

Automotive Industry Weekly Digest

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[Forecast & Analysis Highlights] UK LCV registrations grow 17.7% YOY in October

The UK light commercial vehicle (LCV) market rose again in October, according to data published by the Society of Motor Manufacturers and Traders (SMMT). Registrations of LCVs with a gross vehicle weight (GVW) of less than 3.5 metric tons increased by 17.7% year over year to 26,342 units in October. Gains were recorded across the majority of van categories. Sales of vans with a GVW of 2.5–3.5 metric tons increased by 5.3% year over year to 18,176 units, while registrations of vans with a GVW of 2.0–2.5 metric tons surged by 106.1% year over year to 3,801 units. However, vans with a GVW of less than 2 metric tons fell by 20.4% year over year to 438 units. Pickup truck registrations also grew during the month, by 41.1% year over year to 3,312 units, while registrations of commercial 4x4s expanded 61.4% year over year to 615 units. The performance last month meant that registrations of LCVs with a GVW of less than 3.5 metric tons were up by 20.5% year over year to 284,321 units during the first 10 months of 2023. The SMMT also reported that registrations of the bigger rigid LCVs with a GVW of 3.5–6.0 metric tons improved by 42.9% year over year to 390 units in October, which means that volumes are now up 24.1% year over year in the year to date at 4,976 units.



Outlook and implications

The UK LCV category remains in a very positive position after recording growth for a 10th consecutive month. The volume increase in October followed a strong performance in September which is typically one of the biggest sales months of the year due to the change in the age-related number-plate identifier. The SMMT noted that this is “the highest volume for two years as the easing of supply chain disruptions means that more operators can more readily renew their fleets.” The SMMT data also shows that it was a slower month for battery electric LCV sales in October after “a glut” in September, with volumes down by 20.2% year over year to 1,362 units, although the year-to-date sales are still up 19.2% year over year at 15,658 units. This now means BEV market share since the beginning of 2023 stands at 5.5%, supported by the Plug-in Van Grant. However, the SMMT has said that the “uptake rates will need to accelerate, however, and as the Zero Emission Vehicle Mandate comes into effect in less than two months, government must pull every lever to stimulate demand”. It has again called for the Chancellor of the Exchequer’s Autumn Statement, due later this month, to provide support through incentives and beneficial tax framework, as well as encouraging the expansion of the public charging network. It has also joined the UK’s Association of Fleet Professionals (AFP) in calling for clarification of the regulations on battery electric vans with a GVW of 4.25 metric tons, which could open the door wider for their use. S&P Global Mobility expects UK LCV volumes to grow by around 16.5% year over year to about 336,100 units, but this will be well below the pre-pandemic average. We expect some improvement in 2024 and beyond.



[Forecast & Analysis Highlights] Volvo Cars' global sales grow 10.4% YOY in October, launches new Energy Solutions business

Volvo Cars has announced that its global sales expanded by 10.2% year over year in October. According to a company statement, the automaker's sales volumes increased to 59,861 units last month from 54,317 units in October 2022. During October 2023, the growth in Volvo's global sales was supported by its European volumes, which expanded by 13% year over year to 24,892 units. In addition, its sales in the US market expanded by 19.2% year over year to 11,296 units. However, sales volumes in its largest single market, China, were flat standing at only 15,041 units against 15,048 units in October 2022. Nevertheless, Volvo's sales volumes in its "Other" markets (rest of the world) expanded by 11.2% year over year to 8,632 units in October. The automaker's strong sales growth during the past couple of months means that its sales volumes over the course of the first 10 months of 2023 stood at 569,019 units, up 17.7% year over year. Separately, Volvo has announced that it has launched its new Electric Solutions business which will offer energy storage and charging-related technologies and services, supported by the installation of bi-directional charging technology in its vehicles. The company has said in a statement that it is launching a vehicle-to-grid (V2G) pilot scheme with Gothenburg's local grid company, Göteborg Energi Nät AB that will use "low-cost AC wallbox, because it will help to accelerate widespread adoption of the technology." It adds that this will not only "demonstrate to other grid companies that V2G programs can provide tangible benefits, but to create a testing arena for new technologies that are central to the future of Volvo Cars outside our labs." The automaker has also said that its Energy Solutions unit is also looking at "vehicle-to-home (V2H) products that allow you to send back energy to your house and lower your energy bill, as well as vehicle-to-load (V2L) services whereby your electric car battery powers your camping gear or charges your electric bicycle."



Outlook and implications

Volvo has continued its solid performance in October, after a particularly strong performance in recent months due to the low base of comparison caused by the lower production at times during 2022 as a result of supply chain constraints, specifically linked to semiconductors. However, Volvo has noted that this month's gains have been "primarily driven by the company's fully electric cars." Indeed, it notes that electric vehicles (EVs) have risen by 28.7% year over year to 10,489 units in October, although this also means that there have also been positive gains by its internal combustion engine (ICE)-based products as plug-in hybrids slipped by 8.4% year over year to 10,854 units. BEVs are anticipated to make up the majority of the brand's sales further in the future, especially in the wake of the introduction of the EX30 and EX90 crossovers, and the new Energy Solutions business is intended to capitalize on this. According to the automaker, its "engineers have calculated that the total battery capacity of that fleet will reach around 50 GWh by mid-decade. While these cars will use several TWh [terawatt hours] in electricity each year, this energy consumption is flexible and can be moved in time via smart charging."



Furthermore, it has said that “data from our Volvo fleet shows that the average daily drive in Europe uses less than 10 kWh [kilowatt hours], while 90% of all daily drives use less than 20 kWh. This means there is ample spare battery capacity left that can be used for other purposes, with the possibility of both financial benefits for our customers and significant climate benefits.” Volvo has said that with this new business, it anticipates that it “will generate significant new revenues from energy-related products and services every year, as well as new products not previously offered by Volvo Cars.” In the near term, S&P Global Mobility forecasts that Volvo’s global sales will grow by 7.6% year over year to 665,200 units in 2023. We expect Volvo’s sales to dip again in 2024, but another gain in 2025 as the benefits from new materials start to appear.



[OEM Highlights] Zeekr to debut new electric sedan at Guangzhou Motor Show 2023

Zeekr, the premium electric vehicle (EV) manufacturer of Zhejiang Geely Holding Group, will debut a new electric sedan at the Guangzhou Motor Show 2023, which begins on Nov. 17. The 007 is a mid-size sedan with a wheelbase of 2,928 mm. The design is led by Zeekr's global design head, Stefan Sielaff, who has overseen the design of the Zeekr X hatchback. The 007 will also feature a 90-inch digital display. No other details have been released.



Outlook and implications

At this year's Guangzhou Motor Show, several Chinese automakers will present their latest sedans. New models that could potentially rival the Zeekr 007 include the Luxeed S7 and Avatr 12. The Luxeed S7 will be jointly introduced by Chery Auto and Huawei, the first product under their partnership. Zeekr's product lineup in China currently consists of three models, the 001 crossover, 009 multipurpose vehicle (MPV), and X hatchback. With the 007, Zeekr expects to expand its presence in the premium vehicle market where it already has the 001 crossover and the 009 MPV. The brand's entry-level X, which is a compact hatchback, also targets the upper end of the compact BEV segment.

[OEM Highlights] Stellantis outlines plans for electrification shift in ASEAN region

Stellantis outlined plans to introduce new mobility solutions in the ASEAN region, reports Business Times citing Stellantis chief operating officer for ASEAN and general distributors Daniel Gonzalez. This strategic move is part of the company's broader focus on electrification, and will be led by the introduction of its STLA Medium platform to the region with an investment of 2 billion ringgit (US\$428.6 million). The automaker expects this will result in local sourcing opportunities for local suppliers and manufacturers of over 5 billion ringgit within the next four years. "A big part of our ASEAN plan centres around innovation that comes with the shift to electrification and technology. This will position Stellantis at the forefront of a new era of mobility solutions. The potential of EVs



[electric vehicles] is immense in ASEAN and the company wants to lead the expansion of electrification in this region. Producing EVs here in ASEAN includes the development and engineering of vehicles tailored to the specific needs of local consumers in this region," said Gonzalez.



Outlook and implications

The STLA Medium platform, which was unveiled globally few months back, is a battery electric vehicle (BEV) platform designed to deliver exceptional performance and efficiency. It boasts a best-in-class range of 700 kilometers, making it ideal for long-distance travel without the need for frequent charging. The platform enables Stellantis to produce multi-energy vehicles such as BEVs, internal combustion engine (ICE) and MHEVs in ASEAN for ASEAN. By introducing the STLA Medium platform to the ASEAN region, Stellantis aims to accelerate the adoption of electric mobility in the region. The automaker has already partnered with Indomobil Group to begin local assembly of Citroën EVs from next year. In addition to its partnership in Indonesia, Stellantis also acquired full ownership of the Gurun plant in Kedah in 2021, and established its India and Asia Pacific regional headquarters in Kuala Lumpur. This move aligns with Stellantis's "Built in ASEAN for ASEAN" roadmap, which focuses on regional manufacturing and market development. The Gurun plant in Malaysia currently produces key Peugeot models, including the 2008, 3008, and 5008. These vehicles are distributed not only in Malaysia but also in other markets within the region, such as the Philippines, Thailand, and Cambodia. Stellantis is evaluating the potential of the Gurun plant to serve as a regional manufacturing hub for BEVs, catering to both domestic and export markets in the ASEAN region.

[OEM Highlights] KG Mobility, BYD to jointly manufacture EV battery packs in South Korea

KG Mobility, formerly known as SsangYong Motor, and BYD have further expanded their partnership and signed a new agreement to set up an electric vehicle (EV) battery pack factory. According to a company press release issued yesterday (Nov. 2), the agreement aims to establish a new battery pack manufacturing plant and develop a hybrid car system in South Korea. The signing ceremony, attended by high-level executives from both companies, took place at BYD's headquarters in Shenzhen, China. The battery packs manufactured at the plant will be used in KG Mobility's Torres EVX as well as the O100 electric pickup and future car lineups. In addition to the battery pack manufacturing partnership, KG Mobility and BYD will collaborate on the development of a hybrid



car system. This system will power KG Mobility's hybrid car lineups, starting with the hybrid version of the Torres set to be launched in 2025. The two companies have recently restructured their research and development units to strengthen their focus on the hybrid car business. They also plan to jointly develop plug-in hybrid cars.



Outlook and implications

This latest move is in line with KG Mobility's medium- to long-term business road map as it shifts its focus to electric and autonomous vehicles and software technologies. The two companies first signed a memorandum of understanding (MOU) in 2021. With this latest agreement, KG Mobility aims to strengthen its EV model lineup, introduce a new dedicated EV platform and launch hybrid products. The partnership will also help the companies to secure a stable supply chain of key car parts and gain a competitive edge in the development of new vehicles with electronic integration technologies. By leveraging each other's strengths, the two companies aim to drive innovation, enhance their product offerings and contribute to the growth of the electric and hybrid vehicle market. According to a report by the Korea Herald citing an unnamed company official, the battery pack production base will be built in the unused facilities of the Changwon engine plant in South Gyeongsang Province. The plant is expected to become operational by late 2024.



[Technology & Mobility Highlights] Bosch Group partners with Chinese Weichai Group to work on future technologies

The cooperation between Bosch and Weichai started in 1999 and has established a strong strategic partnership between the two companies



Source: Getty Images Plus/metamorworks

China's Weichai Group and Germany's Bosch Group has signed a strategic cooperation agreement on future technological innovation. As part of the alliance, both companies plan to strengthen their partnership in the area of new energy, high thermal efficiency diesel engines, intelligent transport, etc., synergizing the global research and development resources of both parties, capturing more critical core technologies, resolving worldwide issues, and jointly making new contributions to the development of the global industry, according to a PR Newswire release dated Nov. 3.

The cooperation between Weichai and Bosch started in 1999 and has established a strong strategic partnership between the two companies over the past 20 years. They have successfully launched in-depth cooperation in the area of internal combustion engine power and accomplished glamorous results, making the common rail system more deep-rooted and popular in the Chinese market.

With the continuous upgrading of China's emissions, Weichai and Bosch have witnessed the continuous advancement of China's internal combustion engine industry. Along with the rapid development of new energy vehicles, Weichai and Bosch have always rapidly responded to market demands, envisioning a new outlook of the new energy, committing themselves to research development and commercializing of fuel cell products. This has opened a new chapter for the strategic cooperation between the two companies.

Speaking on the partnership, Stefan Hartung, chairman of the Bosch Board of Management Directors of Bosch, said that both parties have achieved record-breaking results in the past collaboration and hoped to further expand the cooperation into new technological areas such as fuel cells to accomplish better and longer-term development.

Tan Xuguang, chairman of Shandong Heavy Industry Group and chairman of Weichai Power, said the parties have worked closely on technological advancement, creating a showcase model of collaboration between Chinese and German enterprises. Weichai will continue to strengthen the all-around strategic cooperation with Bosch, synergizing their global R&D resources and together, leading the development of the global industry.



[EV & Energy Efficiency Highlights] Elli launches charging solution for electric fleets across Europe

Elli, the energy and charging solutions company of the Volkswagen (VW) Group, is launching an intelligent charging solution across Europe for electric vehicle (EV) fleets. The company is rolling out the Elli Fleet Charging in Italy, Spain, and Austria starting in November, after completing its market introduction phase in Germany. The fleet management console developed by Elli features an integrated multi-national billing system that covers various type of charging cases, from the public fast charging station to private home charger. From April 2024, Elli Fleet Charging will also provide at-work charging with planning, installation, and maintenance options for standard charging and fast-charging stations on company sites.



Outlook and implications

Significance: Elli's fleet charging solution, which has been developed with a focus on cost transparency and efficiency, will support the rollout of EVs in company fleets in Europe. The company said in Germany that over 650 companies have started to use the fleet charging solution since its market launch. After the upcoming launch in Italy, Spain and Austria, other European countries will follow in the next few months.

[EV & Energy Efficiency Highlights] Rivian to end free charging on its nascent EV charging network

Rivian has informed owners that it will begin charging for the use of its Adventure Network charging system, according to media reports. Electrek reported that Rivian informed owners via email of the change, saying that it will begin charging at its sites in early November. According to the report, Rivian had about 30 sites in April, with plans to install 3,500 fast chargers at about 600 locations in the United States by the end of 2025. These stations are reportedly designed for future charging output of more than 300 kW, although currently it is at 220 kW; owners can add 140 miles of range in 20 minutes. Rivian is also planning 10,000 Level 2 chargers to be known as Rivian Waypoints. The company said that the charging experience will not change, but customers will be automatically billed. The price will be visible on the charger screen, the Rivian app, and through the vehicle navigation. Currently, the system is exclusive to Rivian owners.



Outlook and implications

Although offering charging at no cost can be a benefit, Rivian can also use the revenue. The report did not indicate how much use the first 30 chargers are seeing, or where they are located. Today, Rivian's volume remains relatively low, but the company borrowed inspiration from Tesla with the plan to offer the Adventure Network. Rivian also went this direction in an effort to be sure its vehicles' owners could have charging stations at locations that may be a little away from the beaten path and encourage an outdoor lifestyle.



[Supplier Highlights] Rinf.tech partners with NXP to develop connected vehicle cybersecurity application

Rinf.tech will use NXP's soon-to-be-launched OrangeBox



Source: Getty Images/BeeBright

Rinf.tech has partnered with NXP Semiconductors NV to develop a connected vehicle cybersecurity application backed by Bitdefender's Security Agent, based on a press release dated Nov. 6. The solution aims to protect autonomous and connected cars from cyber threats.

Rinf.tech will use NXP's soon-to-be-launched OrangeBox. OrangeBox is an advanced automotive connectivity platform to be released in the coming months that provides the hardware capabilities and central connectivity to build out a cybersecurity agent that helps protect autonomous vehicles and connected devices.

The solution uses Bitdefender's security solution, which is integrated in the connected vehicle environment. The solution helps protect software-defined vehicles from ransomware, malicious attacks and data breaches.

"This solution became possible via the vision that NXP had in creating OrangeBox for the market. We developed our original version using the NXP i.MX 8QuadXPlus Multisensory Enablement Kit, which allowed us to prove the concept we'd created with Bitdefender. OrangeBox will allow us to extend this solution in some really compelling ways, creating an Automotive Security Agent that can be offered to the market to help keep connected vehicles significantly safer," said Andrei Filimon, technical director of the automotive unit at Rinf.tech.

Rinf.tech, NXP and Bitdefender will present the vehicular cybersecurity solution at NXP Tech Days Detroit on Nov. 7–8, 2023.



[Supplier Highlights] Andes, Vector partner to advance automotive software solutions via RISC-V technology

The partnership aims to accelerate innovation in the automotive industry with RISC-V-based processor solutions



Source: Getty/metamorworks

Andes Technology, a leading provider of high-efficiency, low-power 32/64-bit RISC-V processors, and Vector, a specialist in software and automotive electronics development, on Nov. 6 announced a collaboration to advance automotive software solutions using the RISC-V architecture.

This partnership combines the expertise of two industry leaders, enabling the development of integrated automotive solutions that combine AndesCore™ Safety-Enhanced (SE) RISC-V processor series and Vector's MICROSAR Classic basic software. This collaboration aims to accelerate innovation and time to market in the automotive industry by leveraging the flexibility and scalability of AndesCore™ CPU architecture and the performance, energy efficiency and safety of RISC-V processors.

Andes, the first RISC-V CPU vendor to deliver an ISO-26262 fully compliant core, is executing a rich FuSa processor roadmap that includes DSP-enabled, compact, secure, high-performance, and advanced driver assistance system (ADAS)-capable processor series. Vector is a leading provider of AUTOSAR software for the automotive industry and is taking on extended steering tasks within the well-known development partnership.

Simon Wang, senior technical marketing manager of Andes, said, "The automotive industry is at a pivotal juncture to aggressively incorporate fast-growing E/E and AI technologies. At the same time, RISC-V is the emerging computing architecture that is becoming a mainstream in every segment from edge to cloud. It's momentous that we work together to drive innovation and meet the challenges of automotive applications. Our collaboration with Vector is a significant step in that direction, offering an integrated solution that will facilitate the automotive industry's progression into the future".

"We are excited to work with Andes and combine our AUTOSAR software expertise with their advanced RISC-V processors. This collaboration will enable our MICROSAR products to run on RISC-V-based processors and create state-of-the-art, safe and efficient systems that can thrive in the dynamic automotive landscape," said Josef Nöbauer, senior manager and head of Embedded SW Product Development for Semiconductor Platforms and MCAL at Vector Informatik.



[VIP ASSET] Gigacasting: The hottest trend in car manufacturing

【1】

Gigacasting is all the rage in automotive manufacturing circles. And while Tesla has mainstreamed the term — involving enormous, high-pressure aluminum die casting machines that punch out vehicle chassis and bodies-in-white — the technology has largely caught on in mainland China. Now other automakers, including Toyota, are eyeing the process.

The rising adoption of aluminum gigacasting modules and structural parts is primarily driven by the need to prevent the continuous increase in vehicle weight, enhance fuel efficiency, and accommodate the growing demand for battery electric vehicles. Done correctly, gigacasting can theoretically slash per-unit manufacturing costs by eliminating the welding of dozens of body parts by casting one single module. But much of the conversation ignores fundamental roadblocks in implementing the technology.

These massive gigacastings (also known as megacastings) carry huge initial startup costs, may have distortion issues in the metal, alter collision-repair capabilities, and require extensive end-of-line inspection scanning. And that is only after ordering a custom-built gargantuan piece of equipment, moving it into place, and figuring out how to efficiently work the temperamental processes.

So why are established industry automakers and suppliers still chasing these big dreams that come with massive headwinds? Do casting experts have enough technical solutions to known operational problems? And looking downstream into the vehicle use-case, can ADAS systems prevent enough crashes to make up for these unrepairable castings?



Simple answer: It's not about the components, it's about the assembly plant. And it's not about material and methodology changes to the underbelly of vehicles, but the creative processes themselves which are under transformation. And it's not about the exact factory implementation, but how an entirely new workflow can be enabled for improved productivity.

When looking at market share of advanced steels, stampers of those components, and conversion rates in adoption scenarios, S&P Global Mobility forecasts 15% to 20% of traditional body-in-white (BIW) stampings in 2030 may be at risk from these gigacastings. Underbody components typically comprise about 50% of a vehicle's BIW shell, and this soft underbelly is the target of gigacasting's focus.

Expertise within suppliers, factory designs, and vehicle configurations are all changing. As a result, the era of transportation is approaching a disruption to the auto industry's backbone: the assembly line.



The assembly line process as we know it stood for 110 years as the uncontested champion of high-volume manufacturing. Components could be sub-assembled offline, lasers might scan each part for dimensional accuracy, and a bolt might even hold all the measurement data from rigorous testing of a powertrain. But the assembly line itself evolved to absorb these improvements. No revolution to assembly efficiency stood to threaten the linear model — until now. Robotics, automation, industry 4.0, and blockchain all have impacts on the efficiency, cadence, and support networks of modern assembly plants.

OEMs are looking towards gigacasting not as a component piece, but as a change to how their entire world functions. The reconfiguration of the dance played behind factory walls will forever change economies within automotive. Whether corner castings or single piece, whether gigacast or gigapress, a change to how vehicles come together is upon the industry. Nodal construction will replace linear, bottlenecks will arise and dissolve, and something altogether new will be born.

Manufacturing differences for a rear underbody				
Producing 100,000 units/year (16 hours/day, 22 days/month, 12 months)				
Category	Sub-category	Steel stamping and joining	Aluminum stamping and joining	Aluminum megacasting
Production efficiency	Yield	97%	92%	85%
	Doable jobs per hour	24.4	25.7	27.8
	Stamping machine	1.0 – 1.5 mill	1.4 – 1.8 mill	
Investment costs (USD)	Stamping tooling	0.7 – 1.1 mill	1.0 – 1.3 mill	
	Joining line	0.6 – 0.8 mill	1.2 – 1.6 mill	
	HPDC machine			6 mill
	HPDC tooling			1.2 – 1.5 mill
Variable costs (USD)	Labor costs	28.3	31 – 37	11 – 23
	Indirect costs	47.2	42 – 52	9 – 14
	Raw material	75.6	264 – 377	151 – 226

Source: S&P Global Mobility

Gigacasting and mainland China

The rise of aluminum gigacasting in mainland China's automotive sector, especially for new energy vehicles (NEVs), is driven by weight reduction and efficiency needs. Deciding between outsourced supply chains and in-house production raises sustainability and cost concerns.

According to S&P Global Mobility, production of electric light vehicles in mainland China is expected to reach a total of 19 million units annually by 2030 — firmly establishing the country as a global leader in the EV sector. Now, China looks to exert a substantial influence in gigacasting globally.

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