <a href="#">FEV</a> <a href="#">LEICHT</a></td>
</tr>
</tbody>
</table>
TOUGH HAS MORE FUN
THE 2019 FORD RANGER

With boundary-pushing available off-road tech plus legendary Ford toughness, the Ranger is always geared up for fun. And clearly Built Ford Proud.

Available features and Ford Licensed Accessories shown.
### AGENDA

**Friday, September 20**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:30-9:00 a.m.</td>
<td>Registration</td>
</tr>
<tr>
<td>6:30-9:00 a.m.</td>
<td>Networking Breakfast</td>
</tr>
<tr>
<td>7:25 a.m.</td>
<td>Remarks: David Porreca, SAE International</td>
</tr>
<tr>
<td>7:30-8:00 a.m.</td>
<td>Keynote Presentation: Changing Mobility Landscape, Jono Anderson, KPMG</td>
</tr>
<tr>
<td>8:00-8:50 a.m.</td>
<td>Panel Discussion: Survival of the Fittest - How Should The Business Of Powertrain Adapt? Propulsion system businesses are facing new strategic challenges, organizational models, market shifts and a more diversified environment. Industry players are already making large investments for the future, some incumbents are riding their momentum strategies, while others are fully transforming themselves to address global megatrends, new EV customers and new competitors. Only time will tell what is successful. This panel explores the contrasting approaches to building a sustainable business and considers what these changes mean to the automotive industry.</td>
</tr>
<tr>
<td>8:50-9:05 a.m.</td>
<td>Networking Break</td>
</tr>
<tr>
<td>9:05-10:25 a.m.</td>
<td>Panel Discussion: Survival of the Fittest - How Should The Business Of Powertrain Adapt? (continued)</td>
</tr>
<tr>
<td>10:25-11:30 a.m.</td>
<td>Panel Discussion: Making sense of it all - OEM Panel</td>
</tr>
</tbody>
</table>

  The OEM Panel is a highlight for the NAIPC. It brings together key topics from the conference, with a lively panel conversation, involving propulsion system leaders from automobile manufacturers. Renowned automotive journalist, John McElroy will moderate discussion, incorporating real-time audience questions and background material that was prepared specifically for this event. The focus is to drive deeper discussion on subjects covered earlier in the week, while learning individual perspectives from the OEMs. The richness of these discussions is further enabled through strict adherence to the Chatham House Rule. |
| 11:30 a.m.    | Closing Ceremony: Christopher Reed, Nissan Technical Center North America |
| 11:40 a.m.    | Networking Lunch | Sponsored by: EATON                                              |

---

### Franz F. Pischinger Powertrain Innovation Award Recipient

**Dr. Motohiro Matsumura**

Over his long career, Dr. Motohiro Matsumura has been responsible for some of Nissan’s most iconic engines. He was a leading engineer on the legendary RB26DETT turbocharged inline six-cylinder for Nissan’s flagship performance car, Skyline GT-R. This engine maintains a stellar reputation for durability and power delivery and has even recently returned to production as a specialty engine. The VQ series of V6 engines earned 14 WardsAuto 10 Best awards in a row. VQ is renowned for its sharp throttle response, smooth power delivery and fuel economy.

Dr. Matsumura has performed pioneering research in lean combustion, gasoline direct injection and turbocharging. He has written SAE, JSAE and international journal papers, and holds over 40 patents covering direct injection, turbocharging and supercharging. Dr. Matsumura has also mentored countless Nissan engineers who have moved on to hold key positions within the company.

Dr. Matsumura continues to serve Nissan today by overseeing all racing activities as COO of NISMO. He is also the Executive Director of the Nissan SuperGT Racing Team, competing in Japan’s top-level Touring Car race series.
EFFICIENCY AND POWER MAKE EXCELLENT TRAVEL COMPANIONS.

BMW POWERTRAIN SYSTEMS

As a proud sponsor of the SAE 2019 North American International Powertrain Conference, BMW Powertrain Systems Business Customers looks forward to making innovative BMW technologies available to you for your own projects.

©2019 BMW of North America, LLC. The BMW name, model names and logo are registered trademarks.
SPECIAL EVENTS
(Open to attendees and their guests)

KEYNOTES
International Ballroom

WEDNESDAY, SEPTEMBER 18
6:00-7:00 p.m.
The Third Industrial Revolution: The Great Disruption in the Transportation Sector, from the Internal Combustion Engine to Electric Vehicles and the End of Fossil Fuel Transportation

Jeremy Rifkin
American Economic and Social Theorist, Writer, Public Speaker, Political Advisor, and Activist

FRIDAY, SEPTEMBER 20
7:30-8:00 a.m.
Changing Mobility Landscape

Jono Anderson
Partner
KPMG

SPECIAL PRESENTATIONS
International Ballroom

THURSDAY, SEPTEMBER 19
11:20 a.m.-12:00 p.m.
Consumer Advocate Presentation: The Next EV Buyer

Mike Dovorany
Vice President Automotive & Mobility Escalent

RECEPTIONS

WEDNESDAY, SEPTEMBER 18
7:00-8:30 p.m.
Welcome Reception
International Ballroom Foyer

Welcome Reception Sponsored by:

THURSDAY, SEPTEMBER 19
6:00-8:00 p.m.
Gala Reception
Business dress recommended
Mid America Club, AON Tower

Gala Reception Sponsored by:
The result says it all.

KONA Electric named one of Wards 10 Best Engines for 2019.
NETWORKING OPPORTUNITIES

WEDNESDAY, SEPTEMBER 18

Welcome Reception
7:00-8:30 p.m.
Sponsored by: BOSCH

THURSDAY, SEPTEMBER 19

Breakfast
7:00-8:00 a.m.
Sponsored by: ROUSH

Morning Break
10:00-10:30 a.m.
Sponsored by: TREMEC

Lunch with Table Discussions
12:00 p.m.
Sponsored by: SCHAEFFLER

Afternoon Break
3:00-3:30 p.m.
Sponsored by: TIMKEN

Gala Reception, Mid America Club, AON Tower
6:00-8:00 p.m.
Sponsored by: AVL FEV RICARDO

FRIDAY, SEPTEMBER 20

Breakfast
6:30-7:30 a.m.
Sponsored by: ZF

Morning Break
8:50-9:05 a.m.

Lunch
11:40 a.m.
Sponsored by: EATON

PwC numbers: 200C - Gloss Surface
186U - Flat Surface
White area through center of letters is an integral part of the FEV logo.
YOUR OLD FLAME JUST TURNED INTO A FIVE-ALARM FIRE.
Frank Abkenar has served as Director of Global Engine Engineering at Ford Motor Company since January 2018. Prior to that, Frank was the Director of Global Powertrain Strategy and Sustainability. Abkenar has over 27 years of experience in Powertrain at Ford and has held several leadership roles in Engine Engineering and Manufacturing, Powertrain Installation and Integration, and Powertrain Programs. Abkenar started his Ford career in the US in Engine Engineering. He has also held several leadership positions in Europe and Asia Pacific, which included launching several Engines and Transmissions in new manufacturing facilities in Brazil, India, and China. In his last international assignment as the Director of Asia Pacific Powertrain, Abkenar developed a strong team to deliver regional and global Powertrains and Programs for Ford. This included working extensively with Ford Joint Venture Partners in China. These experiences have provided a strong foundation for team building across geographic locations with deep awareness, sensitivity and appreciation of cultural norms and differences.

In addition to his professional experience, Abkenar has earned:

- BSME from Lawrence Technological University
- MSME from Oakland University
- MBA from University of Michigan

Mr. Ahmad O. Al Khowaiter is Saudi Aramco’s Chief Technology Officer.

Mr. Al Khowaiter joined Saudi Aramco in 1983, where he held various technical roles in oil and gas production organizations, ranging from design, project management, commissioning, and operations; as well as a number of supervisory, managerial, and general management positions.

He held the position of Saudi Aramco Chief Engineer from 2011 to 2014, and Executive Director of Power Systems in 2014 before assuming his present role. Mr. Al Khowaiter holds a B.S. degree in Chemical Engineering from the King Fahd University of Petroleum & Minerals (KFUPM), an M.S. degree in Chemical Engineering from the University of California at Santa Barbara, and an MBA degree as a Sloan Fellow from the Massachusetts Institute of Technology.
First choice for the powertrain of tomorrow

Powertrain systems and electrified mobility by Bosch

With complete powertrain systems for all vehicle classes, Bosch combines mobility with energy efficiency. This not only means making continuous improvements to internal combustion engines, but also developing powertrain systems for low and high-voltage hybrids as well as electric vehicles.

Connecting components such as the Bosch eAxle with our systems expertise in areas such as fuel injection and battery and thermal management, makes powertrains more efficient and economical. To make it happen, Bosch combines hardware, software, and services to create top-to-bottom powertrain solutions.

www.bosch-mobility-solutions.us
Jono Anderson
Partner
KPMG

Jono Anderson is a Partner at KPMG focused on Growth and Innovation Strategy. Jono has 20+ years of experience helping companies in Automotive, Aerospace & Defense and is a former mathematician and researcher focused on real-time autonomous systems. Jono specializes in understanding market dynamics, technology maturity, and ecosystem acceptance in order to make the appropriate growth and R&D choices. Jono is the author of “Clockspeed Dilemma”, “Islands of Autonomy”, “I See, I Think, I Drive, I Learn” and “Life with the Jetsons”. Prior to starting his career, Jono was a researcher at Scripps Institution of Oceanography helping to develop tectonic maps using space-based radar altimetry.

Dirk Barschkett
Director Sales & Marketing & Business Development
Nemak Europe GmbH

1975 – 1984 Academic High School (Gymnasium), Germany
1984 – 1985 Military Service Studies
1985 – 1991 Study of Metallurgy and Materials Science, RWTH Aachen, Germany, Degree: Dipl.-Ing. (Master)

Professional Career
1992 – 1993 Eisenwerk Bruehl, Cologne/Germany, Assistant to the Managing Directors
1993 – 1994 VAW aluminium AG, Bonn/Germany, Assistant to the Managing Director of the Castings Division
2000 – 2002 VAW aluminium AG, Bonn/Germany, Product Engineering Director, Castings Division
2002 – 2007 Hydro Aluminium Deutschland GmbH, Cologne/Germany Sales Director, Castings Division(2002-2005) and VP Sales, Automotive Division (2005-2007)
2007 – 2009 C.D. Wälzholz KG, Hagen/Germany, Managing Director
2009 – 2010 MFB Consultants, Wiesbaden/Germany, Senior Consultant Strategy & Organization
2010 - 2013 Wickeder Westfalenstahl GmbH, Wickede/ Germany, Managing Director & COO of Wickeder group
2013 – today Nemak Europe GmbH, Director Sales & Marketing & Business Development; Managing Director

Publications
“Aluminum Engine Blocks for Daimler-Chrysler V6 Diesel engines”, MTZ 2006-02
“Ambitious environmental and safety policies can assist a competitive European automotive industry”, EU Cars 21 white paper 2005/06

1 Patent Application
Transforming the Future of Sustainable Mobility

Propulsion | BIW | Chassis | E-Mobility Components
**Ray Corbin**  
*Vice President*  
*AVL*

In his current role, Ray is responsible for strategic planning and industry relations for AVL. From 2003 to 2012, Corbin served as President of AVL Powertrain Engineering, Inc. where he was responsible for the Company's powertrain engineering consultancy activities and the growth of the Company's North American simulation software sales.

Prior to joining AVL, Corbin served as COO of Quantum Technologies, a Tier 1 supplier of alternative fuel and fuel cell technologies. He has also held senior management positions with Calsonic-Kansie and General Motors.

He is an active member of the SAE International including the NAIPC Leadership Team as well as the WCX Executive Planning Team. Corbin also is active as a volunteer with the Michigan Science Center located in Detroit, Mi. He is a 2019 Recipient of SAE Forest R. McFarland Award.

Corbin is a graduate of Kettering University located in Flint, Mi.

---

**Andrew Chien**  
*Partner*  
*Oliver Wyman*

- Detroit based Partner leading OW's NA Automotive activities
- Areas of expertise include LD/HD vehicle and powertrain technology, automotive product portfolio planning and vehicle aftermarket
- 25 years of automotive industry experience. Former powertrain controls engineer and Benetton-Ford F1 Race Engineer
- BS from MIT, M.Eng from Cornell and MBA from the University of Michigan
Stringent regulations are driving fuel economy improvements and reduced emissions. Eaton’s long legacy of vehicle system integration knowledge provides us with capabilities to meet these customer needs. Our broad electrical resources are helping to facilitate vehicle electrification. Extensive engine air management system expertise enables the next generation of clean combustion engines. We are committed to collaborating with companies to improve how the world moves in the future. So, bring us your technical challenges, and we’ll bring you innovative, forward-thinking solutions.

Because that’s what matters.

Learn more at: Eaton.com/enginesolutions

We make what matters work.
BIOGRAPHIES

Chris Cowland  
Director of Advanced and SRT Powertrain  
FCA US LLC

Chris Cowland is currently Director of Advanced and SRT (Street and Racing Technology) Powertrain at FCA US LLC. He is responsible for future FCA powertrain technology and high performance powertrains for the SRT brand, including the 707 horsepower supercharged HEMI® Hellcat engine – winner of a 2015 Wards 10 Best Engines award, and also the 840 bhp Demon.

Prior to this role, Cowland was the Chief Engineer and Platform Director for the 3.6-liter Pentastar V-6 engine, the recipient of three Wards 10 Best Engines awards.

Previous to his tenure at FCA US, Cowland held the position of Technical Director at two of the major global powertrain consultants - AVL and Ricardo.

Cowland started his career in the automotive industry in 1981 as an apprentice at Perkins Engines. He held a number of engine design and development positions at Perkins and Lotus before moving to the US in 1996.

Cowland graduated with a Master of Science degree in Automotive Engineering from Cranfield University, Bedfordshire, England.

Wolfgang Demmelbauer-Ebner  
EVP & Chief Engineering Office NAR  
Volkswagen Group of America

• 1982 Studies / PHD: Mechanical Engineering & Technical Science at TU Vienna

• 1994 Start at Volkswagen AG, Specialist within Predevelopment Diesel Engines

• 1996 Head of Diesel Engine Development at SEAT (Martorell, Spain)

• 1999 Head of Engine Mechanics VR-Engines at Volkswagen AG

• 2003 Head of Quality Analysis and Planning at Volkswagen Engine Plant Salzgitter

• 2007 Head of Engine Development Audi Hungaria Motor Kft. (Gyoer, Hungary)

• 2014 Head of Gasoline Engine Development at Volkswagen AG

Since 2018 EVP & Chief Engineering Officer NAR, Volkswagen Group of America
We are shaping mobility for tomorrow

How will people travel in the future, and how will goods be transported? What resources will we use, and how many will we need? The passenger and freight traffic sector is developing rapidly, and we provide the impetus for innovation and movement. We develop components and systems for internal combustion engines that operate more cleanly and more efficiently than ever before. We are also pushing forward technologies that are bringing hybrid vehicles and alternative drives into a new dimension – for private, corporate, and public use. The challenges are great. We deliver the solutions.
Cliff Fietzek is the Director of Technology for Electrify America, LLC. In this role, he is responsible for all Charging Hardware, Battery Storage, the backend IoT platform as well as all other technology deployments. Previously, Cliff held the position of Manager of connected e-mobility at BMW of North America, where he was responsible for all Engineering aspects around the BMW i Program, including vehicle development and validation, public infrastructure, smart charging and battery second life.

Mike has spent the last decade consulting with nearly every global OEM and many startups to create successful vehicles and strategies. He has worked directly with CEOs and board members, often focused on advanced technology, electrification, or autonomy. Prior to Escalent, Mike led the The CARLAB’s consulting practice and spent time as an employee of GM and Toyota.

Despite his passion for alt-fuel vehicles, Mike spends his free time racing the BMW race car he built.
At AISIN, we humbly believe our Demo Car is one smart and beautiful vehicle.

As a leading Tier One supplier, we’re proud of the many Aisin components and systems our iconic car represents. Quality parts found on vehicles all over the world.

And, as the largest manufacturer of transmissions and powertrain components in the industry, Aisin is also recognized as a global leader in the manufacture of body, chassis, electronics, and information-related parts.

We are proud to be the sixth largest Tier One supplier in the world, and pleased to join with our colleagues, once again, in support of the North American International Powertrain Conference.
Ron Frawley
Senior Director, Strategic Planning & Corporate Development
Magna Powertrain

Ron Frawley became the Senior Director of Strategic Planning and Corporate Development at Magna Powertrain in October 2014.

As Senior Director, Frawley leads Magna Powertrain’s long-term strategic planning activities. He drives strategic projects and initiatives to identify, evaluate and prioritize new products, markets and potential partners.

Frawley has more than 30 years of experience in the automotive industry and has spent his entire career within the powertrain sector. He has held numerous product engineering roles, giving him a thorough understanding and broad depth of knowledge of powertrain systems. He is also experienced in studying and analyzing market development opportunities, competitors, customers and market conditions within the automotive industry.

In 1982 Frawley began his career as a Product Engineer with Allison Transmission and in 1990 joined New Venture Gear in Product Engineering Management. Magna Powertrain appointed him as Director of Product Engineering in 2004, and he has held several management level positions within Magna Powertrain since then.

Frawley received his bachelor’s degree in Mechanical Engineering from Lawrence Technological Institute in Southfield, Michigan.

David Filipe
Vice President
Ford Global Powertrain Engineering

Mr. Filipe is Vice President, Global Powertrain Engineering since September, 2017.

He is responsible for the design and development of all powertrain engineering programs around the globe including Engine, Transmission, Driveline, Powertrain Installations, and Electrification programs.

In his 27 years with Ford, Mr. Filipe has held various positions within Product Development including several global leadership roles. Recent positions include Director of Global Engine Engineering where he helped develop Ford’s Ecoboost engines in North America and Europe. He also served as the Director of Transmission and Driveline Engineering where he led the initial development of the new 8 and 10 speed transmissions.

Mr. Filipe also served as Vehicle Line Director, North America trucks, large SUVs and commercial vehicles which included responsibility for overseeing the development of the 2017 Super Duty pickup truck, the 2018 Ford F-150, the all-new 2018 Expedition, 2019 Ranger, and the all-new Bronco.

Earlier positions within the company included Chief Engineer large gas engine programs, Chief Engineer small gas and diesel engine programs in Europe, and Assistant Vehicle Line Director for B-car vehicles in Asia Pacific.

Mr. Filipe graduated from Drexel University with a Master of Science degree in Mechanical Engineering and joined Ford as a Ford College Graduate. He also earned a Master of Business Administration from the University of Michigan Ross School of Business.
We are an advanced mobility supplier crafting and shaping the way transportation will look like in the future.

Crafting the Core
BIOGRAPHIES

Charlie Freese  
Executive Director, Global Fuel Cell Business  
General Motors Company

Charlie has over 30 years of experience in propulsion systems, automotive, military, and aerospace businesses. At General Motors, he leads GM’s Global Fuel Cell Business unit—responsible for research, development, application engineering, laboratories, manufacturing and strategic external business initiatives. Charlie manages GM’s collaboration with Honda, established in 2013, to develop hydrogen fuel cell automotive products. On January 30, 2017, GM and Honda announced the establishment of the automotive industry’s first high volume fuel cell manufacturing joint venture, Fuel Cell System Manufacturing LLC, to mass produce an advanced hydrogen fuel cell system, for use in future products for each company. Charlie serves as a board member for this venture. During his career at GM, Charlie also served as Executive Director for Global Diesel Engine Engineering, and as the Chief Executive Officer of GM Defense LLC – GM’s new business structure that was formed to enhance productivity, agility, and affordability for the very dynamic defense industry.


Charlie holds three degrees from the University of Michigan:  
• Bachelor of Science in Mechanical Engineering  
• Master of Science in Mechanical Engineering  
• Master of Science in Engineering Management

Charlie published multiple technical papers in the fields of internal combustion engines and fuel cells. He holds 16 U.S. patents with multiple additional patents pending. In 2000, he was honored by the Automotive Hall of Fame with the Young Leadership and Excellence Award. In 2018, Charlie received the SAE Edward N. Cole Award for Automotive Engineering Innovation.

Julie Furber  
Vice President, Electrified Power  
Cummins

Julie Furber is the Vice President of the Electrified Power business at Cummins. She is responsible for overseeing the development and acceleration of Cummins knowledge and capability in electrification, positioning the company to be the leading provider of electrified power in commercial markets. A disruptor at heart, Julie has been at the forefront of identifying the products and solutions critical to the success of Cummins customers. She joined Cummins in 2005 as a Finance Director for Cummins Generator Solutions in the United Kingdom. Prior to her current role, Julie led product planning and product management across the company’s $8-billion Engine Business.
BlueMatter

The next generation of intelligent propulsion systems, solutions and capabilities from Delphi Technologies.

Delphi Technologies
BIOGRAPHIES

Robert (Bob) L. Galyen

Chief Technical Officer
Contemporary Amperex Technology Lim

Robert (Bob) L. Galyen, is recognized as one of the top executives in the battery energy storage world. His position as CTO of CATL, the world’s largest battery manufacturer, Chairman of both SAE International Battery Standards Steering Committee and NAATbatt International, provides him a unique leadership role in the entire global battery industry. He has patents, publications and participates on multiple BOD’s and TAB’s (Technology Advisory Board). The 43 years’ international work experience has given him a unique perspective on worldwide business, making him uniquely qualified as a global energy storage thought leader.

David Ganss

Manager, Powertrain Performance Planning and Market Insights
Nissan Technical Center North America
Nissan North America

David Ganss is manager of powertrain research and strategy activities at Nissan Technical Center North America in Farmington Hills, Mi. In this role, Ganss is responsible for researching and analyzing trends in new powertrain technologies, consumer acceptance, and regulatory requirements to support management of Nissan’s North American vehicle and powertrain portfolio.

Previous to Nissan, Ganss was a Technology Advisor at the US EPA for 9 years, where he was extensively involved in development of the Light Duty GHG regulations. At EPA, he earned several awards including the Science Achievement Award and Gold Medal for Exceptional Service.

Ganss started his career at Chrysler, where he held positions in Emissions Certification and Advanced Engine Systems Development. In these positions, he was responsible for advanced emissions control development, benchmark testing, and certification development.

Ganss holds a BS in Mechanical Engineering from the University of Detroit. In his spare time, he enjoys teaching high school students about engineering and fabricating by mentoring FIRST Robotics teams. He lives with his wife and kids in South Lyon, Mi.
For over 40 years, Roush has tackled the most complex powertrain engineering challenges. We develop advanced engineering technologies – from concept through production.

Creative Services • Engineering • Testing • Prototyping • Manufacturing
BIOGRAPHIES

Denise Gray
President
LG Chem Michigan Inc. Tech Center

Denise Gray is President LG Chem Michigan Inc. Tech Center. (LGCMITC), the North American subsidiary of lithium-ion battery maker, LG Chem (LGC), Korea. In this position, she has overall responsibility for strategic direction, engineering, and business development. Additionally, she is a member of LGCMITC Board of Directors. Prior to joining LG Chem, Gray served as Vice President of Electrification Powertrain Engineering at AVL List, GmbH, in Austria, where she was responsible for leveraging AVL’s global capability to provide electrification engineering services to the automotive industry. Prior to that, Gray was Vice President of Business Development for an electrified powertrain battery startup company in California targeting China’s New Energy Vehicle Market. The majority of her over 30-year professional career was spent at General Motors, where she spearheaded efforts in vehicle electrical, powertrain controls systems and software, including battery systems.

She also is active in several charitable organizations, including The March of Dimes, where she served as the organization’s chair in 2016, 2017 and 2018 for the North American International Auto Show (NAIAS) Charity Preview.

Gray has been a proponent of the academic disciplines of science, technology, engineering and mathematics (STEM), and is a frequent participant at STEM events. Her strong support of the STEM curriculum has played a role in her appointment to Kettering University’s College of Engineering Dean’s Advisory Council.

Gray received a Master of Science in Engineering Management of Technology from Rensselaer Polytechnic Institute and a Bachelor of Science in Electrical Engineering from Kettering University.

Jeff Hemphill
Chief Technical Officer, Americas
Schaeffler Group USA Inc.

As chief technical officer for Schaeffler in the Americas, Jeff Hemphill is responsible for research and new product development for automotive transmission, engine, chassis as well as industrial components and systems. His scope of responsibilities also encompasses IT and digitalization functions, which include facilitating the integration of digital capability into Schaeffler’s new products and business models.

Jeff started his career at Schaeffler as a machinist and co-op student while earning a BSME from The University of Akron. He also holds an Executive Certificate in Strategy and Innovation from MIT. Jeff has over 30 years of experience in automotive and industrial product development, including manufacturing, product design, testing and vehicle development.

To date, Jeff has 79 patents filed or issued.
ZF. Enabling vehicles to see, think and act.

For more than 100 years ZF has been developing innovative driveline, axle and powertrain products that deliver improved fuel efficiency and drivability. As one of the industry’s leading providers of transmission technology, the company has had a profound impact on reducing fuel consumption while delivering more power with its award-winning 6- and 8-speed longitudinal and 9-speed transverse transmissions. As the industry moves toward driveline electrification, ZF is at the forefront with its premier automatic and dual clutch transmission, as well as a full range of hybrid and electric drive technologies. Learn more at zf.com
Toshihiro Hirai
Corporate Vice President and Alliance Global Director for the Powertrain Engineering Division
Nissan Motor Co. Ltd.

Toshihiro Hirai is the Corporate Vice President and Alliance Global Director for the Powertrain Engineering Division in Nissan Motor Company / Renault SA.

Hirai is responsible for the global Powertrain Engineering organization for all Gasoline, Diesel, Hybrid and Drivetrain in the Nissan/Renault Alliance.

Prior to this position, Hirai was Program Director for Infiniti, and Nissan C-segment vehicles where he was responsible for vehicle program management for Infiniti vehicles, as well as Nissan X-Trail, Qashqai and Serena.

Previously, Hirai gained extensive international experience from an assignment at the company’s Cranfield, UK engineering center. He went on to hold a series of leadership positions including Chief Powertrain Engineer for a joint Nissan-Renault engine program, and positions in Engineering and Program Management including General Manager and Powertrain Program Director.

Hirai is a Japanese citizen and holds a degree in Mechanical Engineering from WASEDA University in Japan.

Jeremy Holt
President
Means Industries, Inc.
(A Member of the Amsted group of companies)

In this role Jeremy steers and oversees the Propulsion Systems and Transform Products business units at Means globally. His broad and deep experience in the powertrain sector is helping ensure the execution of Means core technologies in today’s high efficiency transmissions. In addition, a driving focus on technology development and application of leading-edge clutching products and driveline solutions for the future electrified propulsion systems including hybrid, EV, and eAxle systems. In addition as a member of the Amsted Industries leadership team Jeremy contributes to group strategy.

2012-2018 Global Vice President for business development, marketing, sales, application engineering and strategy at TREMEC SA de CV, as well as head of TREMESC’s U.S. business.

2007-2012 President, Technology Management Consulting LLC

2007-2011 President and CEO at NxtGen Emission Controls+

1997-2007 President Ricardo Inc and Executive Director at Ricardo PLC

Jeremy Holt has a Bachelor of Mechanical Engineering, and a Master of Business Administration, both from the University of Bradford, England. He is a long-term member of the Society of Automotive Engineers (SAE), presently serving as a member of the leadership committee for the SAE North American Powertrain Conference.
Means is a **global supplier** that is developing new solutions for next generation problems. Its cutting edge Advanced Metal Forming Processes enable advanced transmission design and light weighting, while its Electro-Dynamic Controllable Clutches offer engineers new building blocks to design **cutting edge propulsion systems**.

#TransformingtheFutureofPropulsion
BIOGRAPHIES

Gary Horvat
Vice President of eMobility
Navistar

Gary Horvat has over 35 years of experience in the automotive industry, with an educational background in both industrial and manufacturing engineering, including a Ph.D. in industrial engineering. Gary started his career at Eaton Corporation working on Heavy Duty Truck Axles and Transmissions. The majority of his career was at General Motors where he was responsible for the engine controls on the third-generation small block V8 and as assistant chief engineer, launched the 3900 V6 Engine, winning the Popular Mechanics “Breakthrough” Award. Gary’s last position at GM was as Executive Director of engineering operations, managing powertrain global development, testing and validation facilities. After his GM career he was Vice President of Product Development at Fisker Automotive as well as Vice President of Powertrain at DENSO International. Gary was the CTO at Proterra from 2015 through 2018. At Proterra, Horvat was responsible for all engineering and technology development for that company’s electric bus product line. Accomplishments included setting a world record of 1101.2 miles for the longest range of any electric vehicle on one charge. At Navistar, Horvat is responsible for augmenting and aligning Navistar’s eMobility team in all commercial, technical, and implementation activities for Navistar’s various product lines.

Kenneth Howden
Director, 21st Century Truck Partnership
U.S. Department of Energy

In the Vehicle Technologies Office, Mr. Howden is Director for the 21st Century Truck Partnership with four federal agencies and eleven heavy duty truck manufacturers and major suppliers. He manages Class-8 tractor-trailer development under the SuperTruck initiative with five OEM teams. In the light-duty area, he manages advanced engine development with the USCAR OEM partners and emission control development with the national laboratories and universities. He is a member and former co-chair of the USDRIE Advanced Combustion and Emission Control Tech Team.

As a project leader with U.S. Army, Mr. Howden managed a multi-disciplinary team of scientists and engineers in the successful accelerated development, testing, production, and deployment of HEMMT 10-ton trucks with integrated power units for the PATRIOT Missile System. As a member of two NATO working groups, he also developed thermal infrared and millimeter wave countermeasures for tactical vehicles.

He holds a BSME from Virginia Tech and an MEA from George Washington University.
Pioneering technology excites us. With more than 65 years of automotive technology breakthroughs, our domain expertise is unprecedented. We continue to explore and develop the tools and innovations in turbocharger, electric products and automotive software that move the automotive industry forward without compromising the passion and soul of pure driving pleasure.

garrettmotion.com
Dr. Charles Huang is the Global Vice President of NIO E-Propulsion Engineering and CTO of XPT. He is responsible for the development of E-Propulsion system and establishing competent in E-Propulsion engineering in NIO. He is also responsible for Intelligent Drive technology and competent development in China. He oversee all technology trend and product development in XPT.

During the year 2008 to 2015, He worked at SAIC Motor Company (Shanghai, China) as Vice president of New Energy Vehicle Division. He led the SAIC New Energy Vehicle strategy development, competent establishment and vehicle development. He successfully led the team to develop more than 200 new energy vehicles for 2010 Shanghai Expo and then go to production.

From the year 2000 to 2008, Charles worked at Ford Motor Company (Dearborn, Michigan, USA) as Technical Expert and Department Manager. He led a team to work at electric vehicle, hybrid electric vehicle and fuel cell vehicle development. His team had successfully developed innovative cooling system and control system to improve vehicle efficiency and reduce cost. He represented Ford to lead Ford/Daimler joint development team on e-powertrain system development.

During the year 1996 to 2000, he worked at AMPS, Inc. (a Lockheed Martin subsidiary, Michigan, USA.) as Senior Engineer. He was involved in NASA Ice & Fire program. He accomplished the Advanced Radiosotope Electric Power System design for Pluto Express program.

He received Ph.D. in Mechanical Engineering from the University of Michigan, Ann Arbor, MI, USA.
TREMEC continues to push the performance envelope with introduction of a dual-clutch family of transmissions. For enthusiasts who demand performance at the highest levels, the 7-speed longitudinal DCT and 8-speed transaxle DCT thinks, learns and performs — whether it be normal driving, sporty driving or racing.

The next generation of DCTs use an innovative wet dual clutch design for high engine torque and shifts in less than one-tenth of a second. The lightning fast shift time is made possible by the integrated approach with advanced TREMEC-developed software algorithms, transmission controller, proprietary clutch friction materials, and world famous hydraulic controls.

TR-9080 DCT
8-Speed Dual Clutch Transmission

TR-9070 DCT
7-Speed Dual Clutch Transmission
BIOGRAPHIES

Patrick Hupperich  
President and CEO  
FEV North America, Inc.

Dr. Hupperich joined FEV in 1989 at the company's headquarters in Germany. He earned his doctorate degree in Mechanical Engineering from Aachen Technical University in 1995. In 1998, Dr. Hupperich joined FEV North America where initially he became the program manager of a global engine development program for locomotive applications. Dr. Hupperich was assigned responsibility for FEV North America's production development group in 2004, overseeing the development of various powertrain development programs for automotive, rail and marine application. In 2007, Dr. Hupperich was promoted to vice president with responsibility for commercial engines, advanced applications and testing solutions business units, and in 2013 was named president and CEO of FEV North America. With a total 500 employees at its Technical Center in Auburn Hills, Michigan, and an office in Sunnyvale, California, FEV North America provides engineering services that range from engine and transmission development, vehicle integration, calibration and homologation of vehicle powertrains to development of hybrid and electric propulsion systems. Expanding FEV's engineering support towards full vehicle development from concept to production, Dr. Hupperich plays a key role championing the company's rapid growth in consulting, optimization of electronic control systems, design and testing of connected vehicle systems as well as the development of autonomous vehicles.

Since 2017, Dr. Hupperich is also a member of the Operative Council of FEV Group GmbH. The FEV Group employs over 6,000 highly qualified specialists in modern development centers close to its global customers at more than 40 locations on four continents.

Neville Jackson  
Chief Technology and Innovation Officer  
Ricardo plc

Professor Neville Jackson is responsible for the future vision for mobility, energy & resource efficiency technologies at Ricardo and the associated research agenda and strategy to deliver this vision.

A graduate of Imperial College, London, his career has included 37 years at Ricardo focused on research and technology demonstration programmes covering advanced combustion engines, hybrid and electric systems and energy recovery technologies. He is also responsible for a wide range of Technology Roadmaps to define future technology and R&D needs to meet environmental and socio-economic goals. His work at Ricardo has included many initiatives to create new innovative technologies and research collaborations with government, academia and industrial partners.

Neville Jackson was awarded a Doctor of Science degree from City University London in 2012 and has been a visiting Professor at the University of Brighton since 2007. He serves as Chair of the Advisory Board for the UK Advanced Propulsion Centre, Deputy chair for the UK Auto Council Technology Group, Vice Chair of the European Road Transport Research Advisory Council (ERTRAC) and a member of the Advisory Board for the European Green Vehicles Initiative (EGVI). He is also a Fellow of the UK Royal Academy of Engineering and a Fellow of SAE International.
It’s not just what we make. It’s what we know.

There’s engineering innovation and know-how behind every product we supply.

We design and make bearings for the most demanding industries. We know the right way to make products and the best materials to use.

From wind farms in the North Sea to freight cars in the Sahara, we deliver products tough enough to perform reliably while operating with the most high-efficient design for your operating model.

When you partner with Timken, our experience in friction management and knowledge of design optimization can provide enabling technologies to drive fuel efficiency and innovation in the new automotive market space.

Together, we can move beyond expectations to achieve even more.

TIMKEN

Stronger. By Design.

© 2017 The Timken Company

www.timken.com
BIOGRAPHIES

Sujit Jain
President, Powertrain Solutions North America
Market Segments of Passenger Cars & Electric Vehicles
Robert Bosch LLC

Sujit Jain, president Powertrain Solutions North America, leads Robert Bosch, LLC’s market segments of Passenger Cars & Electric Vehicles. He is responsible for the business activities in North America – including manufacturing, engineering, finance and sales. Previously, he served as regional president of the gasoline systems division from December 2006 and held the position of senior vice president, powertrain – gasoline and transmission systems, Robert Bosch Corporation Automotive Group beginning July 2000.

Prior to joining Bosch, Jain served as director, engine management systems and components group, for Denso America. He has also held positions at Walbro Corporation, Unidynamics Corporation, Carter Carburetor, and Gabriel India Ltd.

Jain holds a bachelor of science degree in mechanical engineering from Visvesvaraya Regional College of Engineering, Nagpur, India, and a master’s degree in mechanical engineering from the Florida Institute of Technology.

He is a member of the University of Michigan College of Engineering’s Visiting Committee; a member of the Society of Automotive Engineers (SAE), and has been a member of the Executive Leadership Team and Organizing Committee for the SAE North American International Powertrain Conference since 2005.

John Juriga
Director, North American Powertrain
Hyundai / Kia America Technical Center, Inc.

John Juriga is Director of Powertrain North America and oversees North American:

• Production powertrain tuning focusing on Emissions, Driveability and Fuel Economy
• Concept hardware design and development emphasis on Fuel Economy development
• Engine and Transmission Validation and vehicle Certification support
• Engineering and Quality support for North American Manufacturing
• Powertrain operations include conventional powertrains as well as eco-friendly vehicles such as HEV/PHEV/EVs and Fuel Cell electric vehicles.

John began his professional career at General Motors Chevrolet Engineering in 1983 after graduating from the University of Michigan with a BSME focusing on Internal combustion engine design. He spent the first 9 years at GM in the engine development laboratories and design teams. In 1992 he became the V8 passenger car design and development manager. Over the next 6 years he would hold several positions focusing on the Powertrain development and integration into the vehicle. In 1999 he was promoted to the position of Assistant Chief Engineer for the Passenger Car V8 engines at General Motors. In 2003 Mr. Juriga joined the Hyundai Motor Group as Sr. Manager for Engine Development at the Hyundai/Kia America Technical Center in Ann Arbor Michigan. In 2006 he was promoted to Director of Powertrain at Hyundai/Kia. He oversees the Powertrain development activities in North America including the Ann Arbor Powertrain Laboratory, Engineering support for American manufacturing plants in Alabama and Georgia. He is also responsible for Powertrain Development in the California Labs. California is the center for the Powertrain North American “Eco” vehicle development. This development includes tuning and validation for all of the Hyundai / Kia HEVs, PHEVs, EVs and FCEVs.
We are writing a new chapter.

Joining forces to develop new technologies for cleaner power around the globe.

FEDERAL-MOGUL POWERTRAIN is now the Global Powertrain division of TENNECO

teneco.com
BIOGRAPHIES

Stefan Koidl  
Vice President of Engineering  
Robert Bosch LLC  

Vice President Engineering in Powertrain Solutions division at Robert Bosch LLC, responsible for passenger car systems with focus on Gasoline technologies and electric drive systems.  

• Working for Bosch since 1998 in several positions for powertrain divisions in Germany as well as in US (since October 2017), thereof systems engineering for Diesel and Gasoline and electric drive development for electric and hybrid electric vehicles, educational background: energy technology and combustion engines at University of Aachen, graduated in 1994.  

• Now driving the transformation of powertrain technology.

Jeff Lux  
Vice President and Head - Transmission and Driveline Powertrain  
FCA North America  

Jeff Lux was appointed Vice President and Head - Transmission and Driveline Powertrain, FCA - North America in March, 2014. In this role he has responsibility for the design, development and release of all transmissions and driveline systems for FCA’s North American products. Recent products include the eFlite transmission used in the Pacifica Hybrid which won Ward’s 10 Best in 2017 and 2018. In April, 2019 Lux was also asked to lead Powertrain Coordination globally for FCA.  

Lux joined FCA from General Motors, where he was responsible for Global Powertrain Quality. Prior to this, he held a series of powertrain engineering positions in engines, transmissions and calibration/controls. Lux has worked overseas for much of his career with assignments in Japan, Australia, China and Germany, where he was Vice President of Powertrain Europe. Lux is an active member of SAE and has been a member of the Executive Committee for the SAE Global Leadership Conference since 2015.  

Lux holds a Master of Business Administration from Michigan State University (2002), a Master of Science in mechanical engineering from the Massachusetts Institute of Technology (1989) and a Bachelor of Science in mechanical engineering from Cornell University (1986).
Engineered to Get Over Most Anything

When the terrain gets technical, so does the all-new 2020 Jeep® Gladiator with a wide range of available technology to disconnect the front sway bar, see ahead, lock up for maximum traction, haul up to an available best-in-class² payload, or tow a trailer up to an available best-in-class² payload. Oh...and its top and doors are removable.

Available
1. Tru-Lok® Front and Rear Locking Differentials
2. Forward-Facing TrailCam®
3. Removable Bluetooth® Speaker

1. Based on the FCA US LLC Midsize 4x4 Crew-Cab Truck segment. 2. When properly equipped.
3. Be sure to follow all instructions in the Owner’s Manual for removal of top and doors, and lowering of windshield. Driving with the doors off and windshield down is for off-road use only. 4. Always look before proceeding. An electronic drive aid is not a substitute for conscientious driving. Always be aware of your surroundings. © 2019 FCA US LLC. All Rights Reserved. Jeep is a registered trademark of FCA US LLC.
Richard Madden
Senior Manager, Powertrain Performance Planning and Market Insights
Nissan Technical Center North America
Nissan North America

Richard Madden is a senior manager at Nissan Technical Center North America where he leads powertrain technology, market research and performance design. This role includes powertrain technology research, regulatory research, and fuels research, as well as setting the powertrain direction for drivability, acceleration performance, NVH, fuel economy, and 4WD/AWD performance.

Madden’s interest in the automotive industry started in the back of a speed shop balancing and building high-performance engines. Driven by his desire to know more, he received a bachelor’s degree in Mechanical Engineering from Trine University in Angola, Indiana. Before Nissan, Madden held engineering and design positions at Eaton Corporation, where he developed concept valvetrain systems and led structural and kinematic analysis activities. Both included development and analysis of cam phasing, multi-valve lift, engine braking, and cylinder deactivation devices for passenger car and heavy-duty powertrains.

In his previous roles at Nissan, Madden has held responsibilities for powertrain systems development, engine component design and testing, as well as 4WD/AWD systems design and performance.

Michael McCarthy
Chief Technology Officer
Executive Office
California Air Resources Board

Currently, Mike has responsibility at CARB for assessment of vehicle and powertrain technology and future light-duty criteria pollutant and greenhouse gas emission standards including leading California’s review of the greenhouse gas standards and zero emission vehicle requirements already adopted out to the 2025 model year. Previously, Mike has worked on the on-board diagnostic programs for CARB including managing all aspects of the light-duty and heavy-duty OBD programs.

Mr. McCarthy holds a B.S. degree in Mechanical Engineering with a specialty in Control Systems from the University of California, Los Angeles.
Complexity. Simplified.

Our ENERGY™ software is reinventing how data is shaping the vehicles and fleets of tomorrow.
BIOGRAPHIES

John McElroy
Editorial Director
Blue Sky Productions

John McElroy is the host of “Autoline Daily” the first industry webcast of industry news and analysis. He is also the host of the television program “Autoline This Week,” an Emmy Award-winning, weekly half-hour discussion program featuring top automotive executives and journalists. McElroy also hosts “Autoline After Hours,” the first regularly scheduled live webcast about the industry. The shows can be seen online at autolinedetroit.tv McElroy also broadcasts five radio segments daily on WWJ Newsradio 950, the CBS affiliate in Detroit. He writes a monthly op-ed article for Ward’s Auto World.

His past experience includes five years at Detroit Editor for Road & Track, and as the American correspondent for World Cars, which was published by the Automotive Club of Italy. He was also invited to write the annual automotive entry for the Encyclopedia Britannica Yearbook. He spent most of his career at the trade magazine Automotive Industries where he ultimately rose to Editorial Director. McElroy was inducted into the Michigan Journalism Hall Of Fame in 2018.

Dan Nicholson
Vice President, Global Electrification, Controls, Software and Electronics
General Motors

Dan Nicholson was appointed General Motors Vice President, Global Electrification, Controls, Software and Electronics in January 2019. He is responsible for all electrified propulsion products including batteries and electric drive units. He is also responsible for all electronic control systems and strategies, software and associated electronic hardware for all General Motors products globally. Prior to that, Dan was General Motors vice president, Global Propulsion Systems. In that role he was responsible for all propulsion products including engines, transmissions, fuel cells, electric drive units and batteries. Nicholson began his General Motors career as a co-op student at Buick Motor Division in 1982. He has an extensive background in product engineering at GM and has progressed through a series of leadership positions including director of controller integration, director of engine calibration, chief engineer for V-8 engines, managing director of GM Powertrain-Germany GmbH, executive director for global powertrain embedded controls, vice president of Global Quality and vice president of Global Powertrain. Nicholson earned a Bachelor of Science degree in mechanical engineering from General Motors Institute (now Kettering University), a Master of Science in mechanical engineering from Texas A&M University and a Master of Business Administration from Stanford University. Nicholson is a registered professional engineer in the state of Michigan. He is an SAE Fellow, president of the Engineering Society of Detroit, chair of the Trustees for the SAE Foundation, past president of FISITA and was recognized as a 2019 Automotive News All-Star.
Everything begins with measurement
Doug Patton currently runs his own consulting company Jupiter Consulting LLC (jupiterconsultingllc.com). In 2018 he was Sr Technical Advisor at DENS0 and prior to that he was Executive VP Engineering and NA CTO at DENS0, where he directed product development and research activity in North America. He was President of the Engineering Society of Detroit 2016-2018, President of the DENS0 Foundation (2007-2018) and the 2017 President of SAE International. He has 30 plus years of automotive experience including sales and marketing; engineering management including both product development, R&D; and innovation road mapping. The product ranges include thermal, Powertrain, electrical (including power electronics, motors and battery management for HEV, PHEV and BEV), electronic, hybrid and autonomous drive related products (including sensing systems, HMI and integration into the vehicle).

Patton earned a Bachelor of Science degree in Electrical Engineering in 1977 and a Master of Business Administration degree in 1984, both from Bradley University in Peoria, Illinois.

David Porreca is the Director of Automotive Business for SAE International and also serves as the Executive Director of the Defense Automotive Technologies Consortium (DATC), which is part of SAE-ITC and SAE International.

Dave is responsible for the establishment and maintenance of positive and productive working relationships with key automotive executives at corporations, government entities and sister engineering societies around the world. Additionally, Dave is responsible for identifying new products and business opportunities for SAE.

Prior to serving in this position at SAE, Dave was the Manufacturing and Technical Program Manager and then later the Engineering Meetings Manager for SAE. As the Engineering Meetings Manager, Dave had responsibility for the technical content and organization of all SAE Technical Conferences, to include the SAE Congress.

Before joining SAE, Dave was the Executive Director of the National Coalition for Advanced Manufacturing (NACFAM) in Washington, D.C.

Dave’s spent fourteen years working in the private sector. He was the President and Chief Executive Officer of Anderson Mavor, an international manufacturer of longwall mining machinery. He also served as Chief Executive Officer of Mountaineer Euclid, a heavy equipment distributor for Ingersoll Rand, Komatsu, Euclid, O&K, Trojan and Grove products.

Dave is a 1970 engineering graduate of the United States Military Academy at West Point and received his Masters Degree in Business Administration from Augusta College, in Augusta, Georgia.
Turbocharging DETROIT

IHI

Realize your dreams
**BIOGRAPHIES**

**Robert “Bob” C. Purcell, Jr.**  
*Technology, Strategy, Leadership  
CEO*  
*VIA Motors*

Bob Purcell is a recognized global leader in business strategy and the development and commercialization of new technology. For over 30 years, he has successfully led new business and advanced technology initiatives with both major manufacturers and start-up companies. Bob currently serves as the CEO of VIA Motors, a leader in electric and hybrid commercial vehicles.

**Chris Reed**  
*Senior Vice President  
Research and Development*  
*Nissan Technical Center North America (NTCNA)*

Chris Reed is senior vice president, Research and Development, Nissan Technical Center North America (NTCNA), a position to which he was appointed in April 2019. In this role he is responsible for all vehicle engineering and development operations in North America.

Previously, Reed was vice president, Platform and Technology Engineering, where he was responsible for Powertrain, Electrical, and Audio/IT engineering groups. He also served as the Overseas Chief Vehicle Engineer (OCVE) for Nissan LEAF, Murano and Pathfinder as well as the INFINITI QX60, at NTCNA.

Reed joined Nissan North America in 1988 as an entry-level engineer in the body design group. From 2011 to 2013, he worked in safety and then exterior/accessories while being OCVE of trucks. He also spent more than two years in Japan to help lead development on an all-new Nissan Murano. From 1999 to 2007, Reed was self-employed as a home builder and ran a small automotive parts supplier.

Reed holds a mechanical engineering degree from Virginia Tech. He is based at NTCNA in Farmington Hills, Michigan.
Our future depends on clean power. At Continental, we’re making driving more environmentally friendly with innovative and efficient powertrain systems. By combining clean technology with high performance, we’re also making driving more fun. From cleaner air to a more dynamic driving experience, we’re always thinking ahead.

Now hiring engineers. Join our team and put The Future in Motion.

Facebook Continental USA Twitter @ContiPress www.continental-automotive.com
Jeremy Rifkin is the bestselling author of twenty books on the impact of scientific and technological changes on the economy, the workforce, society and the environment. His books have been translated into more than 35 languages and are used in hundreds of universities, corporations and government agencies around the world. On April 1, 2014, Rifkin published his latest book, “The Zero Marginal Cost Society: The Internet of Things, the Collaborative Commons, and the Eclipse of Capitalism.” In 2011, Rifkin published the New York Times bestseller “The Third Industrial Revolution,” which captured the attention of the world. Rifkin’s vision of a sustainable, post-carbon economic era has been endorsed by the European Union and the United Nations and embraced by world leaders including Chancellor Angela Merkel of Germany, President François Hollande of France and Premier Li Keqiang of China. Rifkin is an advisor to the European Union and to heads of state around the world, and president of the Foundation on Economic Trends in Washington, DC.

Gary W. Rogers is currently Vice President, Advanced Technology at Roush Industries, Inc. He was previously, Director of Research at the Oakland University School of Engineering and Computer Science, following his retirement after an almost 29 year career as President and CEO of FEV, Inc. He also served as Executive Vice President of FEV GmbH, Aachen Germany. He recently completed two terms on the Board on Energy and Environmental Systems at the National Academies and has served on many technology assessment committees for the National Research Council of the National Academies. He is an SAE Fellow and was a founding member of the NAIPC Executive Leadership Team.
Overcome rapidly changing test requirements and innovate with confidence using an open and easily upgradable platform that is designed for test system flexibility.

ni.com/automotive
Ben Schlimme
Powertrain Executive Program Manager
Powertrain Planning & Research
Corporate Strategy & Planning
Toyota Motor North America

Ben Schlimme is the Executive Program Manager with Toyota Motor North America. There he leads a team overseeing Powertrain Planning & Research within R&D and Corporate Strategy & Planning.

Mr. Schlimme’s responsibilities include development of Toyota's North American long term powertrain strategy as well as overseeing powertrain research.

Mr. Schlimme began his career at Toyota in 1991, when he joined Toyota Motor Sales in their Finance Division responsible for daily cash management. From there he has held various positions including the launch of Lexus's Certified Used Car Program, Lexus Product Planning and Toyota Truck Product Planning. In 1997 Mr. Schlimme joined Toyota Technical Center to support the development of the first V8 truck engine. In this role he was responsible for ensuring the calibration and tuning met North American market needs. In 2003 he was promoted to lead their Powertrain Planning function which he grew into the development of Powertrain Planning & Research Department in 2013. Most recently his role was expanded to bridge R&D and Corporate Strategy within North America in development for powertrain strategy.

Mr. Schlimme relocated his family to North Dallas, coinciding with Toyota corporate headquarters relocation in 2016. Having spent the previous 28-years in Southern California, earning a Bachelor of Science degree in International Finance from the University of Southern California, the change from the beaches of Southern California to the expansiveness of Dallas has been “a refreshing change”.

Brett Smith
Director of the Propulsion Technologies & Energy Infrastructure Group
Center for Automotive Research (CAR)

Brett Smith is the Director of the Propulsion Technologies & Energy Infrastructure Group at the Center for Automotive Research (CAR). He joined CAR in 2000 after 12 years at the University of Michigan’s Office for the Study of Automotive Transportation (OSAT).

During his career, Brett’s research has spanned many critical aspects of the automotive industry. He has been deeply involved in research on vehicle and component manufacturing; materials forecasting; product development and analysis; supplier-manufacturer relations; technology development; facility location analysis; and human resource and talent issues. Brett is also active as a labor educator. For much of the past 20 years, Brett’s research has focused on the area of advanced propulsion technology and strategy. During that time, he has published numerous reports and forecasts on this subject. He was chair of the NextEnergy-CAR Plug-in Electric Vehicle Working Group (2007-2012), and is currently chair of the Advanced Propulsion Roundtable, an assemblage of leading powertrain suppliers working with CAR to develop a comprehensive understanding of issues driving this critical industry sector.
Dietrich Sneideraitis is the Senior Sales Manager for Powertrain Systems Business Customers and is responsible for all BMW Powertrain Systems sales in North America. Dietrich joined the BMW Group in 2009. Dietrich has over 30 years of experience in Engineering, Sales and Management positions within the Automotive Powertrain Sector. He began his career at Chrysler Corporation in 1983 in Automatic Transmission Development. Additional Powertrain related experience was gained with various companies, including ZF North America and Behr America.

Dietrich earned a Master of Business Administration degree from Wayne State University in 1989 and a Bachelor's degree in Mechanical Engineering from Oakland University in 1983, and has been a member of SAE since 1983.

Dr. Wolfgang Warnecke was appointed Shell’s Chief Scientist Mobility in May 2011. His expertise in all forms of mobility, vehicle technology, fuels and lubricants sees him advising on technology strategy, championing science, R&D and innovation, enhancing Shell’s technical reputation in the fast-changing area of mobility and looking ahead to future solutions.

Wolfgang studied mechanical engineering at the Technical University of Hannover, specialising in automotive combustion engines, and gained a PhD in automotive engineering from Hamburg Technical University in 1987.

Since joining Shell on graduation, Wolfgang has gained extensive experience in Germany and the UK as a scientist and business leader in the fields of lubricant development, engine testing and vehicle technology, technical services for lubricants, and fuels marketing.

In 2005, Wolfgang, together with Dr. Wolfgang Steiger of Volkswagen, was awarded the “Professor Ferdinand Porsche Prize”, considered by many to be the world’s most prestigious award for automotive engineers, for their work on synthetic fuels development.
Kregg Wiggins is Senior Vice President of Continental’s Powertrain Division and is responsible for overseeing the three business units in North America: Engine & Drivetrain Systems, Powertrain Components, and Hybrid Electric Vehicles. Wiggins is located in Auburn Hills, Mich., where the team focuses on aligning innovative and efficient system solutions that impact every aspect of a vehicle’s drivetrain.

Previously, Wiggins held a variety of assignments including Global Key Account representative for worldwide sales for the General Motors account and Vice President of Powertrain – North America, responsible for all powertrain activities, including sensors, electronic controls, drivetrain and transmission.

Wiggins began his career with Siemens in 1985 and has held various positions with the company including a long-term foreign delegation at the company’s headquarters in Regensburg, Germany, as the Powertrain division’s program manager. He also held engineering and management positions related to engine, advanced technology, powertrain and vehicle electronic systems products.

Wiggins earned a master’s degree in Business Administration from The College of William and Mary in Williamsburg, Va., and a Bachelor of Science degree in electrical engineering from Purdue University in West Lafayette, Ind. He is a member of the North American International Powertrain Conference (NAIPC) leadership team, and a visiting committee member for the University of Michigan – Dearborn College of Engineering and Computer Science.
A special thank you to the following companies who have generously chosen to support this SAE International event.

**PLATINUM SPONSORS**

- AVL
- BMW
- FCA
- FEV
- Ford
- GM
- Hyundai
- Nissan
- Ricardo
- Toyota

The Ultimate Driving Machine®
SILVER SPONSORS

[Logo]

BRONZE SPONSORS

[Logos]

CONFERENCE SUPPORTERS

[Logos]
Aisin Group is the world’s sixth largest Tier One supplier of automotive components and systems such as brakes, transmissions, navigation systems, drivetrain, chassis, body, engine-related parts, electronics and intelligent transportation systems. A $35 billion company, Aisin Group is the largest transmission manufacturer in the world, and employs more than 110,000 team members at 217 consolidated companies. In the Americas, Aisin Group companies include 14,000 employees, 36 manufacturing, sales, and R & D centers, including Aisin Technical Center of America located at the North American Headquarters in Northville, Mich., and FT-Techno of America, the company’s 950-acre test track and proving ground in Fowlerville, Mich.
AVL
47519 Halyard Dr.
Plymouth, MI 48170
Website: avl.com
Phone: +1.734.414.9600

AVL is the world’s largest independent company for development, simulation and testing technology of powertrains (hybrid, combustion engines, transmission, electric drive, batteries and software) for passenger cars, trucks and large engines. The company offers combined solutions of propulsion engineering, simulation software, and testing and instrumentation systems. With dedicated technical centers in Lake Forest, California and Ann Arbor, Michigan, AVL also offers complete engineering and testing services for the development of battery electric and hybrid propulsion systems. From battery development and testing to complete integration of alternative powertrain systems, AVL is an experienced, trusted partner.

AVL’s North American headquarters is located in the Detroit suburb of Plymouth, Michigan. For more information, visit avl.com
Bayerische Motoren Werke: Only a few automakers in the world have the word “motor” or “engine” in their name. At BMW, engines represent the company’s origins and its core competence.

Our engines have earned an excellent reputation worldwide. They stand for trailblazing innovation, high-precision manufacturing and exemplary reliability. Moreover, they prove that efficiency and driving enjoyment can be excellent travel companions. Thus, they embody the experience, creativity and passion of the best engines in their field.

BMW Powertrain Systems Business Customers offers you the complete range of powertrain components from BMW, BMW M GmbH, BMW Motorrad and MINI brands. This includes high voltage batteries, electric motors and components, along with a holistic range of premium services for OEM and niche customers by using the best technologies and competencies within the BMW Group.

Our i3 batteries have many facets – and a lot of power. Discover how our industrial clients use them to provide even more mobility solutions and to change the energy landscape.

With more than 25 years of experience in automotive and non-automotive projects, BMW Powertrain Systems Business Customers is making the unique BMW know-how available to you for your own projects! The BMW Powertrain System organization has its headquarter in Munich and supporting offices in Detroit and around the world.

Our team, as a part of the BMW Group’s worldwide network, is available to you as a reliable partner – you can always be sure of one thing: we will give you and your project the best we’ve got.
SPONSORS

CONTINENTAL AUTOMOTIVE
One Continental Dr
Auburn Hills, MI 48326
United States
Website: continental-automotive.com
Phone: +1.248.393.5300

Continental develops pioneering technologies and services for sustainable and connected mobility of people and their goods. Founded in 1871, the technology company offers safe, efficient, intelligent, and affordable solutions for vehicles, machines, traffic and transportation. In 2018, Continental generated sales of €44.4 billion and currently employs around 245,000 people in 60 countries and markets.

Powertrain develops and produces efficient system solutions for vehicle powertrains to optimize fuel consumption. The comprehensive range of products includes gasoline and diesel injection systems, engine management and transmission control, including sensors and actuators, exhaust aftertreatment technologies, fuel supply systems, and components and systems for hybrid and electric drives.
Delphi Technologies is a technology company focused on providing electric vehicle and internal combustion engine propulsion solutions, in addition to solving emissions and fuel economy challenges for the world’s leading automotive original equipment manufacturers (OEMs). Delphi Technologies also provides leading aftermarket service solutions for the replacement market. With headquarters in London, U.K., Delphi Technologies operates technical centers, manufacturing sites and customer support services in 24 countries.
DENSO INTERNATIONAL AMERICA, INC.
24777 Denso Drive
Southfield, MI 48033
Website: denso.com/us-ca/en/
Phone: +1.248.350.7500

DENSO is a $48.1 billion global mobility supplier that develops advanced technology and components for nearly every vehicle make and model on the road today, including Toyota, Honda, FCA, GM, Ford, Volvo, and Mercedes-Benz. With manufacturing at its core, DENSO invests in its 220 facilities in 35 countries to produce thermal, powertrain, mobility, electrification, & electronic systems, to create jobs that directly change how the world moves. The company’s 170,000+ employees are paving the way to a mobility future that improves lives, eliminates traffic accidents, and preserves the environment. Globally headquartered in Kariya, Japan, DENSO spent 8.8 percent of its global consolidated sales on research and development in the fiscal year ending March 31, 2018. For more information about global DENSO, visit denso.com/global

In North America, DENSO employs 24,000+ engineers, researchers and skilled workers across 31 sites in the U.S, Canada and Mexico. In the United States alone, DENSO employs 17,000+ employees across 12 states and 25 sites. Headquartered in Southfield, Michigan, in fiscal year ending March 31, 2018, DENSO in North America generated $10.9 billion in consolidated sales. Join us, and craft not only how the world moves, but also your career. For more information, go to denso.com/us-ca/en/
EATON
26101 Northwestern Highway
Southfield, MI  48076
Website: eaton.com

Eaton is a power management company with energy-efficient solutions that help customers effectively manage electrical, hydraulic and mechanical power more reliably, safely and sustainably. The company is dedicated to improving the quality of life and the environment through the use of power management technologies and services. For more information, visit Eaton.com.
FCA US LLC
1000 Chrysler Drive
Auburn Hills, MI 48326-2766
Phone: +1.248.576.5741

FCA US LLC is a North American automaker based in Auburn Hills, Michigan. It designs, manufactures, and sells or distributes vehicles under the Chrysler, Dodge, Jeep®, Ram, FIAT® and Alfa Romeo brands as well as the SRT performance designation. The Company also distributes Mopar® and Alfa Romeo parts and accessories. FCA US is building upon the historic foundations of Chrysler Corp., established in 1925 by industry visionary Walter P. Chrysler and Fabbrica Italiana Automobili Torino (F.I.A.T.), founded in Italy in 1899 by pioneering entrepreneurs, including Giovanni Agnelli. FCA US is a member of the Fiat Chrysler Automobiles N.V. (FCA) family of companies. (NYSE: FCAU/ MTA: FCA)

Major Brands:

Chrysler, Dodge, Jeep, Ram, Mopar, SRT, FIAT and Alfa Romeo

chrysler.com/
dodge.com/
jeep.com/
ramtrucks.com/
mopar.com/
drivesrt.com/
fiatusa.com/
alfaromeousa.com/

Follow Us:
Facebook: facebook.com/ChryslerGroup
Twitter: twitter.com/FCAcorporate
Instagram: instagram.com/FCAcorporate
YouTube: youtube.com/pentastarvideo
Pinterest: pinterest.com/FCAcorporate
Flickr: lckr.com/photos/chryslergroup/

Company Websites:
Media Web Site: media.fcanorthamerica.com
Company Blog: blog.fcanorthamerica.com
Company Website: fcanorthamerica.com
FCA360: 360.fcanorthamerica.com
FCA Content on Demand: fcacod.com

Follow Us:
Facebook: facebook.com/ChryslerGroup
Twitter: twitter.com/FCAcorporate
Instagram: instagram.com/FCAcorporate
YouTube: youtube.com/pentastarvideo
Pinterest: pinterest.com/FCAcorporate
Flickr: lckr.com/photos/chryslergroup/

Company Websites:
Media Web Site: media.fcanorthamerica.com
Company Blog: blog.fcanorthamerica.com
Company Website: fcanorthamerica.com
FCA360: 360.fcanorthamerica.com
FCA Content on Demand: fcacod.com
For more than 40 years, FEV has been a global leader in the development of mobility solutions for the mobility industry. Our team of experts is passionate about advancing this space through the design, development, integration and validation of vehicle and propulsion system technologies.

We specialize in designing, building and benchmarking the latest gasoline, diesel and alternative-fuel powertrains, and have positioned ourselves as a leader within the connected vehicle space. We’ve expanded our engineering capabilities to cover the entire vehicle and to meet future challenges, such as cybersecurity, autonomous driving and hybridization.

FEV’s global footprint spans four continents and includes more than 40 technical facilities, 200 engine and powertrain test cells, and 6,100 employees. Partner with FEV to create an intelligent, more efficient future mobility solution.
SPONSORS

FORD MOTOR COMPANY
P.O. Box 6248
Dearborn, MI 48126
Website: ford.com
Phone: +1.800.392.3673

Ford Motor Company is a global company based in Dearborn, Michigan. The company designs, manufactures, markets and services a full line of Ford cars, trucks, SUVs, electrified vehicles and Lincoln luxury vehicles, provides financial services through Ford Motor Credit Company and is pursuing leadership positions in electrification, autonomous vehicles and mobility solutions. Ford employs approximately 202,000 people worldwide. For more information regarding Ford, its products and Ford Motor Credit Company, please visit corporate.ford.com
CORPORATE OVERVIEW
Garrett Motion is a differentiated technology leader, serving customers worldwide for more than 65 years with passenger vehicle, commercial vehicle, aftermarket replacement, and performance enhancement solutions. The company’s cutting-edge technologies enable vehicles to become safer, more connected, efficient and environmentally friendly. With a comprehensive portfolio comprised of turbocharging, electric boosting, and connected vehicle solutions, Garrett empowers the global automotive industry to redefine and further advance motion.

LEADING TECHNOLOGY INNOVATOR
Garrett is a pioneer in turbocharging systems for a wide range of engine applications, including gas, diesel, and natural gas. Building on its expertise in the mechanical domain, Garrett has developed electric-boosting technologies for use in electrified powertrains, primarily hybrid and fuel cell vehicles. The company plans to launch the industry’s first electric turbocharger in 2021. Garrett is today leveraging its unique capabilities and deep-seated relationships with all major OEMs to introduce automotive software solutions addressing global macro issues. The company’s leading cybersecurity and integrated diagnostic and prognostic technologies help to ensure a secure and safe operating environment.
GENERAL MOTORS COMPANY
PO Box 33170
Detroit, Michigan 48232-5170
Website: gm.com

General Motors (NYSE:GM) is committed to delivering safer, better and more sustainable ways for people to get around. General Motors, its subsidiaries and its joint venture entities sell vehicles under the Cadillac, Chevrolet, Baojun, Buick, GMC, Holden, Jiefang and Wuling brands. More information on the company and its subsidiaries, including OnStar, a global leader in vehicle safety and security services, Maven, its personal mobility brand, and Cruise, its autonomous vehicle ride-sharing company, can be found at gm.com.
A business segment of the HORIBA Group, Automotive Test Systems (ATS) has developed global leadership in the fields of battery and fuel cell test stands, data management solutions, driveline test systems, engine test systems, brake test systems, wind tunnel balance, emissions test systems and test facility automation. HORIBA ATS is able to offer its customers complete solutions with full turnkey capability for all industries using electric motors, internal combustion engines, and turbines. These include the automotive, heavy-duty, off-road, consumer goods, marine, aerospace, and locomotive sectors.
Hyundai Motor Group (HMG), which includes Hyundai Motor Company, Kia Motors and Genesis, is South Korea’s largest automobile manufacturer. The automotive sector of Hyundai Motor Group was formed in 1998 when Hyundai Motor Company purchased Kia Motors. In 2018, HMG sold 4.59 million vehicles globally.

Unlimited Sense of Responsibility - An unlimited sense of responsibility for our customers’ safety and happiness is manifested in quality management and extends to the ideal of creating greater value for society at large.

Realization of Possibilities - Not complacent about our achievements, we constantly pursue new goals. The risk of failure is no deterrent as we seek new challenges on the way to creating a brighter future.

Respect for Mankind - We seek to create value for mankind with better products and services delivered more quickly to more people as a way to enrich their lives.

About Hyundai America Technical Center, Inc. - As one of Hyundai Motor Group’s (HMG) centers focused on research and development (R&D), Hyundai America Technical Center, Inc. (HATCI) was established in 1986 in Ann Arbor, Michigan. HATCI is HMG’s design, technology and engineering division for North America. As HMG solidified its position as one of the top five global OEMs, HATCI has grown to include a strong network of engineering disciplines and increased business-focused activities to support North America’s Voice of the Customer.

HATCI supports new model development for HMG’s North American operations and global programs from our dedicated engineering facilities and support staff at affiliate sites located throughout the United States (Alabama, California, Georgia, and Michigan). HATCI’s success in satisfying the demands of increasingly sophisticated consumers is a direct result of HMG’s commitment to the future of American automotive engineering. HATCI upholds a strong R&D philosophy hinged on creative and passionate input of all team members. This philosophy is paramount to HMG’s North American operational strategy and serves as the foundation for engineering excellence and technological advancement.

For more information visit:
hyundaimotorgroup.com
hatci.com
IHI Corporation is a comprehensive heavy-industry manufacturer working to create value for customers in four main areas—Resource, Energy and Environment; Social Infrastructure and Offshore Facilities; Industrial Systems and General-purpose Machinery; and Aero Engine, Space and Defense.

IHI is deeply committed to contributing to society through technology, combining diverse engineering capabilities to meet expanding global needs for energy, urbanization and industrialization, and transportation efficiency.

IHI supplies a wide range of turbochargers from small ones for automobile engines to large ones for land and marine power generators and has already produced more than 50 million turbochargers for automobiles. We have development, production, and sales bases also in the U.S., Europe, Thailand, China, and Korea and are growing our business worldwide.
Means Industries, known for rigorous design and collaboration, continues to bring transformational propulsion-system technologies into the auto industry. Means leverages its unique process and product design capabilities to manufacture award winning innovations that improve fuel economy and reduce mass. Some examples of our technology include the Controllable Mechanical Diode (CMD) Selectable One Way Clutch, Advanced Metal-Forming and Joining Capabilities, and our emerging Dynamic Clutch Technologies which will serve as the building blocks for efficient Propulsion Electrification.

Means partners with global OEMs and tier 1 suppliers to develop transformational solutions for systematic challenges. Means does not just develop these technologies in a think tank, but works alongside experienced OEM engineers in an open collaboration – this allows the team to collectively tackle key issues, and identify the right problems to solve. Means uses in-house product design, process design, and propulsion systems experience to meet challenging regulations and performance requirements.

Looking to the future, Means has developed technologies that help OEMs address the challenges associated with propulsion electrification and fuel economy targets such as:

- Electrically Actuated & Dynamic Controllable Clutches
- Advanced Metal Forming Hoop-Band Process
- Welded Assemblies
- Aluminum Flow-Forming Processes

... Transforming the Future of Propulsion
Critical technology trends in advanced driver assistance systems (ADAS), electric vehicles (EVs), and vehicle-to-everything communications (V2X) present new test challenges beyond the here and now. This quickly evolving technology landscape increases the pressure on any test schedule and requirements.

Using NI’s flexible platform-based approach means you can own the test system IP and make changes quickly rather than solely relying on a third-party vendor. Work with NI to overcome the pressure of these rapidly changing test requirements using an open and easily upgradable platform that offers the test system flexibility you need to test the vehicles of tomorrow today.
Nemak is a global leader in automotive lightweighting, providing customers with innovative solutions for the advancement of sustainable mobility. The organization focuses its portfolio on propulsion and e-mobility components, and has propelled into body in white and chassis parts. For 40 years, the world’s leading OEMs have trusted Nemak in collaborations to produce sustainable, innovative, lightweight parts to enhance vehicles on the roads around the globe.

As a sustainability-focused company, Nemak’s purpose is grounded in its commitment to support the automotive industry’s shift towards a more sustainable human mobility. In June 2019, Nemak committed to Science Based Targets to set greenhouse emissions reduction targets in 2019, leading to a net-zero greenhouse gas emissions by 2050.

The company employs more than 23,000 people at 38 facilities worldwide. In 2018, it generated revenues of US$4.7 billion. For more information about Nemak, visit nemak.com.
SPONSORS

NISSAN TECHNICAL CENTER NORTH AMERICA
39001 Sunrise Drive
Farmington Hills, MI  48331
Website: nissanusa.com
Phone: +1.248.488.4123

Nissan’s operations in the U.S. include more than 21,000 employees who work in automotive design, engineering, consumer and corporate financing, sales and marketing, distribution and manufacturing. Over the past 36 years, Nissan has invested more than $12.4 billion in U.S. manufacturing and now has the capacity to build 1 million vehicles and 1.4 million engines annually at its four U.S. assembly plants.

The environment surrounding the automobile is undergoing rapid changes driven by technological innovation. Nissan’s mission is to make the best technology available to all; Nissan Intelligent Mobility is the brand’s blueprint for the future of motoring, targeting zero emissions and zero fatalities. Nissan is changing the automotive experience with innovations that add connectivity, driving dynamics and safety, and electrification.
Novation Analytics provides software solutions, data analysis, and advisory services, focusing on vehicle energy efficiency and greenhouse gas emissions. Our products empower clients to more efficiently develop strategic plans, conduct regulatory analysis, and generate competitive assessments. Novation Analytics is leading the way in disruptive predictive technology with our cloud-based ENERGY software; an industry first, providing full-vehicle simulation, competitive analysis, and integrated regulatory compliance evaluations for product planners and regulators. Our clients include stakeholders within the light vehicle sector, from manufacturers and consultants to suppliers and government agencies. At Novation Analytics, we’re continually reinventing how data is shaping the vehicles and fleets of tomorrow.
Pioneering technology for tomorrow’s automotive markets

Our mission at Ricardo is to support the evolution of the automotive sector towards an efficient, sustainable low-carbon future. As a global strategic, technical and environmental consultancy, the company employs over 3,000 professional engineers, consultants and scientists who are committed to delivering projects focused on leading innovation for engine, transmission, vehicle, hybrid and electrical systems, environmental forecasting and impact analysis.

Our client list includes the world’s major transportation original equipment manufacturers, supply chain organizations, energy companies, financial institutions and government agencies.

As the industry responds to seismic changes in the automotive market – and across society as a whole – we remain one of its most trusted and innovative partners, leading the way in high-caliber research across engines, drivelines and hybrid systems, as well as supporting the development of emerging technologies such as autonomous and connected vehicles. Deep technical knowledge, complemented by an expansive strategic consultancy offer, leaves us uniquely positioned to support clients across every stage of the product development process, from clean-sheet design to manufacture, testing and product launch.

Ricardo’s U.S. operation includes technical centers of excellence in Michigan and California. In the heart of Silicon Valley, we have expanded our ability to serve our clients with world class aftertreatment engineering and testing, and leading-edge fuel cell technology.

For more information, visit ricardo.com
Having established a regional presence in 1906 in North America, the Bosch Group employs 35,400 associates in more than 100 locations, as of December 31, 2018. In 2018 Bosch generated consolidated sales of $14.5 billion in the U.S., Canada and Mexico. For more information, visit twitter.com/boschusa, twitter.com/boschmexico and bosch.ca.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 410,000 associates worldwide (as of December 31, 2018). The company generated sales of 78.5 billion euros ($92.7 billion) in 2018. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group’s strategic objective is to create solutions for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is “Invented for life.” The Bosch Group comprises Robert Bosch GmbH and its roughly 460 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch’s global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company’s future growth is its innovative strength. At nearly 130 locations across the globe, Bosch employs some 68,700 associates in research and development.

Additional information is available online at bosch.com, iot.bosch.com, bosch-press.com, twitter.com/BoschPresse.

Exchange rate: 1 EUR = $1.1811
Roush is widely recognized for the breadth and depth of its product development capabilities, serving the transportation, aerospace, defense, and theme park industries. With proven experience in conventional, hybrid, electric and autonomous systems, we are unique; possessing not only the skill sets but also the supporting capital assets to transform concepts into commercial products for our customers and ourselves. The Roush results-oriented culture is born from our racing heritage and permeates everything we do, which includes services from Roush Industries, products from Roush Performance and Roush CleanTech, and motorsports with Roush Fenway Racing.
Together with our customers, Schaeffler is shaping the mobility for tomorrow – today. As a global technology partner to the automotive industry, Schaeffler is creating new paths to develop ideas, and thinking beyond barriers to innovate technologies and systems for the entire vehicle drivetrain, as well as chassis systems and accessory components. High-precision products from Schaeffler help lower fuel consumption and emissions without sacrificing, safety, performance or driving comfort. The company’s expansive product portfolio encompasses energy-efficient solutions for conventional drivetrains with internal combustion engines, innovative products for hybrids and cutting-edge components for electric vehicles.

With generated sales of approximately [EUR 14.2 billion] in 2018, 92,500 employees and about 170 locations in over 50 countries, Schaeffler is one of the world’s largest family-owned companies. From its worldwide network of manufacturing locations, research and development facilities, and sales companies, Schaeffler is able to serve the vital North American automotive market.

Staying true to its motto “In the Region, For the Region,” Schaeffler has a strong North American presence with its regional headquarters in Fort Mill, S.C. and manufacturing facilities located in South Carolina, Missouri, Ohio, Canada and Mexico. It also operates a 78,000-sq.-ft. Automotive Technical Center in Troy, Mich., where more than 250 engineers and technicians drive product development using state-of-the-art testing equipment, computational tools and CAD systems.
The Powertrain division of Tenneco Inc. designs, develops and manufactures original equipment engine components, sealing and systems protection products, as well as electrification and hybridization technologies for diverse drivetrain configurations and electrical architectures.

Our company is committed to delivering superior quality enabled by advanced engineering and proprietary technologies. We work in partnership with our customers to meet targets for fuel economy and emissions performance without compromising affordability or reliability.

As one of the leaders in the passenger vehicle, light commercial, heavy-duty and off-highway markets, Tenneco’s Powertrain division also supplies related technologies to the power generation, aerospace, marine, rail and industrial sectors.
THE TIMKEN COMPANY
4500 Mt. Pleasant St. NW
North Canton, OH 44720
United States
Website: timken.com
Phone: +1.248.994.4430

The Timken Company (NYSE: TKR; timken.com) designs a growing portfolio of engineered bearings and power transmission products. The company’s growing product and services portfolio features many strong industrial brands including Timken®, Philadelphia Gear®, Groeneveld®, PT Tech, Rollon®, Diamond®, Drives® Cone Drive and Lovejoy®. With more than a century of knowledge and innovation, we continuously improve the reliability and efficiency of global machinery and equipment to move the world forward.

Timken posted $3.6 billion in sales in 2018 and employs more than 18,000 people globally, operating from 35 countries
Toyota (NYSE:TM) has been a part of the cultural fabric in the U.S. and North America for 60 years, and is committed to advancing sustainable, next-generation mobility through our Toyota and Lexus brands. During that time, Toyota has created a tremendous value chain as our teams have contributed to world-class design, engineering, and assembly of more than 30 million cars and trucks in North America, where we operate 14 manufacturing plants (10 in the U.S.) and directly employ more than 44,000 people (more than 34,000 in the U.S.). Our 1,800 North American dealerships (nearly 1,500 in the U.S.) sold almost 2.6 million cars and trucks (2.45 million in the U.S.) in 2016 – and about 85 percent of all Toyota vehicles sold over the past 15 years are still on the road today.

Toyota Motor North America Research & Development (TMNA R&D) aims to redefine next-generation cars as not simply a form of transportation, but as a fully connected vehicle. In fact, Toyota is the leader in automotive patents, including autonomous vehicle patents (over 2,000). Centered in Ann Arbor, Michigan, Toyota puts the brightest thinkers from all across America together to focus on letting people live more safely and comfortably. Globally, Toyota spends approximately $1 million per hour on R&D to ensure that Toyota rapidly and continuously develops cutting-edge, high-quality, and appealing vehicles. To learn more visit Toyota.com
SPONSORS

TREMEC
46643 Ryan Court
Novi, MI  48377
Website: tremec.com
Phone: +1.248.859.6500

Torque transfer solutions from TREMEC are found in products ranging from supercars and high-performance sports cars to severe duty, vocational and commercial vehicles worldwide. The portfolio of products includes manual transmissions, dual clutch transmissions, hybrid & EV drivelines, gears, shafts, clutches, shift controllers, synchronizers, and mechatronic systems with integrated clutch systems and control software.

Torque Transfer Solutions™
ZF, a leading automotive supplier, is shaping the world of mobility and pursuing a digitalization strategy through intelligent mechanical systems. By combining high-level mechanical engineering with digital technology, ZF has become a global leader in driveline and chassis technology, as well as active and passive safety technology.

ZF has a global workforce of 149,000 with approximately 230 locations in some 40 countries. In 2018, ZF had sales of approximately $36.9 billion. The company invests more than six percent of its sales in research and development annually – in particular for the development of efficient and electric drivelines and in striving for a world without accidents. With its broad portfolio, ZF is advancing mobility and services for passenger cars, commercial vehicles and industrial technology applications.

ZF provides a wide range of driveline solutions for automatic, manual and dual clutch transmissions, axles and powertrain components. The company offers a comprehensive range of modular scalable systems for the electrification of powertrains, providing the industry turnkey solutions to meet future needs. Products range from completely hybrid systems to specific devices to individual performance electronic components, such as inverters and DC/AD converters.

ZF’s powertrain technologies, such as the 8- and 9-speed (8HP and 9HP) automatic transmissions, help improve fuel economy and improve performance. Now with our 4th Generation of the 8HP and its modular design we, allow for a fully flexible manufacturing approach depending on market and customer demand for a wide range of variants, including, conventional, MHEV or PHEV applications.

Lowering fuel consumption and delivering increased driving dynamics and comfort have always been a top priority. ZF’s in-house capabilities for wide range on transmission components for both our needs and the needs of other transmission manufacturers, including but not limited to: a full range of modern torque converters, electronic control units and sensors, mechanically and electrically driven transmission pumps, and lightweight plastic oil pans.

Further enhancing the company’s expertise in the powertrain domain, ZF designs, develops and manufactures a full range of powertrain final test stands supplied internally to ZF and externally to powertrain suppliers.

Looking toward the future, there is no doubt of the necessity to make driveline technology more efficient. The vision of a mobile world with zero accidents and emissions must have a realistic cornerstone, and ZF is a technological enabler for the global automotive industry as it works to realize these visions.
<table>
<thead>
<tr>
<th>Advertiser Name</th>
<th>Page</th>
<th>Website Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>AISIN Group</td>
<td>27</td>
<td>aisinworld.com</td>
</tr>
<tr>
<td>AVL</td>
<td>3</td>
<td>avl.com</td>
</tr>
<tr>
<td>BMW North America</td>
<td>13</td>
<td>bmw-powertrain.com</td>
</tr>
<tr>
<td>Continental Automotive Systems Inc</td>
<td>55</td>
<td>continental-automotive.com</td>
</tr>
<tr>
<td>Delphi Technologies Inc</td>
<td>31</td>
<td>delphi.com</td>
</tr>
<tr>
<td>Denso International America, Inc</td>
<td>29</td>
<td>denso.com/us-ca</td>
</tr>
<tr>
<td>Eaton</td>
<td>23</td>
<td>eaton.com/emobility</td>
</tr>
<tr>
<td>FCA USA</td>
<td>47</td>
<td>fca.com</td>
</tr>
<tr>
<td>FEV North America Inc</td>
<td>5</td>
<td>fev.com</td>
</tr>
<tr>
<td>Ford Motor Company</td>
<td>11</td>
<td>ford.com</td>
</tr>
<tr>
<td>Garrett Motion</td>
<td>39</td>
<td>garrettmotion.com</td>
</tr>
<tr>
<td>General Motors</td>
<td>9</td>
<td>gm.com</td>
</tr>
<tr>
<td>Horiba</td>
<td>51</td>
<td>horiba.com</td>
</tr>
<tr>
<td>Hyundai Motor Group</td>
<td>15</td>
<td>Hyundai.com</td>
</tr>
<tr>
<td>IHI Inc</td>
<td>53</td>
<td>ihidetroit.com</td>
</tr>
<tr>
<td>Means Industries</td>
<td>37</td>
<td>meansindustries.com</td>
</tr>
<tr>
<td>National Instruments</td>
<td>57</td>
<td>ni.com/automotive</td>
</tr>
<tr>
<td>Nemak</td>
<td>21</td>
<td>nemak.com/startwithnemak</td>
</tr>
<tr>
<td>Nissan Motor Co</td>
<td>Inside Front Cover</td>
<td>nissan.com</td>
</tr>
<tr>
<td>Novation Analytics</td>
<td>49</td>
<td>novationanalytics.com</td>
</tr>
<tr>
<td>Ricardo Inc</td>
<td>7</td>
<td>ricardo.com/FuVA</td>
</tr>
<tr>
<td>Robert Bosch LLC</td>
<td>19</td>
<td>bosch-mobility-solutions.us</td>
</tr>
<tr>
<td>Roush</td>
<td>33</td>
<td>roush.com</td>
</tr>
<tr>
<td>Schaeffler Group</td>
<td>25</td>
<td>schaeffler.us</td>
</tr>
<tr>
<td>Tenneco Inc</td>
<td>45</td>
<td>tenneco.com</td>
</tr>
<tr>
<td>The Timken Company</td>
<td>43</td>
<td>timken.com</td>
</tr>
<tr>
<td>Toyota North America</td>
<td>17</td>
<td>toyota.com/usa</td>
</tr>
<tr>
<td>TREMEC</td>
<td>41</td>
<td>tremec.com</td>
</tr>
<tr>
<td>ZF Friedrichshaen</td>
<td>35</td>
<td>zf.com</td>
</tr>
</tbody>
</table>