Tech Center News

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MARCH 25, 2019

GM, Ford Join FCA in Investing in State GM's Orion Assembly Plant Ford Bets Millions on Flat **Getting 400 New Jobs Rock BEV Production**

On the heels of FCA's recent Orion Township assembly plant announcement that it's investing in five Michigan plants, the auto industry in Michigan got more good news.

General Motors has revealed plans to add 400 jobs to the company's Orion Assembly Plant. At special gathering at the Ori-

on facility, General Motors an-

nounced that the company will

to produce a new Chevrolet electric vehicle that will bring 400 new jobs to the plant.

This is part of GM's new commitment to invest a total of \$1.8 billion in its United States manufacturing operations, creating 700 new jobs and supporting 28,000 jobs across six states.

CONTINUED ON PAGE 3

Ford's efforts to create new its BEV manufacturing footprint electric powertrains are paying off for Michigan workers.

Ford will be expanding its production capacity for the company's next-generation battery electric vehicles (BEV) at a second North American plant, said Ford spokeswoman Kelli Felker.

Tied to the company's \$11.1 billion investment in global electric vehicles, Ford is expanding to its Flat Rock Assembly plant in southeast Michigan, Felker said.

The plant will become the production home to vehicles from the automaker's next-generation battery electric flexible architecture. These vehicles will follow the all-electric performance SUV coming in 2020 from

CONTINUED ON PAGE 2



GM is investing in Orion Assembly to help produce EVs like the Bolt.



Employees at Flat Rock will be seeing more investment in the plant.

FCA Names **Top Dealers**

As competition between automakers continues to heat up, FCA is making sure that even the buying experience at its dealerships continues to improve.

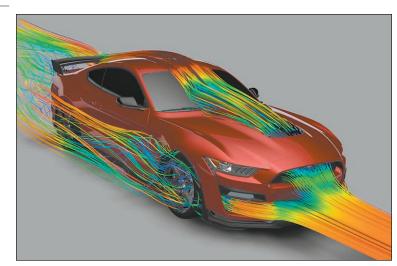
That's what FCA spokesman Jeff Bennett said last week as FCA revealed that 407 Chrysler, Jeep, Dodge, Ram and FIAT dealerships have earned the 2019 Customer First Award for Excellence Certified by J.D. Power.

In an industry first, J.D.Power provided "in-dealership" validations as part of the overall program certification process. J.D. Power is a global leader in consumer insights, data analytics and advisory services.

'These award winners have dedicated themselves to going above and beyond to provide our customers with superior service," said Al Gardner, head of FCA's Network Development. "We continue to support our network of dealers as they look for new and different ways to ensure each customer has a stellar experience when purchasing or leasing one of our vehicles."

The goal of the program is to improve customer satisfaction across the company's network of U.S. dealerships, Gardner said.

CONTINUED ON PAGE 2



Virtual 3D testing technology was used to design the 2020 Shelby GT500.

Virtual Design Technology **Aids in Real-World Results**

When the 2020 Shelby GT500 Matt Titus, Ford Performance ve-

Bolt AV Donated to The Henry Ford

by Jim Stickford

It's not often that people have the chance to see their work as living history, but that's what has happened for the prototype Chevrolet Bolt AVs.

The Henry Ford has acquired one of General Motors' first selfdriving test vehicles.

Originally making its debut testing on the streets of San Francisco in 2016, the car marked a significant step in the development of self-driving technology and was one of GM's first test vehicles to operate on public roads autonomously, said Patrick Sullivan, assistant manager of

Autonomous Technology Communication at GM.

The vehicle represents a milestone for The Henry Ford as well. It's the first autonomous car to be added to the museum's collection

"This all started about a year ago," Sullivan said. "Mark Reuss, who is GM's current president, also serves on the board of the Henry Ford Museum. So he started having a conversation with the people at the museum about the Bolt. He and the board believe Autonomous Vehicle (AV) technology will have a profound impact on the auto industry and the way people drive."

It was agreed that the Bolt AV was the perfect vehicle to represent the wave of the AV future, Sullivan said. Most people think of the Bolt as an EV, but GM has also created several generations of AV vehicles that the company is testing. These vehicles are based on the Bolt platform.

"The vehicle we donated to the museum is one of the first-generation Bolts that were built," Sullivan said.

"We believe that all AVs will also be EVs and we are currently testing the third generation of Bolt AVs. There are about 180 of

CONTINUED ON PAGE 5



goes on sale later this year, it will hicle engineer. be the quickest-accelerating, most aerodynamically advanced street-legal Mustang ever, thanks to virtual testing in supercomputers and 3D printing, said Ford spokesman Jiyan Cadiz.

Borrowing best practices from more than a century of racing, Ford Performance designers, powertrain and aerodynamics engineers functioned as a virtual racing team to test hundreds of designs both digitally and physically, Cadiz said.

They used state-of-the-art digital and additive manufacturing prototyping tools as part of a mission to make the ultimate, most advanced performance street-legal Mustang of all time.

"We created and studied designs among the engineering teams and proved out different strategies long before we built our first prototype cars," said

"Not only did this improve the effectiveness of the designs, it dramatically reduced the time it took to develop the GT500 – and the costs associated with that."

Every millimeter counts for the Mustang Shelby GT500 to deliver on downforce, braking and cooling targets. The team leveraged Ford's vast resources of advanced design simulation tools, including the Ford Performance technical center in Concord, N.C., and rapid 3D prototyping systems at its Advanced Manufacturing Center in Redford, Mich.

To physically validate the improving designs, Ford's wind tunnels in Michigan and Windshear rolling wind tunnel in Concord were also used, Cadiz said.

Real-world testing still matters.

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From left, Weiner, Reuss and Mooradian celebrated an AV Bolt being donated to The Henry Ford.

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31201 Chicago Road South Warren, Michigan 48093

586-939-6800

Contact us: Info@TechCenterNews.com

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Holocaust Victim Speaking at Warren Library

Irene Miller, a Holocaust survivor, author, speaker and educator, will be at the Miller branch of the Warren public library on Thursday, April 11.

Her presentation will begin at 6:30 p.m. in the Miller branch's conference room A, said Warren librarian Amy Moss.

The Miller branch of the library is located at 5460 Arden Road in the Warren Community Center, betwen 14 Mile and Chicago Road, west of Mound, Moss said.

"Irene Miller will talk about her and her family's experiences escaping from the horrors of the Holocaust," Moss said. "She will share the inspirational stories of her survival in a Siberian labor camp, as well as her fight against poverty, disease and death, before she spent years in an orphanage.'

Space at the event is limited, Moss said. Those interested in attending should call 586-751-5377 to make sure they have a spot saved.

CONTINUED FROM PAGE 1

Award winners achieved the highest level of customer experience recognition in the program's five core areas: Customer Treatment, Employee Engagement, Processes, Training Certification and Facility.

Dan Cantrell, head of Customer Experience for FCA, said dealerships are the main way the public interacts with automakers, so it's important that FCA create the most friendly customer experience possible.

"We have made a huge commitment to making sure the customer experience is smooth," Cantrell said. "The industry as a whole has evolved when it comes to dealership interaction. Compare us to the 1980s, and you see a very different kind of dealership.

"We are much more focused on customer flow and making the buying experience much more pleasant.

Cantrell said FCA and J.D. Power have been working together on rating dealers for only about six months. As time goes on, he expects to see more dealers get better grades.

Among the Michigan Chrysler Dodge Jeep Ram dealerships that earned this designation are Golling, Roseville, Snethkamp, Suburban of Farmington Hills and Suburban of Troy; also Jim Riehl's Friendly Chrysler Jeep, Livonia Chrysler Jeep and Parkway Dodge Chrysler Jeep Ram,

All 2,600 Chrysler, Jeep, Dodge, Ram and Fiat dealerships are eligible to pursue and earn this prestigious award on an annual basis.

Dealerships must achieve stringent goals in five core "pillars" to earn the coveted designation:

• Customer Treatment Certifi-

cation – Dealership has achieved the highest levels of customer-oriented sales and service targets.

FCA Honors Top Dealers With Best Customer Service

- Employee Engagement Certification – Annual employee survey is completed to promote the voice of employ ees and a customer-driven culture.
- Process Certification Dealership successfully demonstrates processes that support excellence in customer handling.
- Training Certification Employees attained the highest level of required FCA-certified training.
- Facility Certification Dealership provides a clean, comfortable environment for customers.

"Customers today have higher expectations of the shopping and



Mike Riehl's dealership was one of many Michigan dealerships honored.

ownership experience, and our Bigland, head of U.S. Sales. Customer First Award for Excelthose expectations," said Reid

"We look forward to adding lence dealers are exceeding more dealers to the growing ranks of award winners.

Ford Investing Millions in Michigan Sites

CONTINUED FROM PAGE 1

Ford's Cuautitlan, Mexico, plant.

"We've taken a fresh look at the growth rates of electrified vehicles and know we need to protect additional production capacity given our accelerated plans for fully electric vehicles," said Joe Hinrichs, Ford's president of Global Operations. "This is good news for the future of southeast Michigan, delivering more goodpaying manufacturing jobs.

Through this new plan, Ford is targeting to invest more than \$850 million in the Flat Rock Assembly Plant through 2023, adding a second shift, Hinrichs said. The plant investment also includes funding to build the next-generation Mustang and is part of a \$900 million investment in Ford's operations in southeastern Michigan.

The company also will complete Ford's first autonomous vehicles at a new AV manufacturing center in southeast Michigan, upfitting purpose-built, commercial-grade hybrid vehicles with self-driving technology and unique interiors, Hinrichs said. Production of Ford's first autonomous vehicles will begin in 2021 for deployment in commercial services to move people and goods.

"As we ramp up AV production, this plan allows us to adjust our investment spending to accommodate the pace of growth of this exciting new technology," Hinrichs said. "This new plan combines our core strength in mass manufacturing with the agility and leanness we've shown with our modification centers for specialty manufacturing.'

Ford is building its next-gener-

ation North American Transit Connect small commercial and passenger van in Mexico, starting in 2021, Felker said.

Producing this small van in Ford's Hermosillo, Mexico, assembly plant increases U.S. and Canadian vehicle content consistent with the proposed USMCA trade agreement, which supports U.S. manufacturing jobs and boosts sourcing of components with North American suppliers, Felker said.

It also helps the company improve the profitability of its North American Transit Connect lineup, which is part of Ford's industry-leading lineup of commercial vehicles and vans, she said.

All of the moves are part of the company's commitment to continuously find ways to boost its global competitiveness, Hinrichs said.



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MARCH 25, 2019

Public Seeing New CT5 for the First Time

The road to the 2019 New York Auto Show will be paved with new videos and media about the 2020 Cadillac CT5

Cadillac last week revealed its first-ever CT5 sedan with a social media campaign designed to stimulate the senses using autonomous sensory meridian response, also known as ASMR.

GM spokeswoman Tara Kuhnen said that the Cadillac brand is trying new things marketing the CT5.

"We're doing this for a number of reasons," Kuhnen said. "Part of it is to attract a younger demographic, using social media and releasing new videos on the CT5 as we get closer to the media segment of the New York Auto Show, which this year starts on April 11 for the media.

But the social media campaign also represents a shift in tone for Cadillac's marketing efforts, Kuhnen said. The brand will be releasing the first photographs and videos on the CT5 throughout the rest of March and the first two weeks of April.

'This is an effort on Cadillac's part to try new things," Kuhnen said. "Does this mean that from now on all new Cadillac models will be presented this way? No, different vehicles will still require different marketing efforts. But it is Cadillac, perhaps, reaching out of its comfort zone. Ultimately, we'll be trying different things for different vehicles. This campaign for the CT5 what is the right marketing for the CT5, which is different from the marketing for the XT6.

The released videos focus on distinct sounds designed to trigger a physical response, often experienced as a spine-tingling sensation, such as the rev of the CT5's available 3.0L Twin Turbo engine, audio from its Bose Performance Series speakers and the whisper of its custom blackand-white camouflage wrap slowly being peeled away to reveal the new sedan's exterior. Kuhnen said



The CT5 marketing campaign is leading up to the New York Auto Show.

The CT5 "Sensory Symphony" series can be found on Cadillac's YouTube page and social media channels.

"The Cadillac CT5 is meant to overwhelm all of the senses, and that's why we're using ASMRstyle videos to showcase its features," said Deborah Wahl, Cadillac chief marketing officer. "The 'Sensory Symphony' videos are designed to convey for viewers the same satisfying feeling that arises from driving this car.'

Cadillac collaborated with artist Darel Carey to create a oneof-a-kind camouflage wrap for the CT5. The black-and-white tape patterns reflect forms found in nature and distort the viewer's perception of space, and the videos will leverage this effect to disguise the shape of the vehicle. In the videos, the camouflage is slowly peeled back to trigger the ASMR sensation while revealing the first-ever CT5.

The brand will feature a new video each week leading up to the New York Auto Show, where the CT5 will make its public debut, culminating in a "Sensory Symphony" video of vehicle sounds on April 16.

"Sound leaves a lasting impression, and that's why it is such a focus for this vehicle." said Brandon Vivian, Cadillac executive chief engineer. "With standard sound optimization and active noise cancellation, our goal is to deliver a world-class cabin experience with a Cadillac-exclusive curated sound library.'

CT5's campaign is designed to showcase Cadillac's unique expertise in crafting American performance sedans with details designed to elevate every drive, Kuhnen said.

Built on an evolution of Cadillac's award-wining RWD/AWD Alpha architecture, the CT5 features a standard 2.0L Turbo and available 3.0L Twin-Turbo engine with unique sound calibrations, each paired to a standard 10speed automatic transmission ofnearly imperceptible fering shifts.

The driver-centric cockpit inside the CT5 blends high tech and high touch for an exceptional blend of control tactility, Kuhnen said. The sedan will be offered in Luxury and Sport models, giving customers more choices in appearance.

The CT5 will be built at GM's Lansing Grand River facility, which received an investment of \$211 million to build the nextgeneration Cadillac sedan. The new model will make its public debut in April at the New York International Auto Show.

General Motors Investing Millions in Orion Facility

CONTINUED FROM PAGE 1

The new Chevrolet electric vehicle is in addition to the existing Chevrolet Bolt EV, further advancing GM's commitment to an all-electric future, said GM spokesman Dan Flores. It will be designed and engineered off an advanced version of the current Bolt EV architecture.

Additional product information and timing for the new Chevrolet EV will be released closer to production.

The 400 additional jobs are incremental to numbers associated with GM's transformation announcement last fall. Flores said. The new Chevrolet EV is in addition to the company's earlier announcement that Cadillac will be the first brand to get vehicles off a future EV platform.

"We are excited to bring these jobs and this investment to the U.S.," said GM Chairman and CEO Mary Barra during an announcement at the plant with employees

"This new Chevrolet electric vehicle is another positive step toward our commitment to an all-electric future. GM will continue to invest in our U.S. operations where we see opportunities for growth."

The new electric vehicle had been slated for production outside of the U.S. The decision to bring it to Orion was based on many factors, including that the Orion plant currently builds the Bolt EV, and the new Chevrolet EV will be based off an advanced version of the same vehicle architecture, Barra said.

The fact that GM is also moving production to a U.S. manufacturing plant supports the rules of origin provisions in the proposed United States. Mexico and Canada Agreement, Flores said.

In addition to the job growth at the Orion plant, GM has job op-

portunities at several other U.S. manufacturing plants for virtually all U.S. hourly employees impacted by the recent announcement of unallocated plants, Flores said. Other GM manufacturing plants adding jobs include Flint; Spring Hill, Tenn.; Bowling Green, Ky.; Arlington, Texas; and Toledo, Ohio.

For the 2,800 impacted U.S. hourly employees at GM's unallocated plants, GM has confirmed it has 2,700 openings across its U.S. manufacturing plants, Flores said. To date. 1.100 employees have been placed at other GM plants, with several hundred more in the process of being placed in new jobs. In addition, 1,200 of these employees are retirement eligible.

In Michigan, in addition to the jobs and investment coming to the Orion plant, GM is in the process of adding 1,000 jobs at the Flint Truck Assembly Plant, recently announced new investments at the Lansing Delta Township Assembly Plant and Romulus Propulsion Plant and last week revealed the new Cadillac CT5 to be produced at the Lansing Grand River Assembly Plant.

Orion Assembly currently builds the Chevrolet Bolt EV, Chevrolet Sonic and the Cruise AV test vehicles. The plant employs about 880 hourly and 130 salaried. With this new announcement, GM has invested nearly \$1 billion at Orion Assembly since 2009.

With the \$300 million investment at Orion for the future Chevrolet EV. GM also announced a total investment of \$1.8 billion across its U.S. manufacturing operations, adding 700 new jobs and supporting 28,000 jobs across six states. This commitment includes the recently announced investments at facilities in Spring Hill, Tenn.; Lansing Delta Township; and Romulus.

IAV Hires New President to Expand EV Powertrain Efforts

IAV Automotive Engineering, Inc. of Northville, has hired Mike Kenhard as president to lead its charge into the next era of mobility. Kenhard brings decades of experience to the role, including a comprehensive background in powertrain and vehicle development, said IAV spokeswoman Pia Shah.

"As a leading engineering services firm, IAV has an impressive history of tackling a vast array of challenges facing the automotive industry and I feel privileged to join this talented company at such a pivotal time," said Kenhard. "I am excited to see what the future holds for IAV and look forward to leading our team into the mobility landscape of tomorrow. As president, Kenhard is responsible for the continued business growth of IAV's products and services in North America, Shah said. He plans to continue to place a emphasis on IAV's capabilities in powertrain development and embedded software, while accelerating the company's role in the new mobility arena. Located in the heart of the U.S. auto industry and with worldclass test facilities, IAV is positioned to support the transformation occurring in the powertrain sector as electrification takes hold.

ertrain Engineering, Inc., overseeing all powertrain and vehicle engineering activities. Prior to taking on this position in 2016, Kenhard served as chief engineer for four years, responsible for successfully executing diesel and commercial vehicle engineering projects. He also held leadership roles at DENSO both in the U.K.





Most recently, Kenhard was di-

and the U.S., focusing much of his time on managing complex engine systems, and was with Cosworth Technology and Ford Motor Company during his career.

Kenhard earned his bachelor's

Fitting

TECH CENTER NEWS - WARREN

Toyota Investing \$750M In North American Sites

BUFFALO, W.Va. (AP) - Toyota and position our manufacturing Motor Corp. on March 14 announced it is investing an additional \$750 million at five U.S. plants that will bring nearly 600 new jobs, including the production of two hybrid vehicles for the first time at its Kentucky facility.

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It marks yet another expansion of the Japanese automaker's U.S. presence, bringing to nearly \$13 billion the amount it will spend by 2021.

The latest investments are at facilities in Alabama, Kentucky, Missouri, Tennessee and West Virginia. These facilities were part of a 2017 \$374 million investment to support production of its first American-made hybrid powertrain.

Toyota Motor North America CEO Jim Lentz said these represent "examples of our long-term commitment to build where we sell. By boosting our U.S. manufacturing footprint, we can better serve our customers and dealers

plants for future success with more domestic capacity.'

Toyota's Georgetown, Ky., facility will get a \$238 million infusion to produce hybrid versions of Lexus ES 300 sedans starting in May and the RAV4 SUV starting in January 2020, the company announced.

It also includes \$288 million to increase annual engine capacity at Toyota's Huntsville, Ala., facility. The plant will add 450 jobs to accommodate new four-cylinder and V6 engine production lines. Last year, Toyota and Mazda announced plans to build a \$1.6 biljoint-venture plant in lion Huntsville that will eventually employ about 4,000 people.

Toyota also is spending \$62 million on equipment to boost production of Toyota and Lexus cylinder heads at its Bodine Aluminum site in Troy, Mo., as part of its New Global Architecture strategy to share common parts among different vehicles.

The Jeep brand is launching "Legends Aren't Born, They're Made," a new 360-degree marketing campaign affirming the automaker's "legendary" SUV status, said FCA spokeswoman Diane Morgan.

The campaign's first two spots were created to "deliver a resounding rebuke to all other automakers' attempts to stamp their SUVs in the same vein as a Jeep brand vehicle," said Olivier Francois, chief marketing officer, FCA.

The two 30-second spots, "Anthem" and "SUV Letters Earned," are now running across television, in addition to the Jeep brand's digital and social channels, including YouTube, Facebook, Twitter and Instagram, Morgan said.

"In the nearly nine years since the Jeep brand launched its defining campaign, 'The Things We Make, Make Us,' we've come full circle to see the SUV become more relevant than ever," said Francois. "This global campaign gives the term SUV back its meaning. It is a reminder that the Jeep brand, through its legendary DNA, continues to fulfill its promise of capability, durability and craftsmanship. It cements its legitimacy as the one true and rightful leader in the category."

Jeep Brand Marketing a Tougher Image

"Jeep SUVs are designed and engineered to go anywhere, do anything and bring you back. For Jeep, this is not a tagline," said Tim Kuniskis, head of Jeep Brand – North America. "The freedom and capability to explore, whether on road or off, is the essence of the brand. It's this clarity of purpose that differentiates Jeep and the legends portrayed in this campaign."

The campaign will run across national, Tier II, African-American and Hispanic media, Morgan said. In all, four spots will run with more to follow, focusing on the Jeep brand full lineup, including the Jeep Wrangler, Grand Cherokee, Cherokee, Compass, Renegade and the new 2020 Jeep Gladiator.

In the "Legends aren't born, they're made," the commercial's narrator says, "Legends aren't born, they're made. They're made in freezing cold ... blazing heat ... and knee-deep mud. It takes hours ... days ... years of hard work to make a legend. And this is the one we make. Built to go anywhere, do anything and bring you home. Legends aren't born, they're made."

The "SUV letters earned" commercial has the narrator saying, "S. U. V. These letters used to mean something. Letters earned in backwoods, high hills and steep dunes. But somewhere along the way, SUVs became pretenders. Not pioneers. But you never forgot the difference. And neither did we. There are many SUVs, but there's only one legend. Legends aren't born, they're made."

The Jeep brand campaign was created in partnership with High-Dive, Morgan said.

As the first-ever automotive brand recognized as a "Cult Brand Honoree" at the annual The Gathering (Society of Cult Brands) in 2018, the Jeep brand was honored for its outstanding courage and unconventional thinking in achieving enviable brand engagement and reaping the benefits of cult-like status, Morgan said.

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These Jeeps are part of the brand's new "Legends Are Born" advertising and marketing campaign.



DETROIT (AP) – A former vice president at the United Auto Workers was charged March 18 in a scheme with Fiat Chrysler executives to buy meals, golf and other perks with the auto-maker's money,

He is the highest-ranking official snagged in an investigation that has exposed corrup-tion between labor and management.

The conspiracy charge against Norwood Jewell was filed as a criminal information. which means a guilty plea is likely. At least seven people have pleaded guilty.

Officials at Fiat Chrysler, known as FCA, and the UAW enriched themselves by using company money set aside for a jobtraining center. The corruption occurred at the same time both sides were negotiating labor agreements.

We can confirm that we have had professional and productive discussions with the U.S. Attorney's Office towards a fair and just resolution," defense attorney Michael Manley told The Detroit News

"We are confident that when the facts of the case come out as it relates to Mr. Jewell, his decades-long reputation of honorable service to members of the UAW will remain intact.'

Jewell was the senior UAW official dealing with Fiat Chrysler, from 2014 through 2016. He apparently had no knowledge of corruption before getting the post - his predecessor had a \$262,000 mortgage paid off – but he jumped right in, according to the government.

The court filing says Jewell signed off on dinners valued at thousands of dollars at an exclusive Detroit restaurant, the London Chop House, and golf and meals in Palm Springs, Calif.

Former Fiat Chrysler executive Al Iacobelli, who conspired with UAW officials and also enjoyed the spoils, is serving a 5-1/2-year prison sentence.

The union's president, Gary Jones, last week said he's "deeply saddened and irritated" by the scandal.

In a new statement, the UAW acknowledged that blue-collar members might be frustrated by the headlines.

"We have already implemented many reforms and enacted new policies to prevent any misuse of funds at the joint-program centers from ever happening again," the union said.

General Holiefield, a union vice president whose mortgage was paid with training center money, died in 2015. His wife, Monica Morgan, was sentenced to 18 months in prison.

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Auto Sales See Drop in Europe

MILAN (AP) - European car sales have fallen for the sixth straight month, amid modest increases in three key markets.

The European Automobile Manufacturers' Association said March 15 that new car registrations in February totaled 1.114 million, down 1 percent from 1.125 million a year earlier.

The Brussels-based association says car sales showed a slight recovery in Germany, France and Britain. They fell by nearly 9 percent in Spain and by 2.4 percent in Italy.

Sales at Porsche plunged 44 percent and Audi slipped by 7 percent. Volkswagen Group sales were down by 0.7 percent, VW though mass-market showed a 3.5 percent increase.

Carmakers PSA Peugeot and Renault both bucked the trend with increased group sales.

Despite Youth, Bolt Makes It to The Henry Ford Museum

CONTINUED FROM PAGE 1

those being field-tested right now.'

So when The Henry Ford agreed that the Bolt was museum-worthy, an interesting process began, Sullivan said.

The first thing we did was fill out the paperwork that transferred ownership of the donated Bolt to The Henry Ford. People don't think of that, but you have to remember, there's always paperwork."

Then the Bolt had to be made museum-ready, Sullivan said. GM had a vehicle-integration team take out any sensitive, proprietary technology that GM had in the car.

The people at the museum also asked us to remove the batteries," Sullivan said. "That surprised us, but it makes sense when you think about it. The museum wants this vehicle to be around for 100 years. They asked us to take out the batteries for the same reason people take out batteries from devices like a portable radio that they might not be using for a while. Batteries can leak if left alone.'

Once the transfer of the vehicle was complete, people at The Henry Ford started to do their thing, Sullivan said.

"They catalogued the vehicle, and then prepared how it would be displayed at the museum," Sullivan said. "So while the transfer was completed last year, the display wasn't done until recently. This car will be on display next to a 1959 Cadillac El Dorado."

"Self-driving capabilities will fundamentally change our relationship with the automobile," said Patricia Mooradian, president and CEO, The Henry Ford. "As the home of the historic vehicles that have shaped that relationship today, this acquisition is paramount in how we tell that story in the future."

Also on hand at the recent unveiling of the Bolt at The Henry Ford was museum Chairman S. Evan Weiner.

The self-driving test vehicle is a modified pre-production Chevrolet Bolt EV and was developed in close collaboration with Cruise Automation, a software start-up acquired by GM in March 2016, Sullivan said. It is equipped with cameras, radar and LIDAR sensors, as well as an on-board computer.

The sensing system and compute platform allow the vehicle to observe the world around it in 360 degrees and make near realtime decisions to navigate the road safely, said Sullivan. By the summer of 2016, more than 40 test vehicles were navigating the streets of San Francisco, Calif., and Scottsdale, Ariz.

"Autonomous vehicles will change people's lives forever, just as the automobile itself did more than a hundred years ago,' said Mark Reuss, president of General Motors.

"The Henry Ford is a treasured institution where past and present innovations are documented and displayed, and GM is proud to provide our autonomous test vehicle to serve as an inspiration to the innovators of tomorrow."

Sullivan said.

if. but when, they say.

Self-driving cars are a longstanding idea. The first serious experiments date as far back as the mid-1920s. General Motors itself has experimented with the technology several times, Sullivan said.

Its popular "Futurama" exhibit at the 1939 New York World's Fair imagined automated highways guiding cars by radio control. And in the 1950s, GM and RCA built a section of test road equipped with electromagnetic circuits to control vehicles along the route.

Building on its work with the 2016 test vehicles, GM and Cruise



Employees who worked on the Bolt got to sign under the hood and took pictures of the vehicle at the museum.

car should be since the Model T Automation are now working on turned the automobile into an the Cruise AV, the first production-intent self-driving car witheveryday item," said Matt Anderout manual controls of any kind, son, curator of transportation at The Henry Ford.

Industry leaders and analysts "While this first-generation test vehicle was quickly followed by largely agree that autonomous vehicles are coming to the conmore advanced versions, it made sumer market. It's not a matter of a bold statement that a major auto manufacturer was ready to "The self-driving vehicle is the move quickly on making self-driving cars a reality.' most fundamental shift in what a

Sullivan said that it was an honor to be a part of the GM team that donated the Bolt to The Henry Ford.

We brought the folks who developed the Bolt to the unveiling," Sullivan said. "They signed under the hood and it was a pleasure to see the joy on their faces as they looked at a vehicle they worked on be declared an important part of automotive history."



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Macomb County Sets Health Web Site

a new Web site called, "Move More Macomb," with the goal of informing county residents just what physical activity resources are available to them, said Macomb County spokeswoman Whitney Litzner.

The site features information said.

Macomb County has launched about the importance of physical activity as well as locations in the county where people can go to get exercise and additional health tips.

> People interested in learning more about the site can go to movemoremacomb.org, Litzner



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Trump Puts Pressure on GM Over Closings

WASHINGTON (AP) – President Donald Trump stepped up his pressure on General Motors to reopen an Ohio manufacturing plant that recently closed and put 1,700 people out of work.

Trump's arm-twisting came in a series of separate tweets on March 16 and March 17. He capped his weekend rant against GM with a tweet disclosing that he had vented his frustrations during a conversation with the company's CEO, Mary Barra.

"I am not happy that it is closed when everything else in our Country is BOOMING," Trump wrote. "I asked her to sell it or do something quickly. She blamed the UAW Union – I don't care, I just want it open!"

The union is the United Automobile Workers, which represents the employees who lost their jobs in the Lordstown closure. Trump had previously told a UAW leader, David Green, to "get his act together and produce" for the Lordstown workers. Green didn't respond to a request for comment March 17.

General Motors said in a statement released the evening of March 17 that the future of plants scheduled to be closed "will be resolved between GM and the UAW." The automaker also said that it has "opportunities available for virtually all impacted employees" at plants that are to be shuttered.

"We remain open to talking with all the affected stakeholders, but our main focus remains on our employees and offering them jobs in our plants where we have growth opportunities," the company said.

Even as Trump said he talked to Barra, he was calling on GM to reopen its Lordstown plant or find another owner, while insisting that the Detroit automaker "must act quickly."

586-274-0396

He also blasted GM for letting down the U.S. and asserted "much better" automakers are coming to the country.

Trump praised Toyota for its investments in the U.S. in an apparent attempt to depict GM as being less committed to its home country than the Japan automaker.

The Lordstown closure has become a hot-button issue in an area of Ohio that is expected to be critical for Trump if he seeks re-election as promised in 2020.

Trump prevailed in Ohio in the 2016 election, a win that helped him win enough electoral votes to become president despite losing the popular vote to Hillary Clinton.

That may be one reason why Trump joined a coalition of Ohio lawmakers in efforts to get the Lordstown plant running again. The tweets marked some of his most pointed criticism of GM so far.

Trump has skewered several other U.S. companies for not doing more to help their country's economy, but his remarks so far have been more bark than bite.

For instance, he has publicly called upon Apple to shift most of its manufacturing from China to the U.S., but the Silicon Valley company continues to make its iPhones and most other products overseas.

Ohio Gov. Mike DeWine, a Republican, last week expressed doubts GM will reopen its Lordstown plant, but he said the automaker indicated it's in talks with another company about using the site.

More than 16 million vehicles were made at the Lordstown plant during its 53-year history until GM closed it earlier this month as part of a massive reorganization. The company also intends to close four other North American plants by early next vear.

More Measles Cases Found

Michigan Department of Health and Human Services and Oakland County Health Division last week received confirmation of four additional measles cases in Oakland County. Three other cases are currently under investigation. These cases follow a confirmed travel-related measles case announced by the Health Division on March 13, said Leigh-Anne Stafford, health officer for Oakland County Health Division.

"Measles is in the community and highly contagious. You need to get vaccinated if you are unsure whether you have been vaccinated or unsure if you have had measles in the past," said Stafford. "If symptoms develop, do not visit vour doctor or emergency room unless you call ahead so they can take precautions to prevent exposure to other individuals."

Exposures may have occurred at the following locations, dates, and times: March 15 - March 18, One Stop Kosher Food Market: 25155 Greenfield Rd., Southfield; March 17, Yeshivas Darchei Torah School: 21550 W. 12 Mile Rd., Southfield, 9 a.m. - 3 p.m.; March 18, Kroger: 19853 W. 12 Mile Rd., Southfield, 8 - 11 p.m.; Berkley Medical Center: 1695 W. 12 Mile Rd., Berkley, 11:15 a.m. - 3 p.m.; Meijer: 28800 Telegraph Rd., Southfield, 1 - 4:30p.m.

Updates will surface at www.oakgov.com/health as more information becomes known. The measles vaccine is through the Oakland County Health Division.



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SEC: Tesla Founder Musk Disregarded Federal Order

DETROIT (AP) – U.S. securities regulators countered Tesla CEO Elon Musk's contempt-of-court defense the evening of March 18, writing in court papers that he brazenly disregarded a federal judge's order and that one of his arguments "borders on the ridiculous."

Lawyers for the Securities and Exchange Commission, in a response to Musk, wrote that when the contempt motion was filed in February, Musk had not had a single tweet approved by a company lawyer, violating a requirement of a court-approved settlement order.

The October securities fraud settlement stemmed from tweets by Musk in August about having the money to take Tesla private at \$420 per share. But Musk didn't have the funding secured. Tesla and Musk each had to pay \$20 million in fines and agree to governance changes that included Musk's removal as chairman.

SEC lawyers led by Cheryl Crumpton wrote in a response to Musk's defense that he interprets the settlement order as not requiring pre-approval unless Musk decides the tweets are meaningful to investors.

The agency said Musk's argument that tweeting about car production forecasts on Feb. 19 wasn't material information is nearly ridiculous. "His interpretation is inconsistent with the plain terms of this court's order and renders its pre-approval requirement meaningless," the lawyers wrote.

U.S. District Judge Alison Nathan in Manhattan will decide if Musk is in contempt and whether he should be punished. The SEC said no hearing is necessary on the matter "because there appear to be no disputed issues of material fact."

Musk's lawyers wrote last week that the Feb. 19 tweet merely restated previously approved disclosures on electric car production. They wrote that the tweet, which was published after the markets closed, neither revealed material information, nor altered the mix of data available to investors.

The lawyers also accused the Securities and Exchange Commission of censorship and of violating Musk's First Amendment rights by imposing a prior restraint on his speech.

But the SEC lawyers wrote that submitting statements for approval does not mean Musk is prohibited from speaking. "As long as a statement submitted for pre-approval is not false or misleading, Tesla would presumably approve its publication without prior restraint on Musk," they wrote. The SEC also wrote that Musk waived any First



Elon Musk

Amendment challenge to the order when he agreed to it.

Musk's lawyers also argued that the SEC's motion for contempt is an over-reach that exceeds its authority. But the SEC said enforcement of the order is up to the judge, who has broad powers to enforce court orders.

In a one-page letter to the judge, attorney John Hueston at the law firm Hueston Hennigan LLP said the SEC raised new allegations in its reply, which he contends is improper. He called the new assertions "unsupported" and asked to submit documentation about negotiations with the agency "which undermines the newly-presented interpretation the SEC sets forth in its reply."

March 18's filing said the Feb. 19 tweet was different from prior public disclosures by the company. Also, Musk has regularly published tweets with "substantive information" about the company and its business, the SEC contended.

Musk's 13-word Feb. 19 tweet said that Tesla would produce around 500,000 vehicles this year, but it wasn't approved by the company's "disclosure counsel," the SEC has said.

The lawyer quickly realized it and arranged a meeting with Musk to write a correction. The company would make vehicles at a rate of 500,000 per year, but it wouldn't produce a half-million in 2019.

Musk's response by Hueston said that the settlement allows Musk "reasonable discretion" to determine if his communications would require the lawyer's approval. In the case of the Feb. 19 tweet, Musk determined it didn't.

Legal experts say it's unlikely that Musk will be punished severely, but the commission wants to get on the record that Musk violated the terms, to prepare for any future violations.

The tweet was posted and corrected after U.S. markets had closed, but experts say regulators don't care much about that because stocks are traded nearly around the clock.



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Higher Costs Lead to Lower BMW Earnings

FRANKFURT, Germany (AP) – German automaker BMW said March 20 that profits in 2019 would be "well below" last year's and that it planned to cut \$13.6 billion in costs by the end of 2022 to offset spending on new technology.

The company said profits would be eroded by higher raw materials prices, the costs of compliance with tougher emissions requirements and unfavorable shifts in currency exchange rates.

The Munich-based automaker also faces increased uncertainty due to international trade conflicts that could lead to higher tariffs.

The company forecast a profit margin of 6 to 8 percent for its automotive business, short of the long-term strategic target of 8 to 10 percent, which it said still "remains the ambition" for the company given "a stable business environment."

BMW said it had no plans for layoffs even as it outlined costsaving measures that include dropping half of its engine variants as it seeks to reduce product complexity. The BMW, MINI and Rolls-Royce brands are to get a single sales division.

Chief Financial Officer Nicolas Peter said that given the headwinds to earnings, "we began to introduce countermeasures at an early stage and have taken a number of far-reaching decisions."

The company said the measures were needed "to offset the ongoing high level of upfront expenditure required to embrace the mobility of the future."

Automakers around the world have faced heavy up-front costs for new technologies expected to change how people get from one place to another in the next decade. Those include electric cars and renting cars through smartphone apps. Yet the returns from such investments remain uncertain and auto companies face competition from tech firms such as Uber and Waymo.

BMW made \$8.2 billion in net profit last year, down 17 percent from 2017, when it booked a gain of \$1 billion from U.S. tax changes. The company faced headwinds from increased tariffs on vehicles exported to China from the United States. It also suffered from turmoil on the German auto market when companies faced bottlenecks getting cars certified for new emissions rules.

BMW faces uncertainty from U.S.-China trade tensions that could result in new tariffs if talks do not result in an agreement. U.S. President Donald Trump has also threatened to impose auto import tariffs that would hit EU

New Times Call for New Kind of Marketing for Ford Ranger

Until recently, the last time a TV commercial for a Ford Ranger pickup ran was eight years ago.

Now the new 2019 Ranger is in dealerships and it's being sold differently. Ford spokeswoman Samantha

Van Hoef said in previous iterations, the Ranger was sold as a small pickup truck that didn't cost a lot of money.

"Now we're selling it more based on lifestyle as opposed to capability," Van Hoef said.

And to do that, Ford is advertising the Ranger in a way that wasn't possible when the truck was last sold in 2011, Van Hoef said.

"Let me give you an example of how we're doing it now," Van Hoef said. "Let's say you live in Seattle. A lot of the outdoor activity decisions you make are based on the weather. So we have public electronic billboards that will change their messages based on the weather. So if there's going to be snow in the mountains, the billboard might show an image of a Ranger with ski gear. If it's clear, the image might be of a Ranger with a kayak."

And Ford is working with companies like The Weather Channel and Google to refine its message and how that message is sent, Van Hoef said. To that end, Ford has been working with *Outside Magazine* for the past year.

Outside Magazine covers and promotes outdoor sports and the gear used in those activities. People who go to its Web site outsideonline.com can also view videos of outside enthusiasts in action. The magazine also has a Web site – outsidetv.com – that specializes in showing athletes having outdoor adventures in different locations across the country and even around the world, Van Hoef said.

The Web site now shows 15 professional adventure athletes using the new Ford Ranger as the ultimate piece of gear to get to their adventure.

TV and social spots include base jumpers diving thousands of feet into an Arizona canyon, using Ranger as a chase vehicle to capture the soaring athletes and their gear, and snow surfers descending Seattle mountains at dizzying speeds without traditional bindings, crossing rough terrain to reach untouched powder in the new Ranger, Van Hoef said.

"Ranger is for serious adventure-seekers who rely on their gear and actively search out the best of the best for their passion," said Matt VanDyke, Ford director of U.S. marketing. "In this case, that's the all-new Ford Ranger.

"This campaign brings Built Ford Tough to life in the adventure space – new territory for Ford trucks – in a way that is decidedly not one-size-fits-all."

As part of the Ranger's marketing, Ford has worked with Google and Outside TV to identify what kind of gear and adventure activities cities across the United States were searching for so that Ford could better target the sporting demographic in the places they would most likely see the ads, Van Hoef said.

After narrowing down the featured cities, Ford determined which athletic adventures to highlight in each city based on search trends of traditional and emerging activities made by people in the targeted cities, Van Hoef said.

This hyper-local approach is a first for Ford trucks, taking interest-based targeting to the next level with activities to match consumer interests within each city. "Tough Has More Fun" is also the first time Ford trucks will spotlight adventure athletes, most of whom call their adventure-feature cities home.

National television, social and in-cinema advertising kicks off

with a new commercial titled, "Strange Creatures," featuring the human inclination for adventure, while Boston, Los Angeles, Denver, Phoenix and Seattle markets also see the launch of localized social and digital advertising, Van Hoef said.

These five cities will also host weather-triggered billboards that update adventure visuals based on weather changes that occur in each city.

"Tough Has More Fun' is about showing the all-new Ranger as tough, reliable and capable, in the same way you expect your carabiner to keep you from falling off the side of a mountain," said Pat Parnell, Outside TV host. "Ranger has a bigger story than just its great capability – it's the only midsize truck that's also the ultimate piece of gear."



Marketing for the 2019 Ranger emphasizes an outdoor lifestyle.

2019 Grand Prix Sponsors Looking for More Volunteers

There's good news for people seeking to help the city of Detroit while having fun, meeting new people and want to be a part of an international motor sports event.

The Detroit Grand Prix Association is seeking about 1,000 volunteers to help put on the 2019 Detroit Grand Prix on Belle Isle this Memorial Day weekend.

It's not possible to put on the event without volunteers giving generously of their time during Memorial Day weekend, said Hannah Deacon, event coordinator for the Grand Prix.

She said that all the volunteer jobs are "on island" and people can choose to volunteer for one, two or three days. Different jobs might require a great deal of standing or walking.

To learn more about the jobs and how to volunteer, Deacon said people should go to the Web site detroitgp.com and click on the volunteer tab.

- Job categories include:
- Accessibility Ambassadors -Volunteers will be strategically placed at Event entrances, guest viewing platforms and the cold track

- Customer Relations Customer Relations volunteers welcome guests at the Grand Prix upon arrival at Belle Isle, assisting guests with any questions they may have and providing directions at the entrance to the race venue.
- Event Ceremonies The Event Ceremonies team assists with presenting the Opening Ceremonies, Winner's Circle Ceremonies, Autograph Sessions and other fan activities.

• Food Services – Volunteers help prepare and serve food, beverages and moral support to fellow volunteers during race weekend. Duties include setting up and maintaining the DGPA food tent area(s), collecting meal tickets, serving lunches and beverages.

Information – Information volunteers serve spectators and participants by providing race information including event schedules, ticket and hospitality access details, directions to desired locations around the race course and providing lost/found services.

- Ticket Scanners Volunteers staff shuttle stops around the circuit during race weekend to transport media, VIP guests and guests with physical disabilities. To work in this area, you must have a valid driver's license.
- Ushers Ushers are peopleoriented and enjoy helping others. Usher volunteers are responsible for assisting patrons with finding seats, locating concessions and other venue attractions and facilities, assisting with ticketing issues and general crowd control in and around the grandstand area.
- Volunteer Pool Members assigned to this area provide a wide range of support during the Chevrolet Detroit Grand Prix, helping to staff the Volunteer Center and possibly serving as supplemental staff for other volunteer areas on an as-needed basis.
- **Credentials** The assignment requires clerical and

customer-service oriented skills.

- Operations Support Services – Volunteers assist with operational support and facilities preparation prior to, during, and after race weekend.
- Transportation & Delivery Services – Volunteers handle requests from the Grand Prix Staff and the DGPA involving a wide variety of tasks that interface with almost every facet of the race.

In addition to helping put on a world-class event in Detroit, all volunteers will also receive a gift package, Deacon said. Items included in the package are discount coupons for sponsor products, access to the kick-off party, credentials that provide access to the race when not on volunteer duty, access to secured parking, access to the post-race party and volunteer pins and patches and a volunteer certificate.

"We invite people to volunteer," Deacon said. "They'll have fun, meet great people and create memories that will last a lifetime."

automakers, but has held off for now. BMW could also suffer disruption if Britain leaves the European Union without a negotiated departure agreement to address trade issues.

Steelcase Has Strong 2018 4Q Profits

GRAND RAPIDS, Mich. (AP) – Steelcase Inc. on March 19 reported earnings of \$22.6 million in its fiscal fourth quarter.

On a per-share basis, the Grand Rapids, Mich.-based company said it had profit of 19 cents per share. Earnings, adjusted for one-time gains and costs, were 29 cents per share.

The office furniture maker posted revenue of \$912.4 million in the period.

For the year, the company reported profit of \$126 million, or \$1.05 per share.

crossing area to assist physically challenged guests (ADA Guest) with basic directions, escort to/from their grandstand or hospitality destination and, if appropriate, request golf cart transport.

- **Chalet Services** Volunteers assist corporate partners in the chalet and hospitality areas to ensure partners and their guests have a positive and enjoyable race weekend experience.
- Circuit Marshals Volunteers assigned to this area will work in teams and control and/or assist with pedestrian and vehicle flow adjacent to the circuit. Volunteers will check for proper credentials to control access to restricted areas such as pit lane, the paddock, and areas adjacent to the track, as well as manage pre-scheduled track-level pedestrian crossings.



The 2019 Detroit Grand Prix is coming up and organizers are looking for volunteers to help put on the event.

Ford Investigating Itself **On Mileage, Emissions**

Ford has begun an investigation into whether it overstated gas mileage and understated emissions from a wide range of vehicles, said Ford spokesman Said Deep.

"In September," said Kim Pittel, Ford's group vice president, Sustainability, Environment & Safety Engineering, "a handful of employees raised a concern through our Speak Up employee reporting channel regarding the analytical modeling that is part of our U.S. fuel economy and emissions compliance process.

"At Ford, we believe that trust in our brand is earned by acting with integrity and transparency.

As part of this, we have a process for looking at how we perform and behave in our and broad complex company.

As a result of the concern, the automaker has taken a number of actions, Deep said.

Specifically:

- Ford has hired an outside firm to conduct an investigation into the vehicle road load specifications used in its testing and applications to certify emissions and fuel economy.
- Road load is a vehicle-specific resistance level used in vehicle dynamometer testing, including for fuel economy ratings and emissions certifications. Road load is established through engineering models that are validated through vehicle testing, including physical track tests referred to as coastdown testing.
- Ford has retained independent industry technical experts as part of its investigation team.

- Ford is hiring an independent lab to conduct further coastdown testing as part of its investigation.
- · Ford also is evaluating potential changes to its roadload modeling process, including engineering, technical and governance components.
- This week, Ford voluntarily shared these potential concerns with Environmental Protection Agency and California Air Resources Board officials.

"We plan to work with regulators and the independent lab to complete a technical review." – Kim Pittel Ford

"The investigation and potential concerns," said Deep, "do not involve the use of defeat devices in our products. At this time, there's been no determination that this affects Ford's fuel economy labels or emissions certifications.

"We plan to work with regulators and the independent lab to complete a technical review," Pittel said.

"As part of our review, we have identified potential concerns with how we calculate road load. The first vehicle we are evaluating is the 2019 Ranger; we are assessing additional vehicles as well."

It's all systems go for the FCA Foundation's sponsorship of the FIRST Robotics Championships, which will take place in Detroit between April 24 and April 27, 2019.

The FIRST Robotics Competition (FRC) is an international high school robotics competition, said FCA spokesman Kevin Frazier. Each year, teams of high school students, coaches, and mentors work during a six-week period to build game-playing robots that weigh up to 120 pounds.

Robots complete tasks such as scoring balls into goals, flying discs into goals, inner tubes onto racks, hanging on bars, and balancing robots on balance beams. The game, along with the required set of tasks, changes annually.

While teams are given a standard set of parts, they are also allowed a budget and are encouraged to buy or make specialized parts. The FIRST Robotics Competition is one of four robotics competition programs organized by FIRST, the other three being FIRST Lego League Jr., FIRST Lego League, and the FIRST Tech Challenge

Frazier said FCA Foundation, the charitable arm of FCA US, has commited \$535,000 to fuel teams during the 2019 FIRST Robotics season, which will challenge students to "blast into orbit and explore space concepts – a tribute to the 50th anniversary of the Apollo 11 mission that put the first humans on the moon.

Following are some key facts about the FCA Foundation's support of FIRST programs.

This season's contest, which starts on Jan. 5, is officially titled DESTINATION: DEEP SPACE Presented By The Boeing Company, Frazier said. All the FIRST Robotics competitions will culminate

in the April championships in Detroit.

FIRST Robotics Contest Coming to Town

Here are some FCA Foundation **FIRST Robotics Facts:**

- FCA Foundation grants will fuel 120 FIRST teams to offset the costs of competing, i.e., registration fees, parts and materials and team apparel.
- 86 FIRST Robotics Competition (FRC) around the country, including 68 Michigan teams, one Arizona, one Illinois, one Ohio and one Texas teams; two Indiana teams; and 12 teams from Canada;
- Four FIRST Tech Challenge (FTC) teams.
- 10 FIRST LEGO League (FLL) teams.

FCA Foundation grants will enable more than 3,000 students to participate in project-based, hands-on FIRST programs, which introduce students to coding, programming, and engineering in an environment where they work collaboratively to solve a yearly robotics challenge, Frazier said

96 FCA employees will serve as mentors/coaches during the season. Many others will volunteer at other level events. The FCA Foundation, a FIRST Founding Sponsor, has invested more than \$3.4 million since 1995 to support FIRST programs in the United States and Canada.

This is done in an effort to encourage the participation of more minority students and to help bridge the gap between elementary and high school, the FCA Foundation is providing grants to nine teams whose members are predominately of African-American and Hispanic heritage:

- FRC Teams (Grades 9-12): Davis Aerospace Technical High School, Team 2591; Southeastern High School, 4851 and Team Osborn High School, Team 6099 in Detroit; and L.G. Pinkston High School, Team 7749 in Dallas, Texas,
- FTC Teams (Grades 7-12): Brenda Scott Academy for Theatre Arts, Team 15784; Hutchinson Elementary Middle School, Team 15777; Eastside Detroit Lions Academy, Team 201801948; Bates Academy, Team 201801996: and Nichols Elementary Middle School, Team 201801992 in Detroit.

Mustang a Virtual Reality

CONTINUED FROM PAGE 1

so the Shelby GT500 team ran extended high-speed tests on some of the most notable racetracks across the United States - including Virginia International Raceway, NOLA Motorsports Park and GingerMan Raceway – to refine the aerodynamic designs and help the new Shelby GT500 deliver the fastest track times ever in a production Mustang along with improved driver control for greater confidence behind the wheel, Cadiz said.

Delivering more than 700 horsepower using 93-octane fuel, maximizing cooling at the front is critical to the Shelby GT500's vigorous track performance, and where the team focused much of its efforts.

At wide-open throttle, the cooling system needs to extract up to 230 kilowatts of heat energy, enough to heat a dozen homes. The massive front brakes reject another 100 kilowatts of heat at maximum braking, so the team utilized advanced 3D airflow modeling to maximize overall cooling while working to minimize impact on front-end lift and drag.

More than 500 3D cooling and aerodynamic designs were analyzed to maximize aero performance and cooling, with more advanced design models driven on full chassis simulators at the Ford technical center with professional racing drivers.

Key modeling simulations in-

2020 Shelby GT500 and known by the aero team as "the swing" - a hybrid between a spoiler and a wing – is a result of the advanced simulations and prototyping process.

With available Handling Package and Gurney flap installed, the swing works to deliver 379 pounds of rear downforce at 180 mph.

High-performance cooling targets also factor into the design and virtual testing to help ensure consistent heat management and power delivery over extended sessions at the track, Cadiz said. This includes a new performance fascia design that doubles the front opening volume and increases cooling pack airflow through six heat exchangers at top speed by 50 percent versus the existing Mustang GT350 design.

A removable rain tray further aids cooling and works to reduce underhood air pressure at high speeds, while a Shelby-specific rear diffuser helps channel under-car airflow.

"This all-new aero design merges state-of-the-art design and materials technology with the craftsmanship of Ford racing expertise to create the most aero-capable Mustang ever," said Steve Thompson, Ford Performance vehicle dynamics engineer. "It's powerful, balanced and consistent - even over extended track runs - which works to deliver more fun and greater confidence for drivers.





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cluded cooling systems, front fascia and splitter designs, along with brake ducting, rear spoiler designs and a large 6.03-squarefoot louvered hood vent.

Speeding development time, the most promising designs were printed in a matter of days, not months, allowing the team to increase the fidelity of performance and aerodynamic refinement, Cadiz said. For example, more than 10 front splitter wickers were printed and tested, some with minute modifications to perfect their design, with multiple versions of parts simultaneously sent out for track evaluation.

The team achieved maximum rear downforce of 550 pounds at 180 mph, leveraging the Mustang GT4 race-proven rear track wing to deliver the most downforce ever on a street-legal Mustang with available Carbon Fiber Track Package.

An innovative new rear spoiler design, standard on the base

The 2020 Mustang Shelby GT500 goes on sale this summer.

Michigan Sees Gas Prices Go Up Slightly

DEARBORN, Mich. (AP) - AAA Michigan says March 18 average gas prices statewide are up about 7 cents from a week prior to about \$2.59 per gallon.

The Dearborn-based auto club said March 18 the average price for self-serve regular unleaded is about 3 cents more than a year ago. AAA says the statewide average rose to a new 2019 high of \$2.62 per gallon Maarch $1\overline{3}$ before easing later in the week. AAA says more increases are expected.

The state's highest average was about \$2.65 a gallon in the Traverse City area. The lowest average was about \$2.53 in the Flint area.





2019 GMC Sierra King of Canada Truck Challenge

The 2019 GMC Sierra 1500 Denali was recognized as the winner of the 2019 Truck King Challenge and the Truck of the Year by Motoring TV.

The awards were given to best-in-class trucks with advanced innovation. features and technologies recent 2019 Canadian International AutoShow, said Amanda Ignatius, GM Canada senior product communications manager.

"It is an honor to be acknowledged by the Canadian press for the 2019 GMC Sierra Denali, our boldest and most innovative Sierra ever," said Michael MacPhee, brand director for GMC in Canada.

"All new from the ground up, the Sierra Denali has established itself as a game-changer both in class-leading capability and revolutionary design."

Judges like how the vehicle is distinguished by its bold design and segment-leading technologies. The Sierra Denali once again redefines the pickup, while advancing Denali's legacy as the pinnacle of GMC design, capability and refinement, Ignatius said.

The judges also praised the vehicle's 6.2L V8 engine that is coupled to the new 10-speed transmission as powerful yet fuel-efficient, and that the new Dynamic Fuel Management system is engineered to allow the engine to operate within the full range of one to eight cylinders.

The Sierra is the first and only model to offer the MultiPro Tailgate, with six unique positions and functions that offer enhanced second-tier loading and load-stop solutions. The 2019 Sierra Denali affirms its position as the most premium Sierra ever with advanced technologies and exclusive features, said Ignatius.

The Canadian Truck King Challenge is an annual competition that pits six 4WD pick-ups against one another.

Each truck is driven 400 km in a series of challenges that test its abilities unload, loaded with 1000 lbs., towing 7000 lbs., and finally taken off-road.

In awarding the title to the 2019 GMC Sierra Denali, it was noted that its contemporary contours, interior finishes, and the rear tailgate step-ladder, are what helped it clinch the title.

Motoring TV's Truck of the Year recognizes styling, next generation upgrades and advances in power train. Celebrating over 30 seasons on TSN, Motoring TV is one of the longestrunning and most respected Canadian automotive television programs.

Club Hosting Econ Expert

Stuart Hoffman, senior vice president and senior economic advisor at PNC Financial Services Group, will be speaking at the Detroit Economic Club on Tuesday, March 26, as part of the organization's monthly luncheon.

Hoffman will share his insights on the U.S. economy's 2019 and 2020 direction and will forecast important indicators such as jobs and the unemployment rate, interest rates, the stock market and consumer spending, including vehicle sales.

The luncheon will be held at the Westin Book Cadillac in downtown Detroit.

The doors will open at 11:30 a.m. - to allow guests to network - followed by lunch at noon.

Hoffman's speech begins at 12:30. The event should be finished by 1:30. Call 313-963-8547 for more information.