DVN-I
Automotive Interior

Thu, 18 March 2021 Weekly Newsletter NEWSLETTER #52

Editorial

Interior Sessions At Shanghai DVN Workshop

IMAGE: MELEXIS

The DVN Workshop in Shanghai next month will include two sessions about interior lighting and HMI/displays. It will be an actual, real, live, face-to-face event, augmented by virtual contributions from overseas. It's happening on 19-20 April; the interior-related sessions are on the 20th. You can download the Shanghai workshop brochure **here**, with the detailed conference docket in English and Chinese.

The interior sessions will present innovations and perspectives from the likes of Grupo Antolin, Pforzheim University, Inova, Ansys, Osram, Melexis, DesignLED, Novem, and PolyIC. Presentations will be made live by those speakers in Shanghai, or by recorded video for worldwide speakers not able to travel to China. After each session there will be a generous 30-minute live Q&A session. Around 15 companies will present their products in the exhibition booths located at the wonderful Marriott Park View hotel in Shanghai. You won't want to miss it, so register online **here**. Have questions or want to discuss expo booth options for your products and services? Send DVN's Salomon Berner **an email** today.

This week's Design Lounge brings the latest chapter in our design perspective comparison of new Premium EVs, which perfectly complement the interior review, already presented from a functional and technology standpoint.

We appreciate your support, and we're happy to work ceaselessly to keep you informed!

Sincerely yours,

Philippe Aumont
General Editor, DVN-Interior

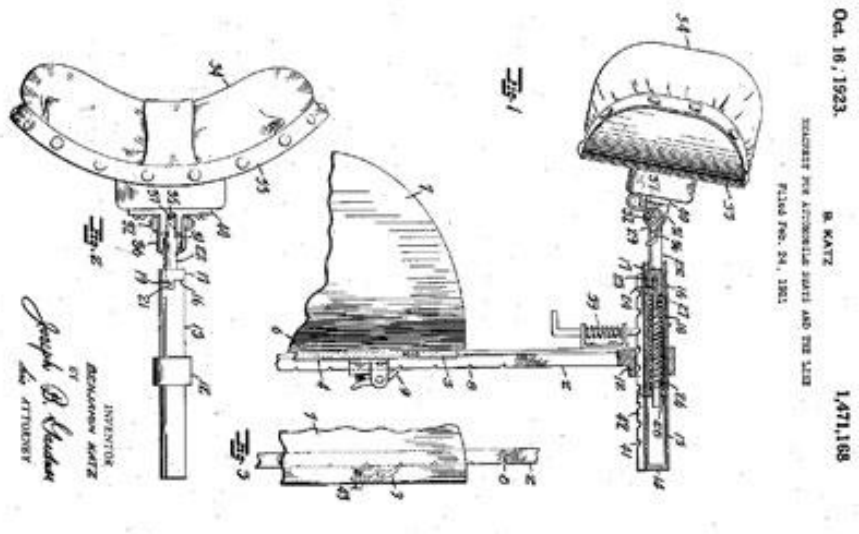
In Depth Interior Technology

Head Rest(raint)s Do More Just Than Protect Us

LEXUS GX

Why do we have head restraints in car seats? In the 1960s, headrests were an add-on available in a few cases as optional factory equipment, or a little more commonly as an aftermarket accessory. At first, they were marketed as comfort items on luxury vehicles, but it was eventually discovered that they could mitigate whiplash and other injuries in a crash. Once safety researchers determined the safety benefits were real, all vehicles in the American market were required to include them starting in 1969. Other markets brought in similar requirements around the same time. The informal name "head rest" gave way to the formal name "head restraint" in recognition of their safety function.

The idea is to limit head movement during a rear-impact crash, even in low-speed accidents, thus, reducing the probability of a neck injury. It limits the rearward movement of the adult occupant's head, relative to the torso, in a collision, to prevent or mitigate whiplash or injury to the cervical vertebrae, protecting the head and neck.



The automobile head rest was invented in 1921 by Benjamin Katz, a resident of Oakland, California; he received U.S. **patent № 1471168** on 16 October, 1923. The first factory installation as standard equipment was in a 1968 Volvo, when the Swedish maker introduced this new safety feature after the previous first introduction of the 3-point seat belt.

Head restraints became required equipment in the U.S. in 1969. Based on US figures, when the regulation was created, about 4 million rear-end crashes -- or one out of four accidents -- occurred annually on U.S. roads. About three-fourth of all neck injuries treated by medical professionals at the time were the result of rear-end auto collisions.

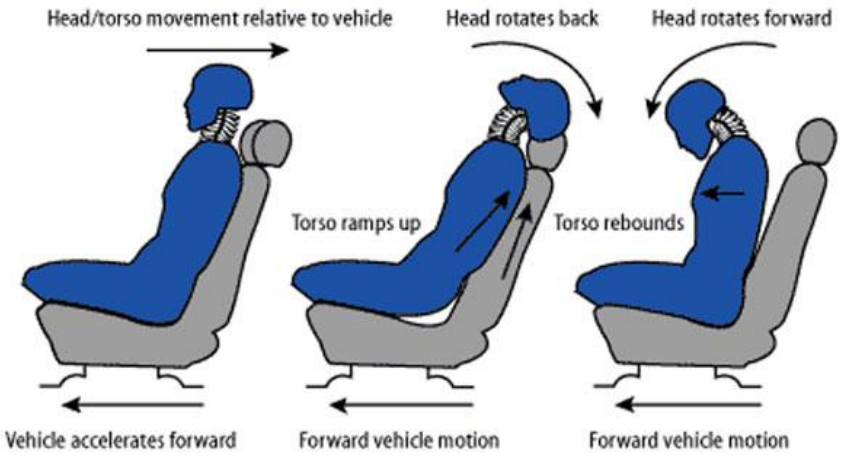


IMAGE: CARSAFETYDESIGNFEATURES

Because of rapid extension and flexion of the spine, post whiplash injuries can be long-lasting, difficult to diagnose or treat, and extremely painful and debilitating. Although such injuries are rarely fatal, they have a huge impact on individuals and on society, with an estimated annual cost of some €10bn in Europe.

Regulations

The US Department of Transportation on 15 February 1968 announced a new standard requiring protective head restraints on all passenger cars manufactured after 31 December, 1968—in the middle of the 1969 model year, which had begun on 1 September 1968. Federal Motor Vehicle Safety Standard (FMVSS) № 202 required the outboard front seating positions to be equipped with head restraints meeting specified performance criteria.

Head restraints were commercialized in a variety of designs. Some automakers, resenting what they perceived as unwarranted government interference in decisions about how to configure automobiles, installed minimal attachments that could be (and usually did remain) stowed in a lowered position extending just a few inches above the seatback—unable to offer much of any real protection in a crash, as shown in the blue 1972 car here.

Other models had high-back "tombstone" seats with integral head restraints rising much higher above the back, with more padding and a greater likelihood of literally saving necks—as shown in this black 1972 car of the same model family as the blue car. How much protection was available depended on whether the buyer chose the standard or deluxe interior.

This "tombstone" design came to foretell the future of the head restraint as it became an extension of the vehicle's seats; several studies found later that higher head restraints that were closer to the back of an occupant's head gave much better safety performance than the lower designs. In September 2008, four decades after the rule first took effect and most of three decades after it became known that the standards allowed head restraints that didn't help (and in some cases even made things worse by serving as a fulcrum over which the neck could bend backward), NHTSA upgraded FMVSS № 202 to require all light vehicles be equipped with front seats with a higher minimum height, limits on the distance between the back of an occupant's head and the head restraint, and a limit on the size of gaps and openings within head restraints.

This lattermost requirement backhandedly strikes at one of the drawbacks of effective head restraints: they effectively block rearward vision, making it difficult for drivers to look where they're going during reverse maneuvers. Volvo's head restraints of the mid-1970s to early 1990s were designed to tower high enough to prevent the head levering over the top of the restraint, while also allowing ample pass-through for clear rearward visibility. A Volvo 240 is shown here (also with rear head restraints, which—like rear shoulder belts—weren't required in the U.S. until many years after they were standard equipment in Europe). And the driver wasn't the only one whose sightlines were set free by the Volvo design; rear passengers got to see out the windshield as long as nobody was sitting directly ahead of them—something not possible with most head restraints tall enough to be fully effective.

The updated FMVSS № 202 requires that head restraints meet one of the following two standards of performance, design, and construction:

(A) During a forward acceleration of at least 8g on the seat supporting structure, the rearward angular displacement of the head reference line shall be limited to 45° from the torso reference line, or

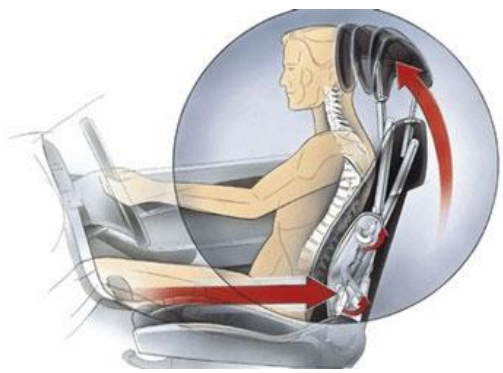
(B) Head restraints must be at least 700 mm (27.6") above the seating reference point in their highest position and not deflect more than 100 mm (3.9") under a 372 Nm moment. The width of the head restraint, measured at a point either 65 mm below the top of the head restraint or 635 mm above the seating reference point, must be not less than 254 mm for use with bench seats and 171 mm for use with individual seats. The head restraint must withstand an increasing rearward load until there is a failure of the seat or seat back, or until a load of 890 N is applied.

For decades, vehicle safety researchers have been designing and gathering information on the ability of head restraints to mitigate injuries resulting from rear-end collisions. As a result, different types of head restraints have been developed by various manufacturers to protect their occupants from whiplash.

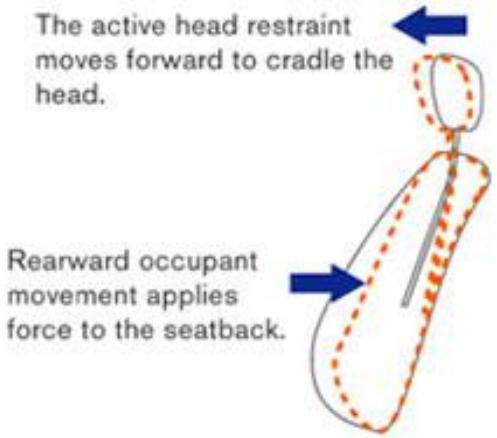
Non height adjustable, integral or fixed head restraints—as found, for example, in most of Volvo's cars—designed to conform to provision (B), show better protection scores.

Adjustable head restraints are probably better for comfort, but less efficient for safety protection, because of the disjunction between the positional adjustment optimal for safety and that optimal for comfort (plus the tendency of vehicle users to ignore the adjustability, leaving the head restraint in a position optimal for neither comfort nor safety). They can be positioned to fit the height and head location of the seated occupant, and to some degree their comfort preferences. The adjustability can be vertical (height adjustment), and/or horizontally rotative (tilt adjustment). With today's technology, head restraints can even automatically adjust their position when powered, to align with the seat position or through sensors measuring the occupant's head position.

Active Head Restraints



Active head restraints are designed to automatically improve head restraint position and/or geometry during an impact. Deployment can be mechanically activated (Occupant torso sinks into the seat back suspension, levering the head restraint forward; a spring automatically returns the head restraint to the original position following a rear impact), gas activated (a pressurized gas cartridge moves the head restraint forward) or pyrotechnically activated as in an airbag.

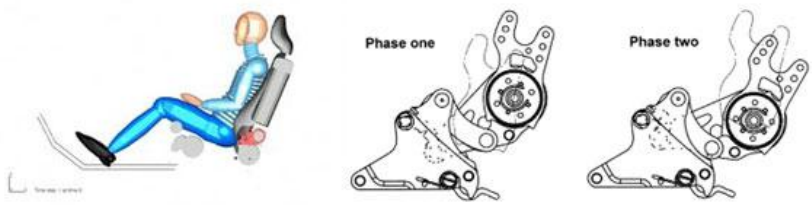


Active head restraints were very popular in the 2000s. Nowadays, the industry recognizes improvements in the geometry of car seats through better design and energy absorption could offer safety benefits as well. Studies have shown that a well-designed and properly-adjusted head restraint can prevent injurious head-neck kinematics in rear-end collisions by limiting the differential movement of the head and torso.

IMAGE: MERCEDES

The Mercedes A-Class active "Neck-Pro" head restraints are linked to an electronic control unit: if the sensor system detects a rear-end collision over a particular threshold of severity, it releases pre-tensioned springs inside the head restraints, which move forward by 40 mm and upward by 30 mm in a fraction of a second to support the head at an early stage of the crash.

Saab Active Head restraint (SAHR) was the first such device, commercialized by Saab under a Lear patent. Opel, Ford, Nissan, Subaru, Hyundai, Peugeot, and others also commercialized such devices starting in 1998.



VOLVO WHIPS (IMAGE: SCIENCEDIRECT)

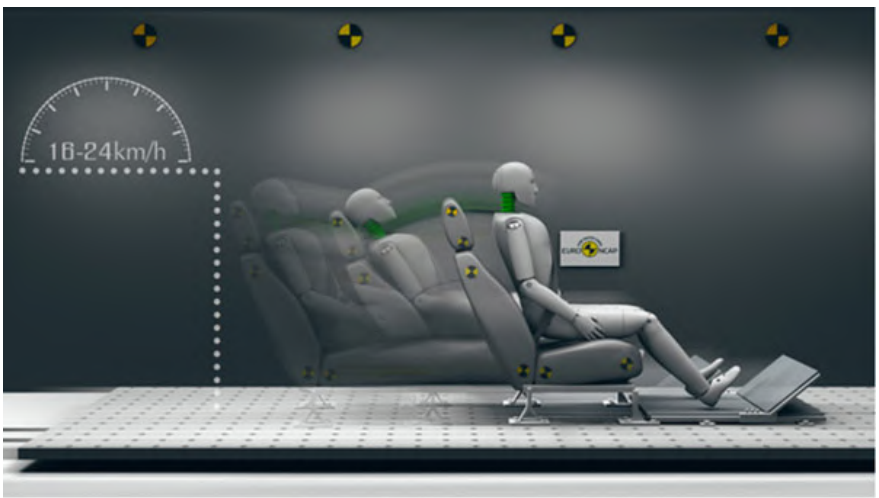
Volvo's WHIPS (**Whi**plash **P**revention **S**ystem), developed with Autoliv, is also available under a different name in Jaguars. The system consists of energy absorbing backrests and specially designed head restraints in the front seats.

IMAGE: TS TECH

Toyota's Whiplash Injury Lessening (WIL), demonstrated in a **video**, involves a seat designed to respond to the occupant sinking into the back when the vehicle is hit from behind. The head and body are simultaneously supported. Toyota also increased the rigidity of the seat frame. As seen in the video, Toyota is also using the SAHR system.

Japanese supplier TS Tech has developed their own active head restraint system, which has obtained high marks in assessments conducted by Euro NCAP, JNCAP, and other organizations around the world.

Testing and Homologation: Euro NCAP, IIHS



Euro NCAP (European New Car Assessment Programme) is a voluntary vehicle safety rating system, assessing safety performance of new vehicles and features.

Euro NCAP's whiplash tests (**video**) are designed to promote best-practice seat and head restraint design; i.e., those designs which are known from accident data to provide the

most effective protection in the real world. The geometry is assessed to see whether or not the head restraint can be positioned to prevent excessive head movement and provide effective support.

Seats and head restraints are tested on a sled using a low-speed rear-impact dummy. Two dynamic tests are performed, representing common accident severities known to cause injuries, together with an assessment of the geometry of the front and rear head restraints. The dynamic sled tests are meant to check how effectively the seat and head restraint operate to provide whiplash protection in typical crash scenarios.

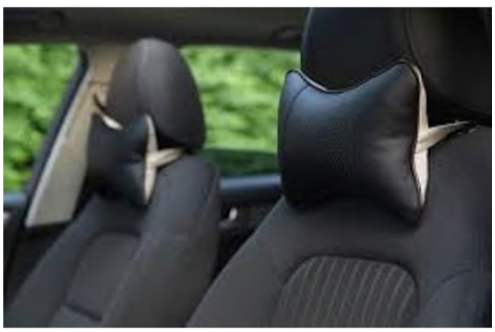
The U.S. Insurance Institute for Highway Safety (IIHS) has found that just under 40 per cent of new motor vehicles on the market have head restraints not effective enough to earn at least a "good" rating.

Comfort and Convenience Features

Head restraints traditionally exert littler or no lateral constraint of the head. The younger an occupant is, the heavier the head is in proportion to the body; which means that children need more lateral support than adults.

This Volvo neck cushion consists of a textile-covered viscoelastic foam that conforms to the contours of the occupant's neck. For passengers who are resting or sleeping, the neck cushion contributes to comfort as it helps keep the head steady.

Aftermarket attachments, shown here as offered on Chinese buy-anything hypermarket website Alibaba, are promoted as providing similar benefits—but the claims aren't proven by anything more than the sellers' say-so.



Audio Headrest

In 2019 came Bose's Personal Speaker system, with what they call "natural-sounding" speakers in the head restraint to provide a complete surround-sound feel when playing music. The idea is to provide high-end audio with a subtle installation, and without the need to open up the door panels to install aftermarket speakers. In an **online video**, Bose installs this system on a new Nissan Micra.

IMAGE: GRAMMER AG

Grammer and audio specialist Harman are partnering for what they're calling best-in-class sound-equipped headrests. Grammer R&D VP Dr. Michael Borbe says "We are witnessing the beginning of a significant change in user needs in the vehicle interior. The trend is moving towards far greater individualization, especially in the multimedia sector. Sound zone technologies and noise cancellation are just a few of the technologies that can be integrated into existing interior solutions in a design-optimized way through this partnership".

The Airscarf® system found on Mercedes convertibles is a system that ducts warm air via the headrests onto the necks of seat occupants when the weather turns chilly. It is fully adjustable, and allows vehicle occupants to select and adjust the flow of air that's directed onto their necks.

Video For Rear Seat Entertainment

SUBARU TRIBECA

The back of the head restraint is an ideal location for video screens for rear occupants, especially kids. They're priced rather high, though, and so personal hold-in-the-hand tablets are more commonly used.

Like any other surface of the interior, the head restraint of the future will have surfaces functionalized through sensor integration, to measure and monitor head distance to optimize head restraint position and for driver drowsiness detection, and probably one day to keep tabs on brain waves with EEG technology to detect vigilance, drowsiness, vagal discomfort, seizures, and more.

And to put a cherry on top of the topic: there's an American indie rock band called Car Seat Headrest!

Interior News

Hutchinson Va-Q-Tec Cooperate on Cabin Insulation

INTERIOR NEWS

IMAGE: TRENDMAP

Paris-based Hutchinson, one of the world's main non-tire automotive rubber companies, will partner with Würzburg, Germany-based Va-Q-Tec, who specialize in VIPs (vacuum insulation panels) to develop and market optimized thermal and fire-retardant insulation for passenger cabins and battery compartments.

VIPs insulate around 10 times more effectively compared to conventional fiber or foam insulation, and so they can weigh less and take up less space at a given performance level, or much more performant at a given mass and packaging level, or any trade-off in between. Both companies are convinced VIPs will help to develop modern thermal architecture, crucial to comfort; energy efficiency, and EV safety.

Va-Q-Tec manufactures passive thermal packaging solutions—containers and boxes which offer constant-temperature conditions typically for four to 10 days, which could be have many mobility applications in the delivery, convenience freezer, and battery realms.

Hutchinson designs and produces rubber applications for vibration control, insulation, fluid management and sealing system technologies. With this partnership, they'll be in a position to integrate VIP technology into automotive systems.

Bentley's Eco-Friendly Trims: Tweed and More

INTERIOR NEWS

IMAGE: BENTLEY

Bentley offers several environmentally-friendly tweed fabric door trim options across their entire range. Each of the styles has been designed to complement the existing interior finishes with leather and intricate stitchwork.

The tweed has a minimal impact on the environment. It is sourced from Lovat Mill, a textiles facility located in Hawick, tweed's birthplace, they produce the largest selection of stocked tweeds in all Scotland. The mill runs predominately on clean energy, with 90 per cent of their electricity coming from renewable sources. There are no hazardous industrial chemicals used on sight, such as azo dyes, and the tweed is woven on what Lovat calls "environmentally aware" versatile rapier looms. 100 per cent of the wool waste is recycled either through industrial re-processing or by weaving combination yarns into carpets for homes and offices.

IMAGE: BENTLEY

The use of sustainable materials is part of Bentley's Beyond100 strategy outlined in November 2020, with the primary goal of becoming a carbon-neutral company by 2030. Their EXP100 all-electric concept car, showcased in 2019, also included numerous sustainably-sourced materials, such as wood salvaged from the bottom of lakes, rivers, and bogs.

This is not the first time Bentley has used tweed. The Sportsman trim of the Bentayga includes Peck 62 tweed on the passenger and driver fascia's, and the Continental GT Equestrian Edition has diamond-quilted tweed fabrics for the door inlays and rear quarter panels. There is a grey tweed used in the Bacalar.

BENTLEY BACALAR WITH GREY TWEED (IMAGE: BENTLEY)

The interior finishes are a mix of metals, woods, leather and wool. Sustainable products and processes, requested by Bentley's very demanding customers, are used wherever possible. The wood on the dash, for instance, is Riverwood, a wood from fallen trees that had been buried in the East Anglia Fenlands for millennia, and has been exhumed and slowly kiln-dried to produce a wood that is strong and has a rich ebony color. Other materials such as the wool used in the seats are locally sourced wherever possible and hand-stitched.

Faurecia's Radiant Cabin Cocoon Heating

INTERIOR NEWS

Faurecia engineers have developed a range of radiant panel solutions which can be integrated into interior components such as the instrument panel, door panel, and center console.

Faurecia looked at consumer preferences in vehicle interiors, and found thermal comfort is a top-three priority in France, China, and the USA. Reducing time to heating sensation and time to comfort is what consumers are expecting.

Achieving this while minimizing impact on cost and energy is crucial, especially in battery electric vehicles. Although 80 per cent of journeys involve only a single occupant, conventional thermal management systems work to heat the entire vehicle interior, consuming more energy than necessary. A radiant panel system allows for greater flexibility, giving a more localized thermal comfort for only the occupied area of the car.

Surrounding vehicle occupants with up to eight heating panels creates what Faurecia calls a 'cocoon effect' in each seat, enhancing overall comfort. As well as improvements in the user experience, the radiant panel solutions are designed to use up to 30% less energy than a conventional heater, and thus contribute to lowering CO_2 emissions. In a battery electric vehicle, this energy savings translates into an extension in range of up to 5% at -10°C. The system is controlled through the cockpit HMI.

Faurecia says their radiant panels are ready for serial production, with SOP set for this June on a premium German electric SUV. Subsequent generations are in development to offer broader possibilities in industrial processes and materials.

Buick Electra Interior Concept

INTERIOR NEWS

IMAGE: BUICK

Buick's Electra concept was presented at last October's Beijing Auto Show, and now more information is available about this PATAC development (that's the Pan Asia Technical Automotive Centre, founded in 1997; China's first foreign automotive development joint venture, between GM China and SAIC Motor). This Buick model shows its 'PURE' design philosophy, a sculptured exterior combined with a clean and intelligent cabin.

Buick's philosophy of 'PURE' interior design is an intelligent cocoon for a personal atmosphere to either connect with the outside world or have a private, relaxing, safe space. There's facial recognition, voice and gesture control, and smart surface controls embedded into the door panels and seats to minimize the need for buttons and switches. Instead of a built-up dashboard, the space in front of the driver has an open and airy architecture with a large curved screen that appears as if floating.

IMAGE: BUICK

The interior design with the four suspended seats creates a visual effect of light weight. Whether the eventual production car keeps these advanced features remains to be seen —and the same goes for the butterfly doors.

IMAGE: BUICK

The pedals lie flat, flush with the floor when not in use, and the steering yoke has handles that contract. The whole display/yoke unit stows away in autonomous mode. There is also an on-board Buick AI system available via a touchscreen on the steering yoke, which can provide navigation, entertainment and access to social media and more.

The next-generation connectivity system should offer a comprehensive visual experience and provide on-demand-driving information, enhanced system details for driver assistants and infotainment controls. The concept also includes a large augmented reality-enhanced head-up display with enhanced live-view navigation and Buick's next-generation AI Voice Assistant. Its sculptural design is reinforced with 3D-light effects and the smart packaging of the electrical architecture result in a spacious cabin.

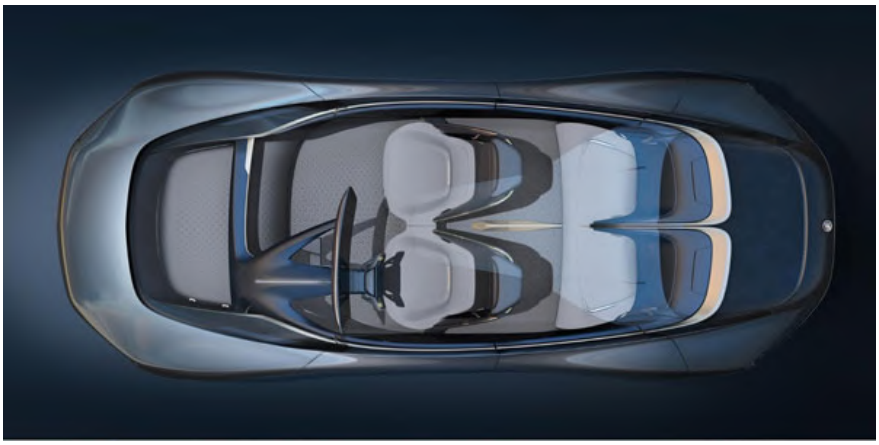
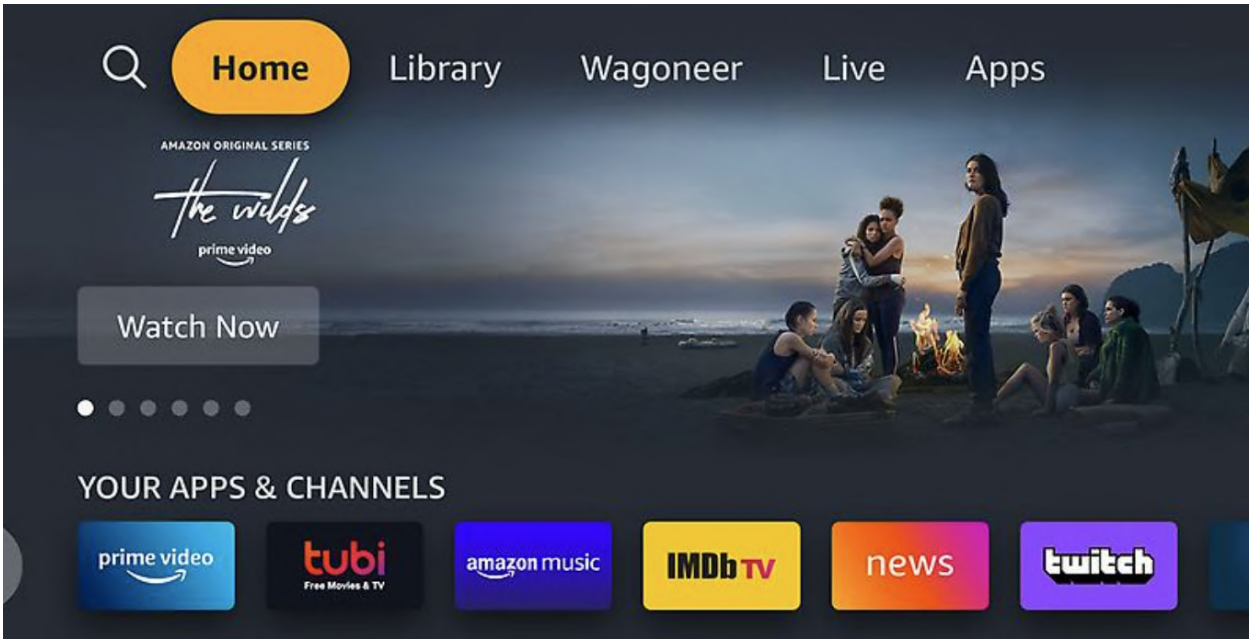


IMAGE: BUICK

While the Electra has been developed for China, this concept will also inform and influence the design of future global electric vehicles, including for the US, starting with a midsize crossover scheduled to arrive in 2024.

Jeep to Launch Amazon Fire TV

INTERIOR NEWS



Amazon Fire TV is a line of digital media player and micro-consoles developed by Amazon. Jeep's Wagoneer and Grand Wagoneer models will be the first vehicles from any maker to integrate Amazon Fire TV for Auto. This will give passengers access to shows, movies, apps, unique vehicle features, and Alexa.

Fire TV for Auto, communicating with the vehicle's Uconnect 5 system, can sync with an existing Amazon account. This allows passengers to begin or resume a program in the car that had been paused in the home. It is accessible for front and rear passengers; a privacy filter disables driver viewing.

There is a specific Fire TV for Auto remote to control the experience, as well as push-to-talk Alexa access. A button also connects Fire TV with the Uconnect 5 system for control of vehicle features, such as climate and maps. Touchscreen controls are also available, with support for compatible content able to be downloaded when wireless service is limited or to save on data.

The addition of Fire TV is the latest in a trend of carmakers being increasingly on board with including software from major tech/entertainment companies. This includes the expansion of Android Auto and Apple's CarPlay to deeper integrations like the Polestar 2, which runs Android Automotive natively.

The Design Lounge

BEV vs ICE: Premium Brands

THE DESIGN LOUNGE

The latest introductions of premium vehicles from Mercedes and Audi, although in different segments, allows us to compare and contrast how their latest interior designs compare between an ICE and BEV vehicles. You may be surprised to see which feel more modern and futuristic, between the newest Mercedes C-Class and Audi Q4 E-Tron.

The Mercedes C-Class incorporates the S-Class design themes with the dominant center console/display that flows into a sloping instument panel. Notice the ambient lighting integrated not only into the doors and IP but also into the highly detailed air ducts.

Audi has applied their own design themse to the MEB platform that also underpins the VW ID and Škoda EVs. The IP is angular and horizontally themed but the center console, which is so dominant in the A8, is now separated and disconnedcted from the overall IP and theme. Instead it has an attractive "floating upper deck" appearance.

In the Mercedes we see intricate detailing with wood-inlaid trim. Notice how the flowing displays separate themselves from the overall IP mass; this enhances the displays by creating a visual- interest contrast with the background.

Audi has angled the IP to create a driver-focused feel. The displays are integral to the overall IP mass creating something of a monolithic form. The center console's upper-deck control panel attempts to integrate with the overall IP.

Flowing planes for the seating surfaces and rounded edges to the console contribute to a friendly, welcoming environment in the Mercedes…

…in contrast to the more chiseled and monolithic, "let's go *drive* this thing!" approach in the Audi.

The Mercedes' rear seating follows the same flowing theme, while…

…the Audi's rear seating feels more functional and perhaps even brutalist, in architectural terms.

Looking to the door panels we see how Mercedes uses the fine detailing, strategically-configured lighting, and metallic materials to create a premium feel for their latest C-Class.

Contrastingly, Audi has created a more stark and functional execution of lighitng (note white here versus blue in the Benz), materials, and simple detailing that seems a step below the Mercedes offering, though this could be a more segment-oriented decision by Audi.

Next week we will look into the display screens and UX/HMI approach in both of these premium vehicles.

News Mobility

_Car interiors Unplugged

NEWS MOBILITY

OLLI SHUTTLE, MARYLAND, 2019

10. In search of an epic IV_

(this story is part of an ongoing series introducing automotive interiors as an evolution of our habitat)

Static! As a car designer, I am being hammered with the question: "Why do all AVs have to look like toasters?". Symmetric both ways, left equals right and front equals rear. Actually, no front, just two rears. A car without a face. Is there really a front and does there need to be?

The fact that Autonomous Vehicles tend to inspire qualities related to electric appliances, besides the vacuum sound and use of electricity, rather demonstrates the lack of a story, creating a sort of incoherence. Any uncodified physical object benefits or suffers instant associations by reflex, by approximation or similarity to another more familiar one. The looks that we come directly in contact with, gain instantly context, sense of motion and identity. Inevitably, AVs are perceived as a continuation of an automotive saga, the one that people can confidently depict as a specific narrative and expression of mobility and, by association, become its heirs. There is a side of it though that feels almost like a replica of the up-to-now motorized reality, expressing a kind of 'digital twin' syndrome. This is what you get when you translate an extreme 'minority report' type fantasy instantly

into fault-proof reality. However, since there is no innovation without a context it might be that the reasons are deeper and much more intricate.

Transforming or adapting cities is as much about behavior change as it is about physical change. Robots in the looks of cars implement a universal expression of mobility just like a hypothetic crowdsourced car-design project that would correspondingly fit everyone. As a consequence, constraints and requirements, equal of all possible technical layouts, appear superimposed (on top of each other) in one unique package. A process that erases forms along with eccentricity, revealing an all-inclusive-volume, a mass that unifies or at least contains and blends every possible attitude into a commonly accepted one. Unlike to a car body, it resembles more to how a car volume stands just before sculpted and putting on character-lines and shapes. In this precise circumstance, is about creating an environment that matches the emotional status of all individuals that move within, like inventing a unique, alternative vehicle segment for 'the urban republic'.

A strategic inflection point is the time in the life of business when its fundamentals are about to change. Turns out that unlike the infinite debates on exterior design and appearance, interiors are easier to accept, independently of the setup, even if seated backwards. With no wheel, no pedals, no shifting and no instrument panel, they progress faster in expressing new aspects of up-and-coming trends and scenarios of mobility. While the debates continue on the 'form', interiors gain ground defining evermore usage profiles, hence the future of mobility and cityscape. And that, is no small order: seems that near future is about 'moving interiors. Possibly, at a pivotal moment, the new type of vehicle will be carved from inside out, by its inclosing customs as the new setting of urban activity and lifestyle. Car Interiors empower the leading way to the new 'mode' utterly shifting the perception of mobile objects-with-inner-space into space-objects.

To be continued____

_____*INDUSTRIOUS__*

Toyota Starts Building Woven Smart City

NEWS MOBILITY

IMAGE: TOYOTA

After announcing their smart city at the Tokyo Motor Show in 2019 and CES 2020, Toyota has begun construction. "Woven City" is situated in the shadow of the famous Mount Fuji. Ground was broken a month ago, where the former Higashi-Fuji Plant site of Toyota Motor East Japan is being transformed into this new smart city, spread over 70 hectares (173 acres) of land.

The city is called "Woven" as its streets and prioritized space for pedestrians and autonomous cars are all interwoven. One type of street will be dedicated to autonomous vehicles, one for pedestrians with mobility vehicles (bicycles, scooters), and the third one for pedestrians only. Underground routes will enable goods to be delivered without disruption of the road space above. Vegetation native to the area and hydroponics also form a central part of the city.

TOYOTA'S AUTONOMOUS E-PALETTES WILL FUNCTION AS MOBILE SHOPS AS WELL AS TAXIS (IMAGE: TOYOTA)

Streets are to be covered with sensors in order to facilitate the autonomous vehicles, which could perform tasks such as taking out waste, restocking fridges, and even reminding residents of upcoming doctor appointments.

The energy strategy is not yet fully set up, but power should come from solar, geothermal, and hydrogen fuel cells.

Toyota is also looking for research scientists and inventors to come and live in the city, to work on their projects in what it calls a 'one-of-a-kind, real-world incubator'. A large proportion of the city's residents will probably be pensioners, due to Japan's ageing population. But the city has planned for this, too, with assisted living facilities built into the fabric of the town. Population will also include Toyota employees. Initially, the Woven City will house around 360 residents, though there are plans to increase the population to 2,000.

General News

Yanfeng to Buy Out Adient in China Seating JV

GENERAL NEWS

YANFENG XIM21 (IMAGE: YANFENG)

Yanfeng has agreed to acquire Adient's 49.99 per cent share in the Yanfeng Adient Seating joint venture in China. As part of this agreement, Yanfeng takes full ownership of the joint venture and all 16,000 employees, 55 seating manufacturing facilities, a full-service technical center and headliner company JARC. Current and sourced future programs will transition to Yanfeng.

It's a significant strategic step into seating for Yanfeng, who have heretofore specialized in automotive interiors, though they have seating plants in Thailand, Serbia, and Mexico. With the integration of seat frame and foam capabilities, Yanfeng will have a clear path into the whole seat value chain.

Yanfeng CEO Gerald Jia says, "In the future, the three seating technical centers in Shanghai, Hefei, and Chongqing will join Yanfeng's existing global innovation and engineering network to offer product and innovation synergies including Interiors, Seating, Safety, and Cockpit Electronics."

Established in 1997, YFAS has developed independent and complete R&D and manufacturing systems in automotive seating with a wide range of automaker customers. Their products include complete seats, seat frames, seat foam, and headliners.

New Antolin-Naen JV in China

GENERAL NEWS

NAEN PRESIDENT WANG HONGJIE (LEFT) AND JORGE JUAREZ, APAC PRESIDENT OF GRUPO ANTOLIN.

Grupo Antolin have established a new JV with Shanghai Naen Auto Technology, a Chinese automotive electronics supplier specialising in PEPS (passive entry passive start) systems and other car body management functions, to jointly develop advanced integrated electronic products. In the future, the joint venture will supply BMW, GM, Toyota, Honda, Volvo, Geely, and other automakers around the world.

Grupo Antolin and Naen will combine their expertise and state-of-art technology to enhance the electronic integration of current products in the vehicle interior as well as bring forth new electronic technologies to local customers. With a focus on ECUs as the core electronic component to manage multiple functions related to Antolin's interior and exterior components, this collaboration aims at consolidating Antolin's position as a global provider of electronics supported by Naen's solid electronic engineering expertise and proven track record in China.

Grupo Antolin and Naen will deploy an ambitious resource plan, which is expected to increase the size of the engineering team fourfold within three years, to offer automakers in China high-level electronic engineering capabilities to develop innovative advanced automotive electronics.