

# ARIZONA DRIVER

THE ENTHUSIAST'S GUIDE TO LIFE BEHIND THE WHEEL

VOLUME 20 NUMBER 6  
NOVEMBER-DECEMBER 2021



Genesis GV70

VEHICLES • EQUIPMENT • TECHNOLOGY • PEOPLE • EVENTS • DESTINATIONS • ATTRACTIONS







# RECONNECT

PEOPLE | PRODUCTS | VEHICLES | IDEAS



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# ARIZONA DRIVER

THE ENTHUSIAST'S GUIDE TO LIFE BEHIND THE WHEEL

## news & features November-December 2021

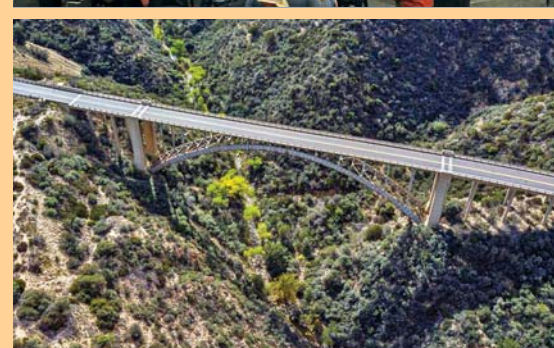
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**COVER:** The 2022 Genesis GV70, latest in their release of a whole new lineup, on a drive up Salt River Canyon through the Apache nations between Miami and Show Low. This vehicle has been winning hearts and trophies at a fast pace—see both the NWAPA Outdoor Vehicle of the Year Awards and the TAWA Texas Truck Rodeo in this issue.  
Photo: Joe Sage





**START YOUR ENGINES : FROM THE PUBLISHER**

**A** look at the map on our Table of Contents, and you'll see travel and events are kicking back into gear after this problematic year and a half. Since Arizona is ahead of the curve on returning to normal, much activity based here is spreading far and wide.

A huge collector auction in Houston? That's Scottsdale's own Barrett-Jackson, back in the arena after last year's pandemic disruptions and reschedulings.

A first delivery of EVs in California? Well, they are built right here in Arizona.

Not one but two off-road-oriented comparo and award events, one in Washington State and one in Texas? The connection is us—we belong to press associations in other parts of the country where some of the best such events happen. And these are two of the best. Normally, they wouldn't both be so similar—the Northwest does theirs in the spring and a road event in fall, while Texas does the opposite. But disruptions and reschedulings did affect the Northwest, where a decision was made to move their dirt event to fall and forgo their open road ride and drive this time around. Nonetheless, not all the same manufacturers participation in both, for various reasons of regionalism, product timing and other variables; and even when they do, the results—and the thinking behind them—can vary or run in parallel, or both. This is a chance to gain a little more insight, in its own way.

Within Arizona's borders, things are also very active. We visit the plant of another new Arizona EV builder, where the wraps come off their new drivable prototype and we gain insights from the CEO and mastermind of the whole operation, product itself included. Several things have been afoot at Phoenix Raceway, from charity events to a fully-attended (in fact, sellout) NASCAR Championship Weekend coming up as you read this. The Girl Gang Garage is bringing fame and glory to Arizona's specialty builders again, and they have announced their reveal date. ADOT has been hard at work in the canyons between Superior and Miami. And there's so much more.

Between it all, we take an impressive array of new vehicles for a spin and a look.

Enjoy the ride! — **Joe Sage** - Publisher/ Executive Editor

**ARIZONA DRIVER**  
MAGAZINE



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USMA.....United States Motorsports Association

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# AUTOMOTIVE NEWS UPDATE



▼ **Koenigsegg** has announced the buy-back of NEVS's 65 percent stake in Meneko, the joint venture company that produces the Gemera 4-seater Hypercar. The acquisition makes Koenigsegg sole owner of the company. Koenigsegg formed the partnership with NEVS in January 2019 with the intended purpose of developing parallel volume vehicle models with an emphasis on electrification and CO2-neutral engines. Koenigsegg's purchase of NEVS's ownership in Meneko further supports its strategic goal of full integration of development and manufacturing. "Koenigsegg's strong and stable growth both operationally and financially enables us to buy back NEVS's ownership in Meneko and take full ownership of the joint venture," said Christian von Koenigsegg, founder and CEO of the company. "In preparation of the Gemera start of production, we are investing heavily in new facilities, competence and infrastructure, and this acquisition is an important step for us and in the growth of our business." Koenigsegg plans to build 300 Gemera models in the all-new production facility under construction outside the current Koenigsegg facilities, with anticipated start of production in 2023. The Gemera is the world's first Mega-GT and Koenigsegg's first four-seater that combines ultimate hypercar performance with seats for four large adults and room for their carry-on luggage. The Gemera is a hybrid, with three electric motors—one on the crankshaft and one on each of the rear wheels—with a combined output of

1100 bhp (or 1400 if counted individually), which works with a 600-bhp 2-liter, three-cylinder dry-sump twin-turbo Freevalve engine that runs on fossil-free fuels—Gen 2.0 ethanol or CO2-neutral methanol like Vulcanol, or any combination thereof—with which it is at least as CO2-neutral as a pure EV. If those fuels cannot be found, it also runs on E85 or normal gasoline. The Gemera has a range up about 30 miles in EV mode and can run silently up



to 300 km/h (about 180 mph).  
▼ Volkswagen Group's Spanish performance brand **CUPRA** is pushing new limits with a radical interpretation of an urban electric car—mixing pure electrification, sustainability and performance with aesthetics evoking the virtual world—in the CUPRA UrbanRebel Concept, a study in future design language of the niche, set to

be launched in 2025. With racing at the company's core, the concept presents the future urban EV first as a race car, giving an idea of the design language of the future street car—a strategic project not only for CUPRA, but for the broader Volkswagen Group, as the subsidiary aims to produce more than 500,000 urban EVs per year in Martorell, Catalonia for different Group brands, as of now unnamed. The road version, based on Volkswagen's MEB short platform, will mix cutting edge design and dynamics, representing a major shift in the brand, while maintaining the sportiness and character that have made CUPRA (once a subset of SEAT) an unconventional challenger brand. While the racing version will influence the road car, core elements are enhanced for an even more rebellious character. Up front, a shark nose was created using a negative surface, with the face also emphasized by new triangular signature headlamps, while the wraparound window design suggests a helmet (as in the CUPRA Tavascan Concept) and gives the effect of a floating roof. The rear view has athletic shoulders

(a new interpretation of the CUPRA Formentor) and a large spoiler as a nod to racing cars of the virtual world. The concept delivers 250kW of continuous power and up to 320kW at its peak and can accelerate from zero to 100 km/h in just 3.2 seconds. The CUPRA UrbanRebel Concept was unveiled at the preopening of the new CUPRA City Garage in Munich, during the IAA Munich International Motor Show.

▼ **Everrati** Automotive Limited, which specializes in redefining and futureproofing automotive icons through integration of the latest electric vehicle (EV) power-

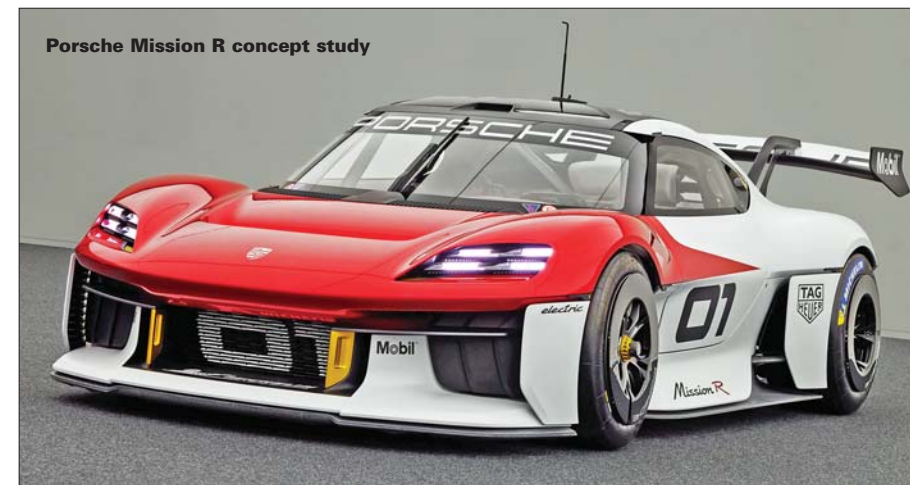


trains, debuted a new Porsche Gulf Signature Edition, based on a fully restored Porsche 911 (964), at the Salon Privé Concours d'Élégance in the UK. As part of Everrati's partnership with Gulf International, the car is instantly identifiable by its timeless Gulf orange and blue race livery, one of the best known color schemes in all of motorsports. It was the first time Everrati displayed the car to the public, alongside an electrified version of the legendary Ford GT40, created in partnership with Superformance. Featuring carbon fiber body elements and a state-of-the-art EV powertrain, the Porsche Gulf Signature Edition boasts range of 180 miles and sub-4-second zero-to-62-mph acceleration. Power delivery, coupled to a 53kWh battery pack and advanced battery management system, is optimized specifically for the Gulf Signature Edition, sending 500 bhp to the rear wheels, more than double the output of an original 1990s Porsche 964. Showcasing some of the industry's most exclusive and desirable creations, Salon Privé Concours d'Élégance is renowned for its spectacular setting at Blenheim Palace, in the heart of the Oxfordshire countryside. The idyllic venue brings together automobiles from all eras, from vintage classics to modern supercars and racing legends.

▼ **Porsche** provided a look into the future at IAA Mobility 2021 in Munich with the Mission R concept car, combining state-of-the-art technologies and sustainable materials—such as natural fiber-rein-

forced plastics—with a passion for racing. Extremely low-slung, the all-electric competition car features characteristic Porsche design lines. The car has two newly developed electric motors, battery capacity of

about 80 kWh and an innovative recuperation system, making sprint racing possible with no loss of output. Customer motorsports are big at Porsche, with a total of 30 one-make cup series held worldwide. Since launching the Porsche Carrera Cup Deutschland 31 years ago, Porsche has built over 4,400 cup cars. The latest version of the 911 GT3 Cup, based on the 992 model generation, was not launched until the start of the 2021 motorsport season.



Porsche Mission R provides an indication of what the future of one-make series with all-electric cars may look like. The all-wheel-drive car—an electric motor with up to 320 kW powers the front axle, while up to 480 kW is delivered to each rear wheel—delivers just under 1,100 PS in qualifying mode, accelerating 0-to-100 km/h in under 2.5 seconds, with a top speed over 300 km/h, and achieves the same lap time

as the current 911 GT3 Cup. The Mission R concept study produces constant power output of 500 kW in race mode. Derating (reduction of the battery's power output due to thermal conditions) has been eliminated. Thanks to advanced 900-volt technology and turbo charging, a 15-minute break from racing is all that is needed to recharge the battery from 5 to 80 percent. A further development of the Porsche Active Aerodynamics with Drag Reduction System includes three louvers in each of the two side air intakes on the nose section, as well as an adjustable, two-section rear wing. Focused on CO2 reduction and sustainability, the body is largely made of natural fiber-reinforced plastic (NFRP), derived from flax fibers from farming, also used for the front spoiler lip, diffuser and side skirts. NFRP is used extensively in the interior, for door panels, rear bulkhead and seat. An ergonomically placed display between steering wheel controls shows relevant data during a race, while a monitor above the steering column shows images from side mirror cameras and a central rear-view camera. A touch display to the right of the seat can call up the driver's biometric data. Other cameras in the interior can be used to provide exciting sequences for a live stream transmission. The carbon fiber composite safety struc-





rent 718 Cayman series, but it is noticeably wider at 78.3 inches and, with an external height of 46.85 inches, is also significantly lower. With the Mission R project, Porsche is bringing real world and vir-



tual racing closer together than ever before, as the monocoque driver's module is in exactly the same form as an esports simulator. Over the last few years, with the Mission E (2015) and Mission E Cross Turismo (2018) concept studies, Porsche has given unmistakable previews of its first all-electric sports car model series to come. Now, with the Mission R, Porsche is presenting its vision of customer motor-sports in the future.

▼ The introduction of the **Genesis GV60** is stated as redefining the luxury EV experience, combining youthful athleticism with sustainable technology to create a new path for drivers who are focused on a better future. Quad headlamps create the "Two Lines" style point—continued and reflected in the taillights—seen on other recent Genesis products. Body surfacing is soap-smooth and visually seamless, with muscular volumes bulging beneath the surface, for a wide stance that characterizes a silent but powerful presence. A coupelike floating-roof silhouette (created with the help of a combination of chrome and black window moldings) sits atop a long wheelbase with short overhangs, finishing in a modest spoiler at the base of the rear window, all intended to create a performance aesthetic. Inside, a distinctive Crystal Sphere—with laser engraving and user configurable mood lighting—is a style, function and safety feature, addressing a key silent-running EV issue by indicating whether the vehicle is turned on, while

highlighting the GV60's interactive vehicles when on. (The Crystal Sphere cannot rotate to driving mode while charging.) While there is an abundance of fluff in the official descriptions of these and other

details, the net result is as intended—intelligent driving meets bold design, wrapped in an athletic skin that looks ready to launch into a no-boundaries EV era.

▼ Developed in collaboration with RML Group, **Lotus** has revealed an all-new competition-spec GT4 challenger concept with the critically acclaimed Emira sports car at its core, a race-ready milestone in a transformation taking place in every area of the



Lotus business and brand. The culmination of more than 70 years of innovation on road and track, it is the start of a new era in performance GT racing for Lotus, following the summer launch of the Lotus Emira with its debut at Goodwood Festival of Speed. Lotus and RML Group most recently campaigned the Evora GT4, which won prestigious races and championships including in British GT, Dubai 24 Hours,

Barcelona 24 Hours, European GT, Sepang 12 Hours and the Pirelli World Challenge. Almost all modern Lotus road cars have had race-ready siblings, and with this GT4 concept, the Emira is no exception. Each customer car will be homologated, hand-built with lightweight motorsport components and equipment to meet the latest safety regulations. The Hethel UK-based development team has focused on precision engineering to deliver outstanding dynamics and high-speed stability. Advanced composite bodywork makes the car exceptionally lightweight and, coupled with Toyota's race-proven 3.5-liter V6 engine, and optimized GT4 aerodynamics derived from the road-going Emira's advanced exterior design, the Emira GT4 promises to be more than competitive. Lotus has had a reputation for racing success ever since founder Colin Chapman's hand-built Mark I trials car in 1948, and the company has pioneered many technical innovations that make racing the thrilling sport it is today. Their impressive honor roll includes seven Formula 1 Constructors' titles, six Drivers' Championships and the Indianapolis 500. Earlier this year, the company's return to world motorsport involved consultancy division Lotus Engineering becoming a technical partner to JBXE, the Extreme E race team led by F1 world

champion Jenson Button. The Lotus Emira GT4 will be officially launched late this year at an event on the Hethel test track, the 2.2-mile circuit that has hosted development of some of the world's most famous race cars. Lotus aims to build a limited number of Emira GT4 race cars for the 2022 season, then increasing production for 2023 in response to global demand. ■

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# GENESIS GEM

BY JOE SAGE

Genesis has been winning J.D. Power awards for years in a row now, just taking the top trophy for best premium brand for the fifth year, as well as tops in US Tech Experience for 2021. The new GV70 continues this trend, winning its category at the Texas Truck Rodeo, tops overall at the Northwest Outdoor Vehicle of the Year Awards (both in this issue), Motor Trend SUV of the Year, Top Safety Pick+ and many more. You could say we knew this before we knew it, finding it to be a very special vehicle during our first short off-road drive on a specialized course in Texas. We have now affirmed it during a week back home in Arizona. Fifth in a new lineup, GV70 has been preceded in rapid order by new G70, G80 and G90 sedans (see our July-August 2020 issue) and a new GV80 SUV (see July-August 2021), with the

promise of a sixth vehicle yet to join the fleet. We expected a GV90 full-size SUV, but see our News Update pages in the front of this issue for a peek instead at the upcoming GV60, an EV due in early 2022. (Their first EV, the Electrified G80, was revealed in Shanghai last spring.) This generation is instantly recognizable by its Crest Grille—a prominent V-shape at front bottom center—which we took to right away, making the prior grille look sliced off by comparison. The newest models are also recognizable by distinctive “Quad Lamps” clusters up front, with this design ethos echoed in the rear lights of the GV70, creating a comprehensive “Two Lines” effect tip to tail. The lights’ trimless flush fit adds to the magic. It’s a standout in an era when tail ends of many vehicles are almost indistinguishable.

GV70 brings a best-of-both feel to the matrix, as well, via a coupelike swoop to the side window line, yet with full SUV height for cabin and cargo. These style points will help you spot a GV70 immediately, from every angle, but this vehicle’s plus points go well beyond skin deep. Crosshatching in the grille, other inlets and even the wheels carries inside, from quilted leather in most (our package has suede inserts) to stylish and functional knurled cylindrical controls for many features. Precision geometry is balanced by ovaloid shapes, rich leather and carbon fiber finishes, and a tastefully small but wide screen up top that leaves a full-function center stack optimal. (If we changed one thing, it’d be the similar size, shape and location of the shifter and screen controller—way too easy to mistake in motion.) Features are many. While most instrument displays will vary by drive mode—mundane for comfort, racy for sport, informative for eco—the GV70 lets you choose different looks independently of this, one more example of user-centric thinking applied throughout. We played with the screen just to enjoy its subtle animated transformations. A



Key to the styling of the GV70 are its immediately recognizable Quad Lamps up front, now echoed in the rear, tying things together tip to tail in ways few do. These cues also reminded us of a Mandalorian helmet—Boba Fett’s gear when new—a pretty cool bonus. While paint is **Savile Silver** (a magical metallic that varies with light); the interior is a deep **Seville Red** (akin to the deep leather chairs in some very exclusive club).

right rear side camera contextually appears in the binnacle when changing lanes. Everything is precise, cleanly functional and offers a little extra. Although we had driven the GV70 at off-road comparos, this was our first time on pavement. We were in comfort mode with medium sound effects, by default, and found the ride quite sporty and its acoustics pleasing. Not always fans of drivetrain acoustic settings—just give us the real sound—in this, the options were all appropriate. The ride, handling and sound effects were so enjoyable, in fact, that we turned our first simple errand into an eight-hour drive up US 60 through

the Salt River Canyon and Apache nations, most of the way to Show Low. We would’ve completed a full Beeline Highway loop, but it was about to get dark for the elk stretch across the Mogollon Rim, so we doubled back via Miami and Superior. What a drive. Comfortable, sporty and with a great audio system to underscore it all. It’s clear the Genesis design and engineering teams gave extra thought to every detail in the GV70—and best of all, it’s from the owner’s point of view. Many of its individual elements may be found elsewhere, or not, but here the synthesis is quite complete—it all just clicks. ■



## SPECIFICATIONS

ASSEMBLY	.....Ulsan, South Korea
ROWS/PASSENGERS	.....two / five
ENGINE	...3.5L twin-turbo 24v DOHC V6 T-GDI
HP/TORQUE	.....375 hp / 391 lb-ft
DRIVETRAIN	.....AWD, electronic limited slip
TRANSMISSION	.....8-spd auto w paddle shift
SUSPENSION	.....F/R: multi-link, electronically controlled, with road preview
STEERING	.....R-MDPS rack-mounted electric motor-driven w variable gear ratio
BRAKES	.....front/rear disc; monobloc front
WHEELS	.....21" sport alloy wheels
TIRES	.....255/40 R21 102W Michelin Primacy Tour A/S
LENGTH / WHEELBASE	.....185.6 / 113.2 in
HEADROOM (F/R)	.....39.6 / 39.1 in
LEGROOM (F/R)	.....41.3 / 37.2 in
TURNING CIRCLE	.....37.8 ft
GROUND CLEARANCE	.....7.3 in
CARGO CAPACITY	.....28.9 / 56.9 cu.ft
WEIGHT	.....4354 lb
TOW CAPACITY	.....3500 lb
FUEL / CAPACITY	.....91 prem rec'd / 17.4 gal
MPG	.....19/25/21 (city/hwy/comb)

## BASE PRICE .....\$52,600

SAVILE SILVER (SSS) PAINT	.....500
SPORT ADVANCED PKG:	Nappa leather w sport pattern quilting (note: superseded in Sport Prestige pkg below), layered edge backlit trim, leatherette upper instrument & door panels, suede headliner, heated steering wheel, Lexicon 16-sprk premium audio, digital key, surround view monitor, blind spot view monitor, remote smart park assist, parking distance warning front, parking collision avoidance assist rear
SPORT PRESTIGE PKG:	21-in sport alloy wheels, electronic limited slip differential, Nappa leather w suede insert (note: Vanilla Beige not on ours retains Sport Advanced Pkg quilting), carbon fiber trim, 3-zone climate, heated 2nd row, manual rear side sunshades, 12.3-in 3D digital cluster, heads-up display
DESTINATION CHARGE	.....1045
TOTAL	.....\$64,045

## 2022 GENESIS GV70 LINEUP

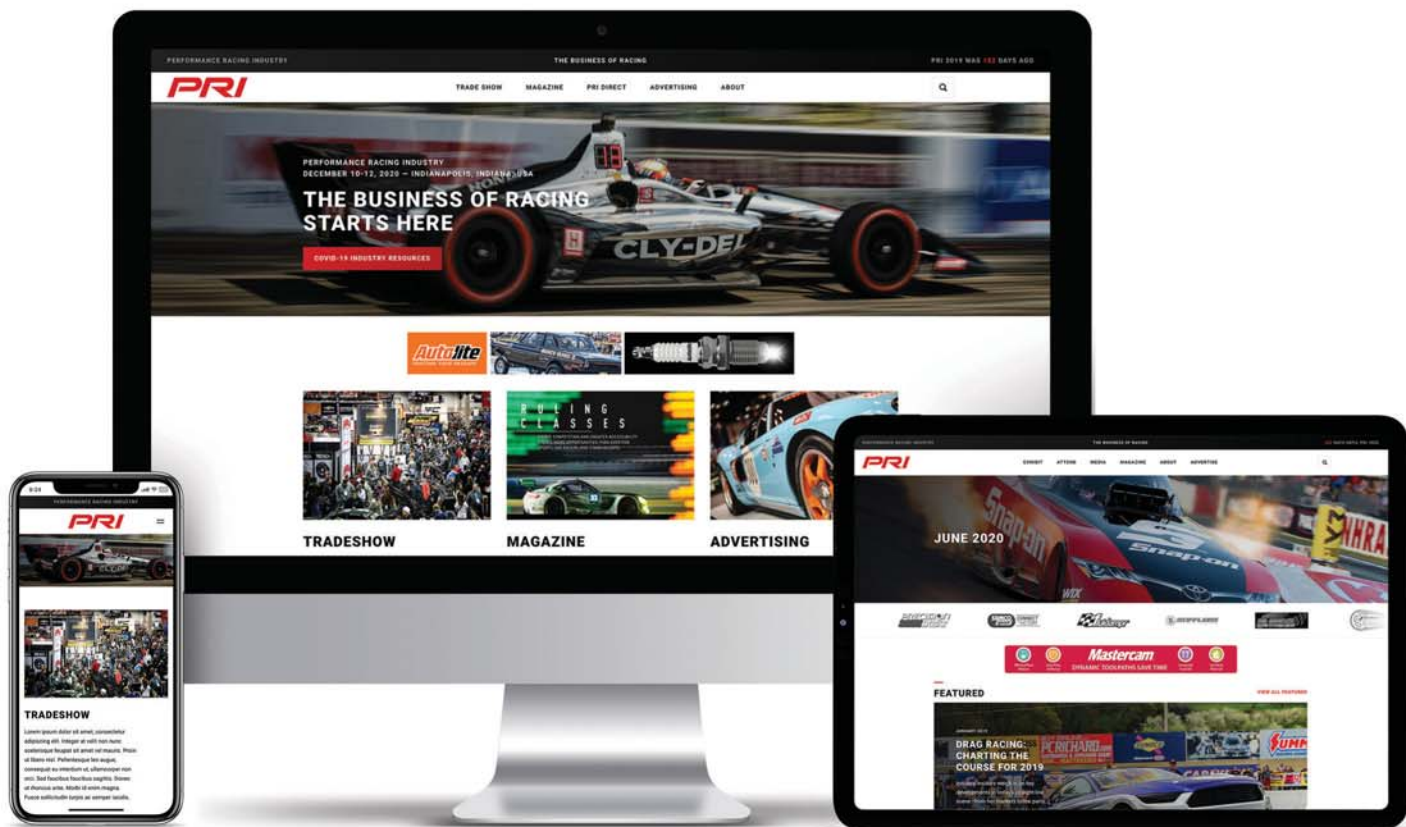
2.5T AWD ..Standard	.....\$41,000
.....Select	.....45,000
.....Advanced	.....49,150
.....Sport Prestige	.....52,750
3.5T AWD ..Standard	.....\$52,600
.....Sport Advanced	.....57,600
.....Sport Prestige	.....62,500





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## SPECIAL EVENT : BARRETT-JACKSON INAUGURAL HOUSTON AUCTION 2021



### Barrett-Jackson Inaugural Houston Auction 2021 Thursday-Saturday, September 16-18, 2021

NRG Center, 1 NRG Parkway, Houston TX 77054

BARRETT-JACKSON continued its season at full throttle during the Inaugural Houston Auction at NRG Center in Houston, September 16-18, 2021, with a 100 percent No Reserve docket and \$37.5 million in total sales. Strong prices for collectible vehicles, combined with tremendous turnout, led to many world records and showed a rising demand for American-made resto-mods, quality customs and vehicles with celebrity provenance.

On Friday, Craig Jackson was joined by Aaron Shelby, grandson of Carroll Shelby and board member of Carroll Shelby International, to present the 1967 Ford Shelby GT500 Experimental (EXP500) "Little Red," along with the only Shelby GT500 convertible built that same year, the first time these two vehicles were ever shown together in public.

A stellar group of vehicles crossed the block on Saturday, led by a 1979 Porsche 928 (Lot #749) driven by Tom Cruise in the film "Risky Business" that sold for \$1.98 million, becoming the world record auction sale of any Porsche 928 from any year.

Barrett-Jackson's first Texas auction had nearly 500 collectible vehicles bringing over \$35.4 million, with a 100-percent sell-through rate and 34 world-record auction sales—surpassing over 200 world records in 2021. The top vehicles sold included:

1. 1979 Porsche 928 "Risky Business" Movie Car .....(Lot#749).....\$1,980,000
2. 2019 Ford GT Lightweight .....(Lot #759).....\$1,199,000
3. 2019 Ford GT .....(Lot#748).....\$1,001,000

4. 1966 Shelby GT350 Sir Stirling Moss Race Car.....(Lot#741).....\$495,000
5. 2006 Ford GT .....(Lot #726).....\$440,000
- " 2006 Ford GT .....(Lot #728).....\$440,000
7. 2005 Ford GT .....(Lot #727).....\$412,500
8. 1963 Chevrolet Corvette Split-Window Custom Coupe...(Lot #733).....\$396,000
9. 1967 Ford Mustang Eleanor Tribute Edition .....(Lot #767).....\$357,500
10. 1967 Ford Mustang Eleanor Tribute Edition .....(Lot #443).....\$330,000
- " 1962 Chevrolet Corvette Custom .....(Lot #762).....\$330,000
12. 1956 Ford F-100 Big-Window Custom Pickup .....(Lot #756).....\$275,000

Automobilia featured 279 pieces bringing over \$1 million, the highest ever achieved during a non-Scottsdale auction. Top pieces included a 1940s-50s Flying A Service animated porcelain neon sign (Lot #7297) at \$77,050, and a 1950s Mobil Oil Pegasus left-facing animated porcelain neon sign (Lot #8299) at \$69,000.

Barrett-Jackson continued to trailblaze with the auction of two movie-themed Moto-club SparkNFTs for a combined \$14,000—the 1959 Cadillac "Ghostbusters Ectomobile" Re-Creation NFT (Lot #4001) at \$8,000 and the 1994 Toyota Supra from "The Fast & The Furious" franchise NFT (Lot #4002) at \$6,000.

On Saturday, Lot #3000, a 1956 Chevrolet 150 sold to benefit charity for \$425,000 and was immediately donated back, igniting a second round of bidding that raised an additional \$400,000. Another \$175,000 was donated, bringing the total raised from the sale of the Chevrolet 150 to \$1 million benefiting Honor Flight. To date, Barrett-Jackson has helped raise over \$135 million for charity.

Next for Barrett-Jackson is their 2022 Scottsdale Auction, January 22-30, 2022.

Next for Barrett-Jackson is their 2022 Scottsdale Auction, January 22-30, 2022.  
▼ [www.barrett-jackson.com](http://www.barrett-jackson.com)

Vehicle photos [2]: Barrett-Jackson Auctions





# Satisfaction

BY JOE SAGE

Rolls-Royce Ghost was introduced in 2009 as an alternative to the flagship Phantom, offering a smaller car at a lower price—all things being relative in this ethereal realm—yet boasting plenty of power, all enveloped in the hugely satisfying image and content the brand is known for and will surely never stray from.

More than a foot shorter, three inches lower and with a base price over \$100,000 less, Ghost is presented by Rolls-Royce themselves as bearing a “Post Opulent design philosophy, rejecting superfi-

cial expressions of wealth ... a response to a whole new generation of clients, both in age and attitude, [who] asked us for a slightly smaller, less ostentatious means to own a Rolls-Royce.” It has worked, with Ghost becoming the most successful model in the marque’s 116-year history.

Ghost strikes us also as a sedan-form echo of the similarly priced Wraith four-door coupe, while Wraith maintains its notable horsepower edge.

All are useful points of reference, though make no mistake: when you arrive in any Rolls-Royce, you will have arrived. Ghost’s formula of reduction while retaining substance is a philosophy of “less but better,” in turn invoking legendary architect Mies van der Rohe’s famous “less is more” dictum.

Get in—doors open and close electrically, at a

touch—and start driving, and you are definitely in that very special Rolls-Royce realm—experiencing dominating power with just the right level of reserved natural soundtrack, smooth as silk and completely wonderful. The interior’s serenity comes from components tuned to specific resonant frequency, i.e. noise-cancelling details throughout.

Reminiscent of the Starlight Headliner available in other models (up to 1600 pinpoint lights for over \$10k), the Ghost includes a dashboard nameplate surrounded by more than 850 illuminated stars.

Ghost has rear seat legroom and features to welcome the chauffeur-driven customer, with a Ghost Extended model available for those desiring even more. But its dynamic personality and powertrain are irresistible to most owners, with the vast majority in the US and Europe driving themselves.

While Rolls-Royce Ghost and Phantom bear different V-12 engines, both have the same horse-

power, 563, while the Phantom delivers a bit more torque, though both in the 600s. Surprisingly, Phantom weighs a mere 15 pounds more than Ghost.

First used on Phantom, then Cullinan, Ghost’s aluminum spaceframe architecture is unique to Rolls-Royce; its weight savings leaves headroom for super-luxury finishes, while its strength and rigidity form the basis for advanced all-wheel drive and all-wheel steering.

Nothing about Rolls-Royce is superficial. The incredible amount of energy and expertise that goes into each car’s build first goes into engineering, through and through. A significant portion of the Ghost’s demeanor comes from its new Planar Suspension System (see sidebar on next page), ten years in the making. An all-wheel-drive high performance vehicle is always a good candidate for maintaining a firmly planted stance in all conditions. Add Planar Suspension, and this hits a new level, especially notable in a vehicle this large.

For a taste of the open road, we headed out for a loop through Fountain Hills and Rio Verde. This

was a great trial for any Magic Carpet Ride, as it includes hill and dale and plenty of curves—all of which were executed with smooth power and notable erasure of counterproductive centrifugal or other outside forces, leaving just exuberance and precision control. We were so enthralled by the power and suspension, the run from Fountain Hills to Rio Verde so glorious, that the miles just disappeared. Instead of a loop, we turned around and burned back the way we had come.

Our time is inherently limited, but imagine ownership of such a beast. One of the classic car magazines once described one of the first all-wheel-drive performance sedans as the perfect vehicle to drive from Prudhoe Bay to Tierra del Fuego. We recalled this while thinking it would be great to drive the Rolls-Royce Ghost from, say, Santa Monica to Kennebunkport (and if you could do it at 120 mph, all the better).

The full Rolls-Royce Ghost experience—from cabin to ride engineering—comes through equally in town or wide open out in the world. Each ele-

(cont’d)



## SPECIFICATIONS

ASSEMBLY .....	Chichester, Great Britain
PARTS CONTENT .....	60% Germany, 15% UK, 5% US/Canada
ENGINE .....	6.75L 48v dir in twin-turbo V12
COMPRESSION RATIO .....	10.1:1
HP/TORQUE .....	563 hp / 627 lb-ft
DRIVETRAIN .....	AVD (variable from 100% rear bias to 50/50)
TRANSMISSION .....	ZF 8HP90 8-spd satellite-aided automatic
FINAL DRIVE RATIO .....	2.813
TOP SPEED .....	(governed) 155 mph
ZERO-TO-60 MPH .....	4.6 sec
AERODYNAMICS .....	drag Cd 0.33
SUSPENSION .....	F: dbl wishbone; R: five-link; Planar Susp System (sidebar, next page)
STEERING .....	all-wheel steering with active rear axle steering
BRAKES .....	power-assist vented discs all wheels, 4-channel ABS, brake energy regeneration, dynamic brake control, dynamic stability control incl dynamic traction control & cornering brake control
WHEELS (F/R) .....	F: XL 8.5x21 / R: XL 9.5x21
TIRES (F/R) .....	Pirelli P-Zero F: 255/40 R21102Y / R: 285/35 R21105Y
TRACK (F/R) .....	65.9 / 66.9 in
LENGTH / WHEELBASE .....	219.0 / 129.7 in
HEIGHT / WIDTH .....	61.85 / 84.6 in
TURNING CIRCLE .....	42.7 ft
DOORS / ROWS / SEATS .....	4 / 2 / 5 seats
HEADROOM (F/R) .....	40.9 / 39.1 in
LEGROOM (F/R) .....	41.6 / 41.9 in
CARGO CAPACITY .....	17.7 cu.ft
WEIGHT .....	5628 lb
PAYLOAD / GVWR .....	1102 / 6900 lb
FUEL / CAPACITY .....	premium unl 95 oct / 91 ok
FUEL CAPACITY .....	19.8 gal
MPG .....	12/19/14 (city/hwy/comb)
<b>BASE PRICE .....</b>	<b>\$332,500</b>
<b>GHOST PKG:</b> lambswool footmats; rear theatre configuration; black contrast seat piping; illuminated “Ghost” treadplate; Arctic White “RR” monogram to all headrests; illuminated grille; tailored purple colored stitching; Module Editing bespoke interior .....	31,125
<b>MAIN PAINT COLOR:</b> Arctic White .....	nc
<b>COACHLINE COLOR:</b> Black .....	nc
<b>INTERIOR COLOR:</b> Arctic White, Black .....	nc
<b>WHEEL CENTERS:</b> Black pinstripe .....	2475
<b>WHEEL CENTERS:</b> matched to wheel .....	1275
<b>COACHLINE:</b> long, single .....	1850
<b>UP-LIT “SPIRIT OF ECSTASY”</b> .....	4800
<b>VENTILATED REAR SEATS</b> .....	1925
<b>REAR MASSAGE SEATS</b> .....	nc
<b>HEATED PASSENGER SURROUND</b> .....	2625
<b>INDULGE BESPOKE CLOCK</b> .....	6200
<b>ILLUMINATED FASCIA</b> .....	5000
<b>SoE EMBOSSED ON DOORS</b> .....	2050
<b>SoE EMBOSSED ON PICNIC TABLES</b> .....	1525
<b>EXTENDED BLACK PIPING</b> .....	2150
<b>INSTRUMENT PANEL:</b> inner stitch .....	850
<b>OPEN PORE OBSIDIAN AYOUS</b> .....	3200
<b>STEERING WHEEL:</b> veneered spokes .....	1200
<b>VENEER:</b> extended Open Pore application .....	3525
<b>IMMERSIVE SEATING</b> w occ. third seat .....	10,425
<b>UMBRELLAS:</b> black Commissioned Collection, secondary color Arctic White, bead color Arctic White, handle Black .....	1600
<b>GAS GUZZLER CHARGE</b> .....	2600
<b>DESTINATION CHARGE</b> .....	2750
<b>TOTAL .....</b>	<b>\$440,225</b>





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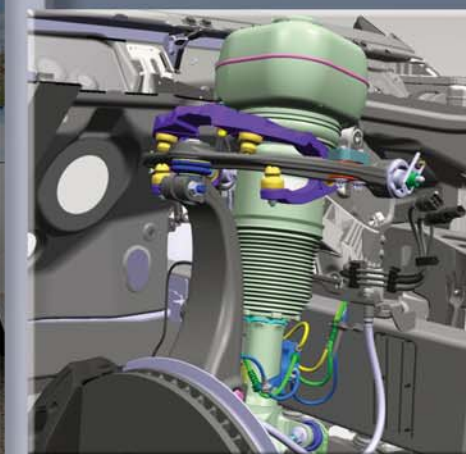
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### PLANAR SUSPENSION SYSTEM



ment—from engineering to your personal immersion—crosses a subtle yet significant threshold from routine to magnificent, the whole point of the Rolls-Royce brand.

For anyone who has driven the big American cars of the '60s through '80s and lingering beyond, this is a familiar size, though in today's world it bears impressive stature. Ghost's form and presence are sure appeal to a great many, including their target: those who may have shied away from the Rolls-Royce brand in the past. Much like Queen Elizabeth in a modest tiara, you can be king or queen of your realm without flashing your fanciest crown and with your most effective weaponry always at the ready but discreetly out of sight.

### This just in: Black Badge Ghost announced

If you are still enticed by the higher power of the Phantom, meet the Black Badge Ghost, announced just as we were going to press.

Promising "the dark side of Post Opulent design," its enhanced 6.75-liter V12 beats both the standard Ghost's and the Phantom's horsepower, at 591, up from 563 (still shy of Wraith's 624 hp), and matches Phantom's 664 lb-ft of torque (beating Ghost's standard 627). Drivetrain and chassis are re-engineered accordingly, and style and finish points reflect Black Badge caliber. Rolls-Royce CEO Torsten Müller-Ötvös calls this "the purest Black Badge motor car in the marque's history." ■

The new Rolls-Royce Ghost bears a new development in the brand's renowned Magic Carpet Ride: a completely redesigned Planar Suspension System, the result of ten collective years of testing and development. Named for a flat, level geometric plane, the system aims for a sense of flight on land.

Created through hands-on effort, sophisticated scanning and software technology, it incorporates an even more stable and effortless world's-first upper wishbone damper unit—which itself took five years of road and bench testing—above the front suspension assembly, which works with cameras and a satellite aided transmission to read the road ahead, anticipate and prepare the suspension system for any changes, and react to the most demanding road surfaces.

A Rolls-Royce exclusive, never before applied to a production car, this improves performance of electronically controlled continuously variable shock absorbers and self-leveling high-volume air strut assemblies.

A five-link rear axle benefits from the same self-leveling high-volume air suspension technology, as well as rear-wheel steering, with both axles managed via software. This also governs other chassis technologies, including the all-wheel drive, all-wheel steering, stability control and self-drying braking systems, to ensure the car reacts "as one" to changes in surfaces or grip, while maintaining a spirited, dynamic personality.

The Planar system also manages data to proactively adapt to intrusions in the road ahead. Its Flagbearer system, named in honor of early laws requiring someone to walk ahead of a car, carrying a red flag, has a stereo camera system integrated in the windshield to see the road ahead, adjusting suspension proactively rather than reactively up to 62 mph. Second is the satellite aided transmission system, which draws GPS data to pre-select the optimum gear for upcoming corners. The result is an unprecedented level of comfort and control. ■





# Generations

BY JOE SAGE

It's unusual to receive a 2020 model in late 2021, but a quick check reveals the Kia Sportage is unchanged for 2021 and in fact 2022 (these each offer special packages). The 2020 was a refresh revealed at the Chicago Auto Show in early 2020 (the last event we flew to before pandemic lockdowns). Research showed a very different styling refresh in Europe for 2021 and another very different one for China. What might be in store for us? That question was answered just before this issue went live (see sidebar). But for now, all observations of this 2020 model remain current.

Kia Sportage has been with us since 1993, with the shorter of two versions sitting on just a 92.9-inch wheelbase (smaller than the newer little Kia Seltos). In line with industry trends, Sportage today is within an inch or two of the bigger Sorento

when it was new in 2002. Though still notably small when launched in 2015, the same Sportage today is now in a solid position among the most popular segment of all, compact crossovers. And its styling, dramatically different at launch, is now—by familiarity, industry evolution, or a bit of both—quite mainstream, if still satisfyingly edgy.

All of this adds up to a vehicle with size, style and function that are more current than ever.

The user interface is easy and effective (we used the steering wheel controls and binnacle display more than the big screen). Best of all, controls include knobs and hard switches for climate and infotainment, far less distracting, as you can do more by blind touch than via a touchscreen when driving. If we found something we wanted to turn off, we'd generally instead find a setting that mitigated it, even better than sacrificing a function (with occasional exceptions—we always envision interesting testing and engineering discussions). Although SX is the top trim, there are a few unex-

pected shortcomings, such as a one-touch driver's window but not passenger. We're always happy to see inclusion of Harman Kardon premium audio, in this case a 320-watt system with eight speakers and subwoofer plus CLARI-FI technology—optional on EX, standard on top-trim SX, replacing a 160-watt six-speaker system on the lower two trims. Sportage SX also includes cooled seats, until recently only found on top-dollar vehicles.

SX is the only trim which replaces the base 181-hp 2.4L four-cylinder with a 240-hp 2.0L turbo. All have a six-speed automatic (unspecified but presumably the same). We'd recommend the SX for its engine, if possible, though we'd love to see an ungraded transmission with it—the powertrain's weak point was often revealed with a dip and a surge at that critical point of making a surface street turn and accelerating.

We've had plenty of time to get used to the styling that seemed odd at birth, helped along by our sample's soft, rich Pacific Blue, which turns es-



pecially magical at dawn and dusk, showing off its shapely bodywork and enhancing its stance atop the 19-inch wheels exclusive to SX. Color does make a difference and in this case helped win us over to the vehicle overall in a pretty big way. An interesting angle on this is that as soon as the 2023 hits the roads, this and the prior generation, which we had still preferred for awhile, will both be on a level playing field worth a revisit.

For now, there's plenty of time to get your hands on this instant classic, through 2022. ■

## SPECIFICATIONS

ASSEMBLY	.....Gwangju, South Korea
ENGINE	.....2.0L GDI turbo 16v DOHC
HP/TORQUE	.....240 hp / 260 lb-ft
COMPRESSION RATIO	.....10.0:1
DRIVETRAIN	.....(FWD standard) AWD
TRANSMISSION	.....6-spd automatic
SUSPENSION	.....F: MacPherson strut; R: multi-link; gas shocks
STEERING	.....motor pwr-assist rack & pinion
BRAKES	.....F: 12.6x1.1; R: 11.9x0.4
WHEELS / TIRES	.....7.5Jx19 alloy / P245/45 R19
LENGTH / WHEELBASE	.....176.4 / 105.1 in
GROUND CLEARANCE	.....(FWD 6.4) AWD 6.8 in
APPR/DEP/BRKOVER (AWD)	.....28.0 / 24.6 / 19.5°
TURNING CIRCLE	.....34.8 ft
HEADROOM (F/R)	.....(w snrf) 37.6 / 37.9 in
LEGGROOM (F/R)	.....41.5 / 38.2 in
CARGO CAPACITY	.....30.7 / 60.1 cu.ft
WEIGHT	.....3765-3997 lb
TOW CAPACITY	.....(wo/w brakes) 1653 / 2000 lb
FUEL / CAPACITY	.....reg 87 octane / 16.4 gal
MPG	.....19/24/21 (city/hwy/comb)

BASE PRICE (2020)	.....\$35,090
SX AWD ADDS:	2.0L turbo engine, 19" alloys, smart cruise w stop/go, electronic parking brake, front/rear park assist, keyless entry/start & smart welcome, pano sunroof w rails, 8" touchscreen w nav, UVO link (incl trial), color meter cluster, Harman-Kardon premium audio, leather, power, heated/vented front seats, heated steering wheel, wireless phone charge, dual-zone auto climate, auto-dim mirror w HomeLink, LED heads, fogs, tails, hands-free power liftgate.
OPTIONS:	cargo mat (95), carpeted floor mats (135), cargo net (50), cargo cover (150), cross bars (225).....total 655
TOW HITCH	.....425
DESTINATION CHARGE	.....1120
TOTAL	.....\$37,290

## SPORTAGE LINEUP / 2022 PRICING

	FWD	AWD
LX	2.4L \$24,090	\$25,590
Nightfall	2.4L 28,090	29,790
EX	2.4L 28,390	29,890
SX	2.0 Turbo 33,750	35,250

## Meet generation 5

When we received a 2020 Kia Sportage for review in late 2021, as others' 2022 models were being released, we learned Sportage would be unchanged for those three years and wondered what would be next. A little digging turned up the latest from China (top photo) and Europe (second photo). Then we learned the 2023 Sportage would be revealed on October 27—and here it is (third photo, Sportage X-Pro shown).

Looks like Europe wins, though with a different lower front fascia for ours. Retaining a nod to Kia's long-running "tiger nose" grille and bearing "boomerang" DRLs defining headlight clusters in a more conventional position than the outgoing model, the 2023 Sportage's skin is more angular, described by Kia as "sharp and strong."

Sportage continues to grow in size, the 2023 being 7.1 inches longer than the current generation, as well as taller and wider, producing a current claim of best-in-class rear legroom and cargo capacity. Despite its growth in size and a new 187-hp (preliminary figure) 2.5L engine, Kia anticipates eight percent better fuel mileage.

Also revealed was its new Kia Connect interface to supersede the UVO system. Trims will include LX, EX, SX and SX Prestige, as well as three "adventure ready" trims: X-Line and new X-Pro and X-Pro Prestige (AWD versions also have 1.5 inches of increased ground clearance). Most will be built alongside K5, Sorento and Telluride at Kia's West Point, Georgia plant. ■



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# THE MAGIC NUMBER: 520

LUCID AIR DREAM EDITION ACHIEVES 520-MILE RANGE; 520 RESERVATION HOLDERS TAKE DELIVERY

The new Lucid Motors greenfield manufacturing plant in Casa Grande (see our January-February 2021 cover feature) is getting down to work, fresh off EPA range testing of its latest upcoming models.

The new Lucid Air Dream Edition Range received an official rating of 520 miles of range—the longest EV range ever rated by the EPA, at least 100 miles more than its closest competitor—while still delivering 933 horsepower. This sits alongside the 1,111-hp Lucid Air Dream Edition Performance and the 800-hp Grand Touring versions, both of which have also now received top official EPA range ratings.

With all three models tested on both 19- and 21-inch wheels, the Lucid Air line-up now occupies the top six positions for overall EPA range ratings among all EVs, as well as the highest MPGe ratings in the Large vehicle class.

Putting the numbers to a real world test, Lucid recently completed a first drive with Motor Trend in a pair of Dream Edition Range cars—one driven by Motor Trend, one by Lucid's CEO—from Los Angeles to San Francisco at highway speeds, then across the San Francisco Bay to Lucid's global headquarters in Newark, California, in the East Bay, all without stopping to charge and with plenty of range remaining on each.

Lucid has thus far received more than 13,000 reservations for the Lucid Air. In commemoration of the 520-mile range achievement, Lucid began confirming the plans of existing Dream Edition reservation holders across North America, preparing to deliver 520 Lucid Air Dream Edition luxury EVs to waitlisted reservation holders who are ready to configure and buy their car. Customers can choose between

the 520-mile range of the Lucid Air Dream Edition Range or the 1,111 horsepower of the Lucid Air Dream Edition Performance. Both are available in a choice of Zenith Red, Infinite Black, Stellar White or Dream Edition-exclusive Eureka Gold.

Lucid held a special invite-only Dream Delivery event in California on October 30, with the first group of Dream Edition reservation holders invited to see their vehicle revealed and take delivery of their vehicle in person, after which they could drive home in their personally-configured Lucid Air Dream Edition in their preference of the Range or Performance model.

Lucid plans to complete delivery of the 520 customer-configured Lucid Air Dream Editions, then start of deliveries of Lucid Air Grand Touring versions. Touring and Pure models are anticipated for delivery to customers during 2022. ■





# Dazzling base model in a gotta-have-it lineup

BY JOE SAGE

Mercedes-AMG continues to expand its offerings, adding this new base model to its four-door coupe GT lineup for 2021. Complexities present themselves immediately—on the one hand, from the relationship of the GT four-door lineup to the two-door GT roadster and coupe lineup; on the other hand from a degree of overlap with the Mercedes-Benz four-door coupe lineup; and on the third hand, among the GT four-door models themselves.

Setting aside any deeper GT discussion, suffice it to note that the GT four-doors have little in common with the two-doors beyond personality and a general penchant for performance.

We can also set aside the Benz-based models to a

pretty good degree, though you'll see in our chart (facing page) that it's hard to ignore them completely. The AMG CLS 53 in particular (based on Mercedes-Benz CLS, in turn based on E-Class) is in many ways a close contender to the AMG GT 53, at a lower price. (To reduce confusion, AMG CLS is currently 53-only.) Similarly, if looking to spend top dollar, you will likely find the AMG GT 63 S and the AMG S 63 Coupe a compelling comparo.

For our task at hand, the same chart gives a quick look at the most obvious stairsteps of price and performance for the formerly three, now four and soon to be five AMG GT four-doors. These are all the same size and come in the same elegant shape. Finish points and features vary up the chain

as you would expect, while even the base model delivers pure Mercedes-AMG luxury performance.

And that's the one we have here—the new AMG GT 43, slotting in just about \$10 grand lower than a GT 53 in a lineup that now almost doubles in price from the GT 43 at the bottom to the GT 63 S at the top overall.

You'll note the familiar AMG subset of biturbo V8s being AMG Hand Crafted wonders, while the turbo sixes for GT 53, 63 and 63 S are "AMG-enhanced" and also bear Mercedes-Benz EQ Boost systems for performance and fuel economy.

The price point for the new GT 43 brings a third engine build to the matrix—a 3.0L turbo six, just not the AMG-enhanced version. (Had the 43 been

## MERCEDES-AMG GT 4-DOOR COUPES + TWO COUSINS

- All are 2021 prices; GT 63 S E Performance will be a 2023 model.
- 2023 GT 63 S E Performance information is European spec; US specs to be confirmed closer to model launch.

	ENGINE	HP	LB-FT	0-60 (SEC)	CITY/HWY MPG	
<b>AMG GT 43</b> ▼	3.0L turbo I-6	362	369	4.8	20/25	<b>\$89,900</b>
<b>AMG GT 53</b>	3.0L turbo I-6	429	384	4.4	20/25	<b>99,950</b>
<b>AMG GT 63</b>	4.0L biturbo V8	577	590	3.3	16/21	<b>140,600</b>
<b>AMG GT 63 S</b>	4.0L biturbo V8	630	664	3.1	16/21	<b>161,900</b>
<b>AMG GT 63 S E Performance</b>	4.0L biturbo V8	831	1,033	2.9	tbd	<b>tbd</b>
<i>(compare)</i> <b>AMG CLS 53</b>	3.0L turbo I-6	429	384	4.3	21/26	<b>81,550</b>
<i>(compare)</i> <b>AMG S 63 Coupe</b>	4.0L biturbo V8	603	664	3.4	16/26	<b>173,100</b>

- 4.0L biturbo V8 engines are AMG Hand Crafted. • Most 3.0L turbo inline-6 engines are AMG-enhanced with EQ Boost, except for the new GT 43 drive here, which is not AMG-enhanced but is mild hybrid.
- All have AMG Speedshift® 9-speed TCT or MCT automatic. • All have AMG Performance 4MATIC+ all-wheel drive.

in the lineup first, the 53 would boast being tuned for higher performance; with the 53 having come first, the distinction is quietly the inverse.)

All those variables may make choosing among them sound easy, or perhaps just the opposite. It's a case study in why we have choices—just when you think one is obvious, there's another that may be moreso, whether higher or lower in the pecking

order. The best news is that however heavily you sweat the decision, you will leave the dealership with years of blissful performance in your hands, and that certainly includes leaving with the title to a new AMG GT 43.

Let's hop in.

We first noticed that, unlike most recent Mercedes-Benz vehicles with gears operated by a right-

(cont'd)



## SPECIFICATIONS

ASSEMBLY	Sindelfingen, Germany
ENGINE/TRANSMISSION	Germany
BUILD	steel unibody, aluminum and steel outer sheet metal
ENGINE	3.0L inline-6 DOHC 24v turbo w EQ Boost mild hybrid drive, alum/alum
HP/TORQUE	362 hp / 369 lb-ft
+ EQ BOOST	up to 21 hp
COMPRESSION RATIO	10.5:1
REDLINE	6800 rpm
DRIVETRAIN	AMG Performance 4MATIC+ variable all-wheel drive
TRANSMISSION	AMG Speedshift TCT 9-spd w wheel-mounted paddles
ZERO-TO-60	(est) 4.8 sec
TOP SPEED	(elec lim) 168 mph
SUSPENSION	F: indep multi-link w coil, single-tube shock w continuously adjustable damping, solid torsion bar; R: indep multi-link w coil, single-tube shock w continuously adjustable damping, tubular torsion bar
STEERING	speed-dependent electro-mechanical rack & pinion
BRAKES	F: 14.2/1.4; R: 14.2/1.0
WHEELS	F: 19x9.5; R: 19x11
TIRES	F: 255/45R19; R: 285/40R19 Michelin 4S summer performance
LENGTH / WHEELBASE	199.2 / 116.2 in
TURNING CIRCLE	41.3 ft
HEADROOM (F/R)	tba / tba in
LEGROOM (F/R)	41.7 / 35.5 in
CARGO CAPACITY	12.7 cu.ft
GROUND CLEARANCE	tba
WEIGHT	4530 lb
FUEL CAPACITY	21.1 gal
MPG	20/25/22 (city/hwy/comb)

BASE PRICE	<b>\$89,900</b>
BRILLIANT BLUE METALLIC	720
INTERIOR: Auburn Brown and Black exclusive Nappa leather	2850
AIR BALANCE FRAGRANCE / ION PKG	350
21" AMG FORGED WHEELS: cross-spoke w grey accents	3450
MBUX AUGMENTED VIDEO	350
AMG PERFORMANCE EXHAUST	1850
AMG DRIVE UNIT STRG WHL BUTTONS	400
HEATED/VENTED FRONT SEATS	450
FIXED PANORAMA ROOF	2100
SURROUND-VIEW CAMERA	500
AMG LIGHT DISPLAY	250
BLACK DINAMICA HEADLINER	1600
MBUX INTERIOR ASSISTANT	200
USB-C ADAPTER CABLE	25
DRIVER ASSISTANCE PKG: active Distronic distance, steering, lane change, emergency stop, speed limit, brake (w cross-traffic function), evasive steering, lane keeping and blind spot assist; Pre-Safe Plus rear collision protect; route-based speed adapt	1950
DESTINATION CHARGE	1050
<b>TOTAL</b>	<b>\$107,995</b>





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hand stalk behind the wheel, the shifter in this is in a more conventional spot on the console, though it's more of a dynamic joystick than a traditional lever, giving it more of a trackpad feel.

Drive modes are plentiful, including a customizable individualized setting. Console storage is generous, including cavernous multi-use cupholders.

The interior bears numerous high-end satin silver metal parts and surfaces, including controls—stylish, but on a 110-degree day here, just flat-out too hot to touch, even in the shade. You need to either cool the cabin down or, since the outside door handles have the same issue, do as we did all week, bring along a pair of thin leather gloves.

Behind the wheel, we immediately knew we had something special in our hands. This may be the smallest powerplant in the family, but 4.8 seconds to 60 mph is exhilarating and impressive anywhere short of the dragstrip. It's certainly plenty around town, zipping responsively from block to block, even in default comfort mode. Rip-roarin' up a freeway ramp, you may ask yourself what you could even do with all those other horses, though you'll get a hint from our chart, with acceleration times just above three seconds for the GT 63 S or just under for the upcoming 63 S E Performance.

Trust the Germans to come up with exactly the right sound for any powertrain, and this all-wheel-drive six is no exception, eschewing artificial big

engine effects popular with some brands, rather delivering a satisfying genuine sound and feel.

We did try the GT 43 in sport and sport plus, and fancied that to be somewhat like going from the GT 43 to the 53 to the 63. You can do the same in the 53, 63 and 63 S, of course, so it's for you to decide where your satisfaction levels lie.

We're performance freaks with the best of 'em, but we recall that when the SL roadsters offered a 12-cylinder, we appreciated the V8 for its weight distribution and handling. The AMG GT four-doors are all 4MATIC or 4MATIC+ all-wheel-drivers, but the inline-six versions offer a similar comparative.

Mercedes recently vowed to thin out its lineup, knowing full well they just may have too many for many customers to put their heads around (or for most dealers to inventory). But if you were a product planner, which would you get rid of? None of them, of course, and that in a nutshell is why the GT four-door lineup is broad and growing broader. (See our sidebar, as it grows by yet another.)

If you didn't know the others existed, the GT 43 would suitably blow you away and satisfy your soul. As you do know they exist, go look at them at your own peril—you can no doubt successively fall in love with each one. But in the back of your head, you'll remember this one was pretty incredible itself, and it's the least expensive of the four.

Owning the least expensive unit in the lineup could make some people feel they're coming up short. Forget that. Just as easily, it can leave you feeling like the smartest kid in the class. ■

**MEET GT 63 S E PERFORMANCE**

For those who just have to have the highest of the high end—or are just curious—meet the Mercedes-AMG GT 63 S E Performance, recently announced for the European market. The first performance hybrid from AMG enters series production drawing upon technologies from Formula 1. The combination of an AMG 4.0-liter V8 biturbo engine and electric motor generates a system output of 831 hp and a maximum system torque above 1,033 lb-ft (per European specs). The distinctive drive layout features an electric motor and battery on the rear axle, along with a high-performance battery developed in-house, a formula promising immediate response at the rear axle and rapid torque build-up from the electric drive, along with improved weight distribution, engineered to deliver superior performance and maximum efficiency for a new, highly dynamic driving experience. As in Formula 1, the battery is specifically designed for fast power delivery and draw. A fully electric range of about seven miles allows a useful operating radius in the urban or residential areas. The car is due in the US for model year 2023.





# CUTTING EDGE IDEAS AND FUNDAMENTAL PURPOSE

BY JOE SAGE

Atlis Motor Vehicles' headquarters in Mesa was brand new when we visited this fall—or almost so. They moved in in February 2020, just in time for the pandemic, nonetheless growing from 16 to 50 employees that summer. Personnel were busily at work among clusters of computers, hardware, wires and parts in a large volume of as-yet undifferentiated interior space, while on the far side sat a shiny new prototype electric truck.

We met with CEO and founder Mark Hanchett and president Annie Pratt, mechanical engineers with deep backgrounds in hardware, software and firmware, who previously worked together at public safety technology firm Axon in Scottsdale.

Atlis is an independent manufacturer tackling the growing EV battery and vehicle markets (see our January-February issue). Their plan for an electric pickup has made waves along with other start-ups, spinoffs and conventional automakers. But Atlis's business extends beyond this truck—just as significant is the battery technology at its core.

Despite the apparent size, scale and glory of the truck manufacturing business—and the truck itself—Hanchett emphasizes that Atlis considers itself a mobility technology company, not an automaker, and the truck we were here to see, more a tech development platform than a vehicle prototype. The battery system is the heart of the endeavor, the truck a great way to show it all off.

## ENERGY: BATTERY TECH

At the center of the project is the proprietary AMV battery pack, under development since 2016 and said to be the first ever developed and produced specifically for automotive purposes. "Existing cell designs are standardized for consumer electronics, developed and manufactured in a configura-

tion which is not ideal for an automotive application," they say. "Our battery technology meets the needs of the automotive industry, versus adopting and accepting those limitations." Atlis holds 30 provisional patents across their battery, charging, drivetrain and user experience technologies.

At the center of the battery pack is the small cube cell Hanchett holds at upper right, a tabless-anode and -cathode, prismatic design nickel magnesium cobalt (NMC) 32Ah unit with energy density greater than 500Wh/L. Proprietary extreme heating and cooling during its charge cycle achieves optimal performance at high speed. Via the Atlis 1.5 Megawatt charging port, you can consistently recharge a big truck to 100 percent in 15 minutes—comparable to refueling at the pump. Cells and

Top to bottom) Atlis President Annie Pratt and CEO and founder Mark Hanchett, as Hanchett shows off the heart of the whole endeavor: a single AMV cube cell. // Atlis XT's interior is clean, task-oriented and thoroughly modern in execution. // One of many thoughtful features courtesy of a seasoned truck guy: step-up access all the way around the bed.

packs promising 2000 rapid charge cycles are being developed in 150, 200 and 250 kWh capacities with 300-, 400- and 500-mile range.

Parallel to this is development of 1.5MW charging stations, nonexistent to date for lack of such batteries. It's an entire ecosystem. Atlis battery packs offer solutions for residential customers, on up to commercial customers with huge energy storage needs—from big corporations and fleet-based businesses, right on up to utility companies.

## PLATFORM: ATLIS XP

Atlis will sell their pickup's high-payload EV platform (or "skateboard") freestanding to coachbuilders of medium-to-heavy-duty Class 2b to Class 6 vehicles—box trucks, delivery trucks, dump trucks, cranes, emergency response vehicles, RVs and more—as well as to alternative mobility markets.

The Atlis XP platform has a 144-inch-minimum wheelbase, all-wheel drive via four independent PMSM traction motors, four-wheel independent air suspension, four-wheel independent regenerative

(cont'd)



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braking, 12 inches of ground clearance, 10 inches of wheel travel, and can handle per-axle loads of 10,000 pounds and 5,000-lb payload, with goose-neck tow capacity up to 35,000 pounds.

Basic performance is 600 hp with 12,000 lb-ft of peak torque at the wheels, a top speed of 120 mph, and zero-to-60 acceleration in 5.0 seconds.

Batteries can be charged via J1772, CCS 2.0, or in 15 minutes via AMV's 1.5MW charge port. With power to spare, external work outlets include 120 or 240V AC, 48 or 12V DC, and 5V DC USB.

### EV PICKUP: ATLIS XT

All that battery and platform work leads to the Atlis XT pickup. Or the pickup led to all of that, depending upon point of view.

The whole idea was born, you see, as Mark Hanchett contemplated his own GMC diesel pickup, everything he loved about it, and everything he wished were different, the same thing most of us do with our own vehicles. But he had the background to set out to do it all better.

His premise included going electric, which he considered a big step forward, founded on a determination to build "a solution that solves the biggest pain points in the electric vehicle market today." A truck guy at heart, he has geared it toward "the work segment, not fancy trims. Farms. Construction. Trucks used for a purpose."

Using AMV's own proprietary battery and ultra-fast charging technology, atop modular system architecture, Atlis XT aims to be the world's first 500-mile, all-electric pickup truck to meet the size, refueling, towing and payload capabilities of legacy diesel-powered vehicles.

Our point-by-point tour of the truck's prototype showed off not only the big picture solutions, but a stunning attention to detail. You know how you spend time with your own vehicle, thinking, "I wonder why they don't..." or "I wish they would..." or "you know what would be a very cool idea?" Hanchett thinks like this—and acts on it. As you can see by just a small sampling of innovative features in our photos, this is a "wow, that's a great idea" vehicle from stem to stern.

In addition to the impressive powertrain and chassis stats for the platform, above, the truck has unmistakable styling, a cockpit with customizable soft keys, 360-degree surround cameras and bed camera to monitor cargo, and—its work ethos being about more than just style—maximizes utility, comfort and storage, and is easy to clean.

The front trunk (frunk) has 18.5 cubic feet of storage, said to be the largest in the market today. Bed sizes are 6.5 or very welcome eight feet. Cabs seat three or six. Configuration options range from pickup to service body to flatbed, perfect for fleet owners, workers and tradespeople who need the

(Top to bottom, left-right) Atlis CEO Mark Hanchett powers up a welder and performs some tasks, using the frunk's high-powered outlets. // Adaptable to the width demands of trailering or not, video mirrors are on retractable stalks. // The AMV 1.5MW charging port on the front left fender. // XT has four-wheel independent air suspension. // Even the windshield washer fluid reservoir has easy and clean outside access. // AMV's new headquarters in Mesa.

ability to change the overall configuration.

As impressive as the truck's up-to-500-mile range is its projected million-mile lifespan.

Atlis has also developed a subscription ownership model, with a starting rate of \$700 per month including everything from warranty, to registration and insurance, to routine maintenance and inspections, all in one consistent negotiation-free payment, with the flexibility to change or cancel at any time, or to get a new vehicle every three, five or seven years. The plan also includes unlimited free charging at Atlis advanced chargers.

### CROWDFUNDING

Atlis has avoided going the venture capital route, very understandably preferring not to cede that level of ownership and control. Late this summer, they launched a \$5-million-dollar share-based equity crowdfunding campaign within Securities Act regulations, funds earmarked for battery engineering team expansion, additional testing and validation equipment, raw materials purchases, additional production-level design for the XP platform, and expanded sales and marketing efforts.

The company, as of September valued at \$385 million, had already attracted over \$16 million in previous crowdfunding, toward developing its proprietary EV battery cells and packs.

### FIRST ORDERS

Their energy technology is a key differentiator in Atlis vehicles and platforms, but also a significant business unit of its own, expected to be profitable by next year, far sooner than a new, out-of-the-blue vehicle would be. Response has been prompt and strong. This summer, Atlis signed a memo of understanding with Italian/American lightweight EV manufacturer Elettrecars Motor Company to purchase 4,000 battery packs, complete with proprietary battery management and cooling systems, in bulk by 2023. And this fall, startup mobility tech company Australian Manufactured Vehicles signed an agreement for the purchase of 19,000 Atlis XT pickups through 2025, taking charge of righthand-drive layout, compliance, service and charging infrastructure in that market. ■





# Durable concept by Joe Sage

**GMC** Yukon's roots go back to the first Chevrolet Suburban in 1935 (the longest-running nameplate in the business), establishing a solid claim for the broad Chevy-GMC-Cadillac family of short and long models as the original SUVs, all still full-size truck-based body-on-frame vehicles.

Various name changes along the way aside, these vehicles are proven survivors and thrivers, still enjoying great popularity in today's complex utility market. With shared and shifting evolution, generational math can be looked at more than one way—thus the new 2021 GMC Yukon is generation five of the shorter wheelbase Yukon, while a venerable generation 12 of the fundamentally same but longer Suburban-Yukon XL models.

The basic styling and format of the new Yukon are immediately recognizable, while beneath its

familiar skin are a number of changes. First is four-corner independent suspension, along with available Air Ride active suspension. Add an all-new Active Response 4WD system comprising an automatic two-speed transfer case, new Traction Select, chassis controls and a new electronic limited slip differential—all aimed at providing the comfortable ride and less trucklike isolation of a smaller crossover, in this same big package.

Powerplants are expanded to include a base 5.3L gasoline V8, a new 420-hp iteration of the optional 6.2L V8 used in the Denali, and an all-new 3.0L inline-six Duramax turbo-diesel.

Long models (Yukon XL in GMC's case) have the same seat count, with a little more rear legroom but a lot more rear cargo volume. Payloads and tow capacities vary by only very small amounts.

There is also a new model, the GMC Yukon AT4—the one we are driving here—derived from the GMC Sierra AT4 pickup, which we've been duly impressed by at multiple off-road comparo events. Upgrades for the AT4 include skid plates, an off-road Traction Select mode, hill descent mode and 20-inch all-terrain tires for rugged-road duties. An upgraded interior features leather, accent stitching, a Jet Black color theme with Brandy accents, and the joy of heated-cooled front seats, heated steering wheel and heated outboard rear seats.

Beyond ride quality, air suspension can raise and lower the new Yukon for entry and egress, and automatically-deploying running boards can be turned off, or can be set to stay on with the doors closed for rooftop gear or hand-washing missions.

The transmission's stylish shift interface is a brushed metal panel high on the center stack, differentiating functions by a light press (P-N-L) or firm pull (D and R)—functionally more likable than

many other alternative shifters. That bottom button marked L includes plus-minus options, being in fact the manumatic, surely better marked as M.

The 355-horse 5.3L V8 in this almost-three-ton big beast is adequately strong, though we'd be more than a little interested in having the Denali's 420-hp 6.2L V8 optional for the special duty AT4.

Handling is not sports-car-precise, but appropriate for the vehicle's purposeful build and format—and it delivers surprisingly tight maneuverability, even with the AT4's 20-inch wheels. Brakes get the job done, though we'd prefer a firmer feel.

Many SUVs are good for stylish occasions in town, but not dirt, and others vice versa. So handsome was our Onyx Black over Jet Black leather sample—perfect for transporting four executives from boardroom to club—we could almost forget its special skills off-road. Yukon AT4's differentiating factor is its high level of suitability for both.

We headed out to an off-highway area in the farther reaches. The moment we left the pavement, hitting suddenly dramatically rutted, heaving and climbing surfaces, the ride was notably harsh, but we got used to it very quickly and, as you might suspect, basically wouldn't want it any other way

—strong, firm, smooth considering the conditions, insulated to an appropriate degree.

The heads-up display includes useful information in these conditions—compass direction, angles of inclination and so on. We drove a wide variety of terrain without giving the transfer case or traction options a moment's thought—never needing to add to or override the smart system.

The Yukon has a decent audio system—nothing overly glamorous, but with tons of headroom for both the high end and nicely rounded bass tones.

We liked the Yukon more and more as our week wore on. You need only look around you to know these vehicles are keepers. There are other things you can buy—smaller, maybe cheaper or maybe far more expensive, depending what you're trying to achieve. But for a formula of size, roominess, capability, all-American character, power and presence, this group still has it all locked up in one strong and affordable package.

These pioneering vehicles were instrumental in inspiring the phenomenal variety in crossovers and SUVs that dominate the market today.

And the GMC Yukon has stayed true to its original form and mission—when SUVs were SUVs. ■



## SPECIFICATIONS

ASSEMBLY.....	Arlington, Texas
ENGINE/TRANSMISSION.....	United States
SEATING ROWS.....	three
ENGINE.....	Ecotec 5.3L V8 VVT DI
HP/TORQUE.....	16v OHV, dynamic fuel mgmt, alum/alum
DRIVETRAIN.....	355 hp / 383 lb-ft
TRANSMISSION.....	new Active Response 4WD
FINAL DRIVE RATIO.....	Hydra-Matic 10-spd auto
SUSPENSION.....	3.23
STEERING.....	indep coils, Magnetic Ride
BRAKES.....	standard; indep Air Ride Adaptive
WHEELS.....	Suspension available (as on ours)
TIRES.....	elec pwr assist rack-and-pinion
LENGTH / WHEELBASE.....	four-wheel disc;
TURNING CIRCLE.....	vented front and rear, Duralife rotors
HEADROOM (F/2/3).....	(AT4) 20-inch aluminum
LEGROOM (F/2/3).....	(AT4) P275/60R20
CARGO CAPACITY.....	210.0 / 120.9 in
GROUND CLEARANCE.....	(20" wheels) 39.7 ft
APPR/DEPART/BRKOVFR (AT4 with Air Ride).....	42.3 / 38.9 / 38.2 in
WEIGHT.....	44.5 / 42.0 / 34.9 in
TOW CAPACITY.....	122.9 / 72.6 / 25.5 cu.ft
FUEL CAPACITY.....	(w Air Susp) 8-10 in
MPG.....	APPR/DEPART/BRKOVFR (AT4 with Air Ride):
	31.5-34.5 / 20.5-22.5 / 18.5-22.0°
	5677 lb
	(std/max) 7700 / 8200 lb
	24 gal
	16/20/18 (city/hwy/comb)
<b>BASE PRICE.....</b>	<b>\$64,800</b>
<b>ONYX BLACK PAINT.....</b>	195
<b>2ND ROW HEATED BUCKET SEATS.....</b>	370
<b>POWER SLIDING CONSOLE.....</b>	350
<b>AT4 PREMIUM PLUS PKG:</b> pwr dual-pane pano sunroof; power retract assist steps w lighting; electronic limited slip diff; Air Ride adaptive suspension; enhanced cooling radiator; Prograde trailering system; trailer side blind zone alert; in-vehicle trailering app; trailer brake controller; hitch guidance w hitch view; HD surround vision; multicolor heads-up display; rear pedestrian alert; 10.2" HD color touchscreen infotainment w nav, voice, Bluetooth, Apple/Android, apps & personalization; rear seat media incl 12.7" color touch LCD screens.....	9145
<b>DESTINATION CHARGE.....</b>	1295
<b>TOTAL.....</b>	<b>\$76,155</b>
(On ours: AT4 Prem Plus pkg savings.....)	1000
TOTAL (our sample).....	\$75,155

## YUKON / YUKON XL LINEUP 2021

	YUKON	YUKON XL
<b>SLE.....</b>	2WD \$51,995	\$54,695
	4WD \$4,995	57,695
<b>SLT.....</b>	2WD \$59,095	61,795
	4WD \$2,095	64,795
<b>AT4.....</b>	4WD ▼ \$66,095	68,795
<b>Denali.....</b>	2WD \$69,695	72,395
	4WD \$2,695	75,395

- SLE, SLT, AT4 have 355-hp 5.3L V8 VVT DI; Denali has 420-hp 5.3L V8 VVT DI; and all but AT4 offer a 3.0L Duramax turbo diesel
- Yukon = 120.9" wheelbase, 210.0" overall; Yukon XL = 134.1" wheelbase, 225.2" overall
- Yukon XL adds 1.8" third row legroom; adds 16.5 cu.ft rear cargo volume (for 41.5 cu.ft); and has a 38-gallon fuel tank



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	SAT 22	SUN 23	MON 24	TUE 25	WED 26	THU 27	FRI 28	SAT 29	SUN 30
PREVIEWS									
AUCTIONS									
Barrett-Jackson	■	■	■	■	■	■	■	■	■
Bonhams				■	■	■	■	■	■
Gooding & Company					■	■	■	■	■
Leake Auction [no info]					■	■	■	■	■
MAG Auctions			■	■	■	■	■	■	■
RM Sotheby's					■	■	■	■	■
Russo and Steele					■	■	■	■	■
Worldwide Auctioneers					■	■	■	■	■

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**Bonhams**  
11th Annual Scottsdale Auction  
Thursday, January 27, 2022  
(viewing Tuesday-Thursday, Jan 25-27)  
Westin Kierland Resort & Spa  
6902 E Greenway Pkwy, Scottsdale AZ 85254

**Gooding & Company**  
15th Annual Scottsdale Auction  
Friday-Saturday, January 28-29, 2022  
(viewing Wednesday-Saturday, Jan 26-29)  
Scottsdale Fashion Sq (N Scottsdale Rd & E Highland Ave)  
4700 N Scottsdale Rd, Scottsdale AZ 85251

**Leake Auction Co.**  
Ritchie Bros. Annual Scottsdale Auction  
No information as of late October. Check online at [www.leakecar.com](http://www.leakecar.com) for any updates. We'll check, too. (2020 was at Salt River Fields at Talking Stick, 7555 N Pima Rd, Scottsdale AZ 85258)



**MAG Auctions**  
January 2022 Collector Car Auction  
Friday-Sunday, January 28-30, 2022  
Vehicle check-in, bidder registration Jan 24-27  
We-Ko-Pa Casino Resort, Fort McDowell AZ 85264  
(Arizona 87 Beeline Highway northeast of Fountain Hills)

**RM Sotheby's**  
23rd Annual Automobiles of Arizona  
Thursday, January 27, 2022  
(preview tba)  
Arizona Biltmore Resort and Spa  
2400 E Missouri Ave, Phoenix AZ 85016



**Russo and Steele**  
22nd Annual Sports & Muscle in Scottsdale  
Wednesday-Sunday, January 26-30, 2022  
(preview Weds Jan 26, sale starts Thurs Jan 27)  
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# FULL CIRCLE BY JOE SAGE

It has been most of a decade since Infiniti migrated from a more random alphabet soup to its current uniform alphanumeric naming system, yet we still find ourselves referring back to the old models to get our bearings. It turns out, so do they.

Their roots intrigue us, and they shed light on the state of evolution. In this case, there was an Infiniti FX in earlier years, a significant departure from trucklike SUVs up to that point, curvaceous and stylish stem to stern, bearing a powerful V8 and performance underpinnings. Though the crossover term had not yet emerged, this was clearly something different and a real standout in its field. It also inspired a smaller (and not quite so sleek) EX. (It's also fair to say the FX inspired coupelike SUVs

from other manufacturers, notably the Germans, awkward at first, now well executed.)

Over time, the FX disappeared into a QX70 replacement (identical to its forebear) and EX into a QX50 (filling the EX's niche by size and function but in a more conventional body style and shape).

Now meet the all-new QX55. As QX50 had shed the mildly coupelike form of the EX (echoing the truly coupelike FX), QX55 is identified on the one hand as a coupelike version of the QX50, while on the other hand making heavy mention of the FX, so unique almost 20 years ago. (The QX70, FX's previously most direct descendant, has been dropped.)

It's a formula wherein the new QX55 makes a strong entrance as a standout from the boxier line-

up, while it has also let Infiniti seize the opportunity to move this entry into a smaller size bracket, where sales are currently the hottest of all.

Though not packed with horsepower nor a lightweight, the QX55 delivers a pleasantly potent premium drive, benefiting from clever variable-compression engine technology. Shifting is via a CVT, a technology not everyone embraces (though we suspect it's transparent to most owners), though it has an effective manual mode with shift-by-wire promising no-delay shift simulations, along with downshift rev-matching. Upshifting was the weak point, with delay-then-surge behavior at surface street corners (as with some conventional automatics). Sport mode, as so often, helps here.

We took the QX55 for a long drive, west on I-10, planning to grab lunch in Blythe, California. Con-

struction around Phoenix cost us a lot of time, though, prompting us to grab lunch west of Buckeye and ultimately to turn around at our photo spot, between Tonopah and the Colorado River.

Though not a rock-crawling off-roader, the QX55 does bear a healthy 8.6-inch ground clearance and decent approach-departure-breakover angles, for a civilized premium machine. Our photo spot was a great example of where this stylish but tough smaller crossover shines—it's a perfect highway cruiser, in which you can pull off most anywhere.

We had initially suspect the CVT as the source of a groaning whine as an undercurrent, but somewhere in our travels, we realized this likely comes rather from its run-flat tires. Our solution? Crank up the 16-speaker Bose Performance Series audio. Nice. As is the entire interior, from Infiniti's familiar mix of rich materials and surfaces, to an above average user interface featuring Nissan-Infiniti's usual industry-leading multiview camera feeds. Evolving this desirable vehicle from the size and



V8 power of the old FX to this smaller size allows Infiniti to deliver a premium vehicle starting in the mid-\$40s and topping out in the \$50s. It's a tidy, attractive and fuel-friendly driving package that is sure to win many hearts and minds. ■

*The handsome Slate Gray paint job on our QX55 (over a rich Monaco Red interior) is another beauty in the trend toward subtle color-shifters—more of a battleship grey in full daylight, with almost a flat or matte look and feel, though rich in the sheet metal's details, then the deepest of dark grey metallics in dawn or dusk light, providing endless viewing pleasure.*



## SPECIFICATIONS

ASSEMBLY	AguaCalientes, Mexico
SEATING CAPACITY	five
ENGINE	2.0L 4-cylinder turbo, dir inj & port inj, alum-alloy/alum-alloy
HP/TORQUE	268 hp / 280 lb-ft
COMPRESSION RATIO	variable 8.0-14.0
DRIVETRAIN	Intelligent AWD
TRANSMISSION	CVT (continuously var) with manual mode, downshift rev-matching
SUSPENSION	F: MacPherson strut w alum-alloy upper/lower alum/steel subframe construction, twin tube shocks, 27mm stblzr bar R: indep multi-link w monotube shocks, 22.5mm stblzr bar
STEERING	direct adaptive steering
BRAKES	F: 13.0x1.3; R: 12.1x0.6, all vented
WHEELS	20-in machine finished alloys
TIRES	255/45R20 A/S run-flats
LENGTH / WHEELBASE	186.3 / 110.2 in
GROUND CLEARANCE	8.6 in
APPRCH / DEPART / BRKOVRR	17.4 / 23.6 / 19.1°
TURNING CIRCLE	36.4 ft
HEADROOM (F/R)	39.9 / 36.9 in
LEGROOM (F/R)	39.6 / 38.7 in
CARGO CAPACITY	26.9 / 54.1 cu.ft
WEIGHT / DISTRIB	4065 lb / 58/42%
FUEL / CAPACITY	prem unl / 16.0 gal
MPG	22/28/25 (city/hwy/comb)

BASE PRICE (Sensory AWD)	\$57,050
PREMIUM PAINT	695
CARPETED FLOOR MATS	nc
LIGHTING PKG: welcome lighting, illuminated kick plate	925
CARGO PKG: reversible cargo mat, cargo blocks, console net, cargo net, rear bumper protector black film	350
DESTINATION CHARGE	1025
<b>TOTAL</b>	<b>\$60,045</b>

## 2022 INFINITI QX55 LINEUP

All have 2.0L VC-turbo engine and CVT.	
Luxe	\$46,500
Essential	51,600
Sensory	▼ 57,050



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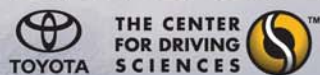
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## ADOT : US 60 PINTO CREEK BRIDGE REPLACEMENT



### ADOT removes old Pinto Creek Bridge as replacement nears completion on US 60 between Superior and Miami

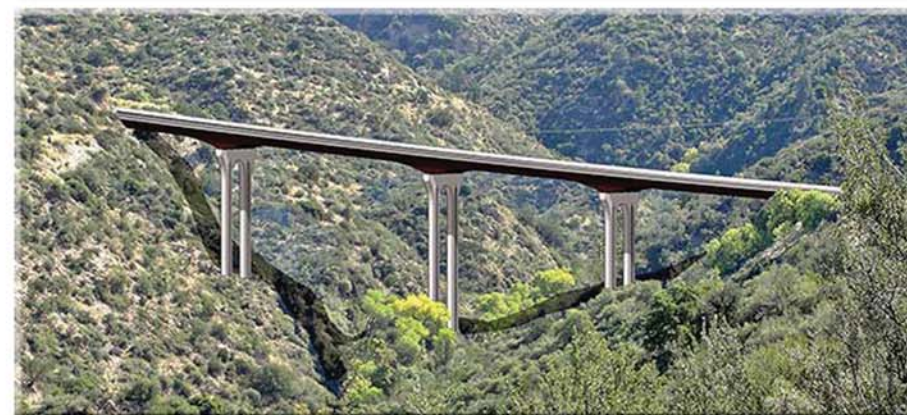
If the drive from Superior to Miami-Globe is part of your routine, you already know this, as the detour turned a 20-minute, 17-mile drive from Superior to Globe on US 60 into an hour-and-a-half 75-mile drive on AZ 77 and 177 via Winkelman.

The new Pinto Creek Bridge—replacing the original, built in 1949 and voted Most Beautiful Steel Bridge (Class II) by the American Institute of Steel Construction—opened to traffic on Friday, September 17. ADOT performed a full closure of US 60 between Superior and Miami for about four hours on October 25, to remove the old bridge.

Those with a destination within the closed segment of US 60 were allowed to pass the closure points, but no vehicles were allowed between Top-of-the-World and Pinto Valley Mine Road. But it was just for a few hours, thanks to plenty of planning from the generally always-on-the-ball Arizona Department of Transportation (ADOT).

We drove over the new bridge in mid-October, and all was flowing smoothly. You may still encounter delays or intermittent lane closures with flaggers through the remainder of the project. The vast majority of the work, including site restoration, is on track for completion by the end of 2021. Because of temperature requirements, final paving and striping is expected to be completed in spring 2022.

For real-time highway conditions statewide, visit ADOT's Traveler Information Site online at [www.az511.gov](http://www.az511.gov); follow ADOT on Twitter @ArizonaDOT; or call 511 (but not while driving). You can also call the ADOT Bilingual Project Information Line at 855-712-8530 or submit a question or comment by email. ■





# Midsized beast build

BY JOE SAGE

For F-150 (not only Ford's top selling pickup, but the number one vehicle in America of any type for decades), Tremor is a full-blown model, a free-standing build, with F-150 Tremor standing beside F-150 Lariat, F-150 Platinum and the rest.

On Ford Ranger, they take the same approach as for Super Duty pickups—on F-250 and F-350, and now on Ranger, Tremor is not a separate model, but rather a package (see the 2021 F-250 Power Stroke Lariat 4x4 with Ultimate Package and Tremor Off-Road Package in our prior issue).

Making Tremor a package makes sense for the lower-volume trucks on a manufacturing basis and opens up a range of trim level possibilities.

For the 2022 F-250 and F-350 Super Duty, the Tremor package is available on three mid-to-upper

trims with the biggest gas or diesel engines and certain other specs. On the 2022 Ranger, Tremor is available on SuperCrew 4x4 builds of XLT and Lariat (which for Ranger is the top trim).

The Tremor package gives you its off-road edge with upgrades to multi-leaf springs and outboard Fox shocks in the rear, as well as 17-inch wheels instead of 18 for taller sidewalls. Tremor decals and red grille inserts cue its appearance.

The engine is the same across the Ranger lineup, not a performance unit but well matched to build and duty, and all are automatics. An electronic transfer case for 4LO, 4HI and 2HI, has terrain management op-

tions in the center of its controller. The package also includes a set of upfitter switches atop the dash, ready for off-road lighting or other goodies.

The interior is as handsome as the F-150, which is a knockout, while carrying its own style and flavor. With Lariat the top model (a low-mid trim on F-Series), you have a few limitations, such as a power seat cushion but manual back adjustment, always harder to set precisely. A full-size Ford's console bin can gobble up our camera bag with room to spare; though this truck is smaller overall, it came very close to also holding this and will still accommodate something sizable.

Our truck's \$2005 Tech Package adds de-

sirable 10-speaker Bang & Olufsen audio in its Sync3-navigation setup. Along with \$4290 for the Tremor package plus a few other goodies, our top tier build is still under \$50 grand.

Our truck's Cyber Orange paint looks chrome yellow with golden shadows midday, but at dawn can be orange than a pumpkin. Much of the time, it ranges between a Fruehauf semi and a freeway exit sign. Its rich effects can almost remind you of the range on a color-shifting show car.

Power and ride are fine in town, and here maneuverability is far handier in this midsized than in a full-size pickup. The Tremor build does add about seven inches to its turning circle.

We took the Ranger Tremor (most are likely to call it that, package-vs-full-model finer points aside) out to a wild and sometimes harsh off-highway route, where its ride is strong and firm.

Rock rails are a good idea, but watch out for these steps—they have a rough and somewhat sharp surface that had us getting

in bow-legged to avoid them.

We've owned full-size pickups for years and recognize not only their utility, but in some regions their "cultural value"—don't show up in anything but. However, a good midsized fills the bill for all practical reasons a huge percentage of the time. Limiting factors would only be the availability of only one engine, its 7500-lb tow capacity (though not all full-sizers beat this, and industry research shows the vast majority of buyers do not even need this much), or possibly the box size (but a8-footer has become hard to find in even a full-size).

Ranger's hood and cab sit almost as high as a full-size, making you feel worthy in big-truck traffic, and seating space is just about as commanding in height, though of course the cab is narrower, negligible the majority of the time for the majority of drivers, solo or with one passenger.

Add the new Tremor Off-Road Package, and Ford Ranger fills a wider than ever range of possibilities—and for what's starting to become about half the price of many a full-size truck. ■



## SPECIFICATIONS

ASSEMBLY.....	Michigan Assembly (Wayne)
LAYOUT (TREMOR)....	SuperCrew w 5' box, 4x4
ENGINE.....	2.3L EcoBoost 4-cyl, alum/alum, DOHC 16v, twin indep camshaft timing
HP/TORQUE .....	270 hp / 310 lb-ft
COMPRESSION RATIO .....	10.0:1
DRIVETRAIN .....	4x4: front open differential, rear electronic lock diff (w Tremor Pkg)
TRANSMISSION .....	10-spd SelectShift auto
TRANSFER CASE .....	1:1 HI, 2.717:1 LO
SUSPENSION .....	F: short- and long-arm indep, tubular stblzr bar; R: Hotchkiss-type non-independent live, multi-leaf springs and outboard Fox shocks (w Tremor Pkg)
STEERING .....	elec pwr-assist rack & pinion
BRAKES .....	F: 12.24x1.33", 2.0" twin-piston; R: 12.12x0.94", 2.12" single-piston; non-asbestos organic pads
WHEELS.....	17-in magnetic painted alum
TIRES.....	LT265/70R17 A/T RWL
LENGTH / WHEELBASE .....	210.8 / 126.8 in
HEADROOM (F/R).....	39.8 / 38.3 in
LEGROOM (F/R).....	43.1 / 34.5 in
TURNING CIRCLE .....	(Tremor) 43.1 ft
BED LENGTH .....	(nominal 5-ft) 61.0 in
OVERHANG.....	F: 35.8 in; R: 48.2 in
GROUND CLEARANCE .....	9.7 in
APPR / BRKOVER / DEPART .....	30.9 / 27.1 / 24.2°
PAYLOAD CAPACITY .....	1430 lb
TOW CAPACITY .....	7500 lb
WEIGHT .....	4571 lb
FUEL / CAPACITY .....	reg unl / 18.0 gal
MPG .....	19/19/19 (city/hwy/comb)

### BASE PRICE (Lariat 4x4 SuperCrew) ..\$38,785

Note: latest base price below is a little higher

CYBER ORANGE PAINT.....595

EQUIPMENT GROUP 501A

TECH PKG: B&O 10-spkr audio, HD-SXM-Sync3-

nav, adaptive cruise, forward sensing, re-

remote start.....2005

TOUGHBED SPRAY-IN BEDLINER.....495

TREMOR OFF-ROAD PKG: skid plates, 17" mag-

netic painted alum wheels, LT 265/70R17 A/T

tires, HD off-road suspension w Fox shocks,

upfitter switches, off-road hoop step, elec-

tronic locking diff, floor liners, all weather

carpeted mats.....4290

TRAILER TOW PKG.....495

SECURICODE KEYLESS KEYPAD.....95

DESTINATION CHARGE.....1195

TOTAL.....\$47,955

## 2021 FORD RANGER LINEUP

XL.....	SuperCab 6' box.....RWD.....	\$25,070
.....	SuperCrew 5' box....."	27,470
.....	SuperCab 6' box.....4x4.....	28,925
.....	SuperCrew 5' box....."	31,325
XLT.....	SuperCab 6' box.....RWD.....	\$29,120
.....	SuperCrew 5' box....."	31,295
.....	SuperCab 6' box.....4x4.....	32,820
.....	SuperCrew 5' box....."	34,995
Lariat.....	SuperCab 6' box.....RWD.....	\$33,160
.....	SuperCrew 5' box....."	35,335
.....	SuperCab 6' box.....4x4.....	36,860
.....	SuperCrew 5' box....."	39,035



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## GOOD DEEDS : PHOENIX RACEWAY TRACK LAPS FOR CHARITY

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Arizona Accelerator Charities’ mission is to accelerate the development of children in Arizona by supporting education, children and families of our military and veterans, and life enrichment programs for children and families in our community.

For track and ongoing event information, visit: [www.PhoenixRaceway.com](http://www.PhoenixRaceway.com).





# FORD'S POWER PLAY

Electric Mustang SUV turns heads and bends minds - by Joe Sage

There are two primary ways to look at the new Ford Mustang Mach-E—as a Mustang and as an EV. As a Mustang, it has drawn notable angst from some of that badge's longstanding fans. But from a marketing standpoint, it has done wonders, granting it brand stature straight out of the gate.

While making sure people notice this new vehicle during an EV boom, Mach-E is also born with the performance to back up the use of the Mustang name, delivering the power, speed and precision of a well-spec'd modern EV.

(In the expanded Mustang realm, just remember Mach 1 is not hyphenated, while Mach-E is.)

Ford's range of "electrified" vehicles also encompasses hybrids and plug-in hybrids, but only the Mach-E and the new-for-2022 F-150 Lightning (also co-opting a name from gasoline era glory) are full electrics in the current lineup. Using these two

popular, high-profile nameplates is a strong idea for Ford to tackle the EV market in a big way.

Let's get in—though this is unnecessarily tricky (see the caption below). The interior has little in common with familiar Mustangs, far more screen-dependent. The layout, basic settings (e.g. seat and mirrors) and overall experience are conventional enough for an unfamiliar driver to get in and perform the fundamentals in an unexpected situation, which we consider essential. A deeper dive is needed for full personalization.

Underway, this silent stallion is very spirited—with pure go power, a road-hugging low center of gravity, tight maneuverability in traffic, and the consistent, seamless application of power that comes from a single-speed EV transmission. It also offers

one-pedal mode—step on it to go, let up to stop—an appealing way to get an expanded EV experience once you adjust to it, which we easily do.

Brakes, the same across all trims, batteries and drivetrains, provide great stopping power—a huge 18-inch vented, fixed 4-piston fitment in front; 17-inch solid, sliding single-piston in the rear.

One-pedal mode is one thing we'd like to access without digging into the screen, for example when caught in a bottleneck of stop-and-go traffic. But there are few buttons for anything, beyond power on-off, headlights and a couple of options on the steering wheel. It seems Ford wants to make sure you know their EV is a very different experience—not just a new vehicle with a quiet motor, but rather a new tomorrow, here today.

Our sample has the Extended Range battery—88 kWh vs standard 68 kWh—which boosts range from 230 to 300 miles on a rear-driver or from 211

to 270 miles on our all-wheel-driver. The extended battery also boosts power from 266 hp with standard battery and RWD or e-AWD, to 290 hp with RWD, or with power added to the front wheels, to 346 hp on our e-AWD. Acceleration also improves dramatically, though inconsistently due to battery weight vs power, through the range of drivetrain and battery variables. Slowest is rear-drive extended range, at 6.1 seconds, slower than a standard battery rear-driver at 5.8 seconds; however, with e-AWD and its extra e-power, zero-to-60 drops from 5.2 seconds with rear drive to 4.8 with the extended battery. Apples and oranges, but \$2700 for e-AWD and \$5000 for the extended battery (which also upgrades the wheels) gives our sample everything—though with less range.

When a new idea comes to market, it might take one of two approaches—try to seem like it's largely the same except for the new part; or try to seem totally different, despite being in many ways familiar. Mustang Mach-E applies a bit of both.

It does generate interest—our Mach-E inspired



many Mustangs to challenge or gawk in traffic.) Classic purists surely find more controversy in its being an SUV than its being an EV. That aside, the Mustang Mach-E delivers a great drive experience and a giant step into that new tomorrow. ■

## SPECIFICATIONS: AWD EXT RANGE

SEATING	.....5-passenger
BODY	.....unitized mixed metal/composite
ASSEMBLY	.....Cuautitlán, Mexico
MOTOR / BATTERY	.....(no motor specs given); (Extended Range) 88 kWh, 376 Li Ion cells
PEAK POWER	.....346 hp / 358 kW
PEAK TORQUE	.....428 lb-ft
DRIVETRAIN	.....e-AWD electric all-wheel drive with upgraded secondary motor
TRANSMISSION	.....single-speed
0-TO-60 MPH	.....(AWD, Ext Range) 4.8 sec
SUSPENSION	.....F: indep MacPherson strut w hollow stblzr bar; R: indep multi-link w hollow stblzr bar
STEERING	.....elec assist
BRAKES	.....F: 18" vented disc, 4-piston fixed; R: 17" solid disc, 1-piston sliding
WHEELS	.....(std) 19" machined-face alum, high gloss black-painted pockets
TIRES	.....225/55R19 all-season
LENGTH / WHEELBASE	.....185.6 / 117.5 in
GROUND CLEARANCE	.....5.8 in
TURNING CIRCLE	.....38.1 ft
HEADROOM (F/R)	.....w pano 40.4 / 39.3 in
LEGROOM (F/R)	.....43.3 / 38.1 in
CARGO CAPACITY (INTERIOR)	.....29.7 / 59.7 cu.ft
(FRONT TRUNK)	.....4.7 cu.ft
WEIGHT	.....na
RANGE	.....(88 kWh ER, AWD) 270 mi
CHARGING	.....up to 150kW DC Fast Charge
MPG	.....equiv 96/84/90 (city/hwy/comb)

BASE PRICE (Premium AWD)	.....\$49,700
<i>(Note: current pricing (below) shows as \$50,300)</i>	
88KWH BATTERY, PLUS PAINTED POCKET WHEELS	.....5000
DESTINATION CHARGE	.....1100
TOTAL	.....\$55,800

## 2021 MUSTANG MACH-E LINEUP

Not including \$7,500 Federal Tax Credit	
Select	.....RWD .....\$42,895
	.....e-AWD .....EST 44,995
Premium	.....RWD .....47,600
	.....e-AWD .....▼ 50,300
First Edition	.....e-AWD only .....SOLD OUT
California Route 1	.....RWD only, extended range battery .....50,400
GT e-AWD	.....only, extended range battery .....59,900
GT Performance Edition	.....e-AWD only, extended range battery .....64,900

Concept cars revealed at big shows often lack such clutter as door handles and mirrors. The Mach-E went to final production without door handles, other than a little nubbin at sill height you can awkwardly try to grab. Entry is reliant upon pulling out the key (fun when your arms are full), unlocking, pressing a button to set the door ajar and grabbing the edge or that nubbin. Or you can set it to lock as you walk away and unlock as you approach (highly questionable in a bad neighborhood or with a carjacker lurking). Equal parts innovative wonder and pure annoyance, we might get used to it in time. Or not. Will they add normal locks and door handles in future years? We suspect most people would greatly prefer that. •





# MUDFEST!

## UTILITIES AND PICKUPS PUT TO THE TEST IN THE PACIFIC NORTHWEST

By Joe Sage / Photos by Doug Berger for NWAPA

**ONE** of our don't-miss events every year is the Northwest Automotive Press Association's Outdoor Activity Vehicle of the Year Awards, more commonly known as Mudfest. The group has several major events per year: this, an off-road-centric comparo (though with vehicles also run on a paved course), usually in the spring; Run to the Sun, a couple of days of open highway in a variety of convertible, super performance and super luxury vehicles, usually in the fall; and Drive Revolution, centered on increasingly mainstream powertrains once known as alternative, in the summer. Last year's events all fell victim to pandemic restrictions, one by one, and this year was more of the same—till this. For various reasons, the decision was made to forgo fall's Run to the Sun event, instead moving Mudfest from spring to fall.

The Pacific Northwest is a great place to spend a few days with some great people,

putting the latest hardware to some serious tests. The differences between rainforest and desert aside, they also share many commonalities of both driving conditions and vehicle preferences with Arizona.

This year's event was held for the fifth time at The Ridge Motorsports Park, northwest of Shelton, with overnights along Hood Canal (a natural body of water) near Union, Washington. The 170-acre facility features a 2.47-mile, 16-turn track with 300-foot elevation changes (which we don't use); a one-sixth-scale version of that as a kart track (which we do use); and off-road acreage modified or specially built for our purposes.

We were all set to go, our first time back on a plane in many months, when our plans hit a roadblock—a fresh Covid test would be required upon arrival. Okay, we could do that. Except that, as it turns out, we couldn't achieve it on Labor Day Week-

end, which was necessary for the test's turnaround timing. Thus we, like you, will live vicariously through the event's results.

**DAY ONE**, paved testing, uses the kart track for acceleration, braking, steering and handling evaluation. Day two is all off-road, with a primary course of dirt, mud, ascent, descent and embankments, plus a separate Extreme Capability course with logs, rock-crawling and generally more challenging conditions.

Vehicles are judged both days by all drivers, with scores assigned to drivetrain and performance; comfort, function and technology; styling; off-roading; fuel efficiency; and value. These tallies are very specific, but are used just as reference, as each judge then subjectively votes a 1st-2nd-3rd choice in each category. Algorithms used in vote tabulation apply balancing factors between the collective votes for paved and off-road days.

Vehicles are designated by their manufacturers to compete in any of five categories that apply for both the on-road and off-road days. SUVs and crossover utilities are split by family or luxury determination, then split again by smaller or larger size. Pickups comprise the fifth group.

Any vehicle the manufacturers choose

to run on the Extreme Capability course (on the off-road day only) is eligible for this sixth award category.

Finally, an overall Outdoor Activity Vehicle of the Year winner is voted from the overall slate of entries, separately from individual category voting.

**FIFTEEN** manufacturers entered 19 vehicles—six from the Detroit Three, six from Japan, five from Korea and two from Europe. The smaller family utilities were all Asian; the larger luxury utilities were both from the US; and the other utility categories were represented from all regions. The traditionally all-American pickup category had two Japanese entries, one Korean and just one from Detroit.

When normally run in the spring, this event usually has few of next year's models. Moving to the fall meant more of these, though production bottlenecks lingering from the pandemic still kept the 2021-2022 mix to about half and half.

A fewer-than-usual sixteen NWAPA members drove and voted. Votes get tight, and casual favorites are not always statistical winners or vice versa.

Results follow, with low and high noted for the range of price, horsepower, torque and highway fuel mileage within each category, to help you gauge where the winners fall.

Model year is noted for each.

(cont'd)





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### SUBCOMPACT/COMPACT FAMILY UTILITY

Hyundai Tucson Limited AWD (2022)  
 Mazda CX-30 2.5T Premium Plus Pkg AWD (2021)  
 Toyota RAV4 Prime XSE AWD SUV (2021)

PRICE RANGE .....\$35,400 Mazda > \$49,776 Toyota  
 POWER RANGE ...HP ....187 HP Hyundai > 302 HP Toyota  
 .....TORQUE ....178 LBFT Hyundai > \*\* LBFT Toyota

COMB MPG RANGE.....25 MPG Mazda > 38 MPG Toyota  
 \*\*This RAV4 has 165 lbft of engine torque and 199+89 lbft of electric torque front/rear, though they don't state net output.

**ANALYSIS:** Once the domain of economy models, the higher end of this top-selling segment attracted the most interest, with the high-powered Toyota RAV4 Prime taking the trophy. At the more affordable end, though Mazda has a lower price and higher power, Hyundai come in number two.

**WINNER: 2021 Toyota RAV4 Prime XSE AWD**  
 302 HP, \*\* LBFT, 38 MPG comb, \$49,776 as tested  
**Runnerup: 2022 Hyundai Tucson Limited AWD**

### MIDSIZE/FULL-SIZE FAMILY UTILITY

Ford Bronco 2-Door Advanced 4x4 Badlands (2021)  
 Jeep Wrangler Unlimited Rubicon 392 (2022)  
 Kia Sorento X-Line AWD (2021)  
 Subaru Outback Wilderness (2022)  
 Volkswagen Atlas 2.0T SE w/Technology (2021)

PRICE RANGE .....\$38,120 Subaru > \$83,095 Jeep  
 POWER RANGE ...HP ....235 HP VW > 470 HP Jeep  
 .....TORQUE ....258 LBFT VW > 470 LBFT Jeep

COMB MPG RANGE.....14 MPG Jeep > 24 MPG Kia-Subaru-VW  
**ANALYSIS:** This special build of Wrangler skews overall price, power and fuel economy, though this special build of Bronco at \$56,150 heads to good degree in those same directions. Reflecting dazzle more than mainstream market, these two extreme vehicles swept first and second.

**WINNER: 2022 Jeep Wrangler Unlim Rubicon 392**  
 470 HP, 470 LBFT, 14 MPG comb, \$83,095 as tested  
**Runnerup: 2021 Ford Bronco 2-Dr Adv 4x4 Badlands**

### COMPACT/MIDSIZE LUXURY UTILITY

Acura MDX SH-AWD A-Spec (2022)  
 Genesis GV70 AWD 3.5T Sport Prestige (2022)  
 Jeep Grand Cherokee L Overland 4x4 (2021)  
 Kia Telluride SX V6 AWD (2022)  
 Mercedes-Benz GLB250 4MATIC SUV (2021)

PRICE RANGE .....\$49,725 MBenz > \$65,045 Genesis  
 POWER RANGE ...HP ....221 HP MBenz > 375 HP Genesis  
 .....TORQUE ....258 LBFT MBenz > 391 LBFT Genesis

COMB MPG RANGE.....21 MPG Acura-Jeep-Kia > 26 MPG MB  
**ANALYSIS:** Price and power stats tell a tale of apples and oranges, as Mercedes-Benz brought their economy end and Genesis brought their top end. Top end again took top prize.

**WINNER: 2022 Genesis GV70 3.5T Sport Prestige**  
 375 HP, 391 LBFT, 25 MPG comb, \$65,045 as tested  
**Runnerup: 2021 Mercedes-Benz GLB250 4MATIC**

### FULL-SIZE LUXURY UTILITY

Cadillac Escalade 4WD Sport Platinum (2021)  
 Wagoneer Series II 4x4 (2022)

PRICE RANGE .....\$82,075 Wagoneer > \$113,065 Cadillac  
 POWER RANGE ...HP ....392 HP Wagoneer > 460 HP Cadillac  
 .....TORQUE ....404 LBFT Wagoneer > 623 LBFT Cadillac

COMB MPG RANGE.....16 MPG Cadillac > 17 MPG Jeep  
**NOTES:** Here, Cadillac brought a top trim, while Wagoneer entered their non-Grand model. An all-new vehicle lineup

with a notable price advantage won the day for Wagoneer.

**WINNER: 2022 Wagoneer Series II 4x4**  
 392 HP, 404 LBFT, 17 MPG comb, \$82,075 as tested  
**Runnerup: 2021 Cadillac Escalade 4WD Sport Platinum**

### PICKUP TRUCKS

Honda Ridgeline AWD Sport (2021)  
 Hyundai Santa Cruz Limited AWD (2022)  
 Ram 1500 TRX Crew Cab 4x4 (2021)  
 Toyota Tacoma TRD Pro (2022)

PRICE RANGE .....\$40,860 Honda > \$87,020 Ram  
 POWER RANGE ...HP ....280 HP Honda > 702 HP Ram  
 .....TORQUE ....262 LBFT Honda > 650 LBFT Ram

COMB MPG RANGE.....12 MPG Ram > 22 MPG Hyundai  
**ANALYSIS:** Price and power of the Ram TRX skewed the range of this group, while Honda was the low-end reference point for most vitals. Yet Hyundai Santa Cruz also benefited from the magic of an all-new vehicle. Urban leanings of this region may have also played their part—we have a hunch Ram's pricey big beast would have won on our home turf.

**WINNER: 2022 Hyundai Santa Cruz Limited AWD**  
 281 HP, 311 LBFT, 22 MPG comb, price TBD as tested  
**Runnerup: 2021 Ram 1500 TRX Crew Cab 4x4**

### EXTREME CAPABILITY

From any class, as long as they were evaluated on the extreme course, making the vast majority contenders.

**ANALYSIS:** These results reinforce the idea seen in the Mid-size-Full-size Family Utility group: though Extreme Capability is a subset vote of all others, the judges loved the vehicles that put the Mud (and the Fest) in Mudfest.

**WINNER: 2022 Jeep Wrangler Unlim Rubicon 392**  
 470 HP, 470 LBFT, 14 MPG comb, \$83,095 as tested  
**Runnerup: 2021 Ford Bronco 2-Dr Adv 4x4 Badlands**

### OVERALL WINNER

#### NWAPA Outdoor Activity Vehicle of the Year

These are also from any class, any at all. It's a separate preference vote, not a retally of categories.

**ANALYSIS:** Despite (or equally due to) deep analysis of a great set of entries, all-new vehicles often do well at such events, and this was no exception. In-depth analysis shows it's not just the "new and shiny" factor that prevails. Mathematically and scientifically, this is generally accompanied by any number of real world innovations and evolutions.

**WINNER: 2022 Genesis GV70 3.5T Sport Prestige**  
 375 HP, 391 LBFT, 25 MPG comb, \$65,045 as tested  
**Runnerup: 2022 Hyundai Santa Cruz Limited AWD**

Which categories take the overall trophy and runnerup give insights into the segments' collective direction. The expansion of this event to give equal emphasis to paved driving, despite the thematic emphasis on getting dirty, has shifted the balance between vehicle use that leans toward urban versus toward outback. Winners continue to skew toward newer releases, reflecting people's general fascination with the new and shiny, as well as advances and trends in lifestyle and real world application. How this all applies to each individual remains subjective—and is why we are all fortunate to have several hundred options available in the vehicular wonderland we all inhabit. ■

#### Best Subcompact/Compact Family Utility



#### Best Midsize/Full-size Family Utility



#### Best Compact/Midsize Luxury Utility



#### Best Full-size Luxury Utility



#### Best Pickup Truck



#### Best Extreme Capability



#### Best Overall : NWAPA Outdoor Activity Vehicle of the Year





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## VEHICLE PROJECT : GIRL GANG GARAGE "IRON MAVEN" VOLVO UPDATE

### "Iron Maven" reveal date set



In our prior issue, we brought you news of the latest build underway at Girl Gang Garage—combining a 1961 Volvo PV544 and a 2019 Volvo S60 T8 Polestar to create one new marvel, dubbed Iron Maven, with the looks of the classic and the modern plug-in powertrain. Tempted to aim for presenting it at the SEMA Show in Las Vegas in November this year, they concluded that would be rushing it. They have announced the project will instead be formally revealed at SEMA 2022.

Girl Gang founders Bogi Lateiner and Shawnda Williams say, "It is no secret that our partnership with Volvo Cars on the Iron Maven build is a truly unique opportunity. Not only will it help us bring more attention to the need for more women in the auto industry, but it has helped us push the complexity in directions beyond our wildest imagination. A hybrid vehicle as the heart, soul and base of a Volvo PV544 is our kind of mixture of audacious and crazy. But we reached a place where we had to stop and acknowledge the scale of the challenge, the world we are all navigating with the (pandemic). Finally, the biggest concern is to accomplish this: can we still stay true to the passions driving and guiding Girl Gang Garage?"

"These builds are about connection, community, challenging ourselves and making a noticeable impact on the industry's view of the capabilities of women. The tighter the timeline, the more the focus becomes the product rather than the process. That's not what this or what we are about. We don't want to sacrifice the heart of this build to meet an arbitrary timeline and have made the deliberate decision to extend our build an additional year and push our unveil to SEMA 2022.

"We plan to take full advantage of the extended timeline, not to temper our pace but to push every achievable boundary. (This means) challenging ourselves and integrating 3D printing for critical components, porting over even more technology from the S60, and most importantly, creating more learning and awareness opportunities for women inside and outside the industry."

#### Women's Car Care Classes

Girl Gang Garage has partnered with Earnhardt Auto Centers to bring Women's Car Care Classes taught by Bogi to select dealerships throughout metro Phoenix. They are still holding their regularly scheduled monthly class, as well. The class is highly interactive, so be ready to get your hands dirty. Sign up today—classes fill up quickly.

Follow the project, sign up for classes and check out the latest sweatshirts, tank tops and other gear at [www.girlganggarage.com](http://www.girlganggarage.com). ■



aMaes Photography



aMaes Photography



# Light heavyweight BY JOE SAGE

For just shy of 30 years, and over four prior generations, Jeep Grand Cherokee has remained intensely popular and over-the-top capable, able to tote the team—two rows' worth, anyway—or tackle the wilds (engineered to fit within the demanding clearances of the Rubicon Trail).

The corporate family has had one notable apple-and-orange factor for some time—in simplest terms, Jeep Grand Cherokee if you wanted two rows, Dodge Durango if you wanted three. Rather than go straight to the launch of a new version of the familiar two-row Grand Cherokee, generation five enters first with a twist: the three-row Jeep Grand Cherokee L (as in Long) as a 2021 model. The new two-row version arrives soon, as a 2022.

Grand Cherokee L hits the roads at roughly the same time as Stellantis's new three-row Wagoneer and Grand Wagoneer (which are not Jeeps, but rather a separate new sub-brand—seven-slot grilles and prior Jeep Wagoneer history aside). This was perhaps deemed a better way to compare apples to apples, followed by bringing in the new two-row Grand Cherokee to bat clean up.

Jeep Grand Cherokee L Overland 4x4 with air suspension deployed

In addition to a restyling and the seven-seat option, the new Grand Cherokee includes many advances: three 4x4 systems and Selec-Terrain traction management with five terrain modes; increased off-road ground clearance and water fording capability; all-new vehicle architecture with independent front and rear suspensions and class-exclusive Quadra-Lift air suspension with electronic adaptive damping; new UConnect 5 with standard 10.1-inch touchscreen and frameless digital gauge cluster; 360-degree surround view and night vision cameras; and new LED lighting with ambient features. New trim level-dependent offerings include front seat massage and personalized climate zones; quilted Palermo leather and waxed walnut; 21-inch wheels; McIntosh premium 950-watt, 19-speaker audio; and more. Level 2 hands-on autonomous features are also available.

Our Overland sample is one of three upper trims with a choice of 293-hp V6 or 357-hp V8 powerplant with 4x4. Ours is the V6 4x4 build, priced in the mid-\$50s. We gave the engine and Quadra-Trac II Selec-Terrain AWD systems a thorough run, in town, up I-17 to higher elevation, and off-road.

The Pentastar V6 has a healthy growl and decent power around town, a feeling enhanced by its acoustics, well developed to sound like more than a V6, while not infringing upon the distinctive, rich soundtrack of the available V8.

We were blissfully unaware it was a six while pulling the climb up I-17—a good sign of a strong and capable powertrain. This is a challenging run, with twists and turns through dramatic elevation gains, all while just two lanes jockey for supremacy. We achieved all aims easily and enjoyably.

The real purpose of our run north was of course to make this Jeep be a Jeep—to hit some special off-road points in the vicinity of Agua Fria National Monument. As we left the pavement, we changed

the Selec-Terrain system to sand/mud mode, just for good measure, and headed to spots that would challenge its Rubicon-ready width and air suspension (the latter adding 2.4 inches to ground clearance, along with notable increases in approach/breakover/departure angles, especially approach).

As we got to our tougher stretches, we paused to shift to 4LO and activate the air lift. You don't particularly notice the change from the cabin—it's great to know you can clear the tougher spots, but you still feel planted and full of grip—though it's admittedly a pretty cool look from outside.

The terrain modes are great and highly recommended, and the air suspension serves a very specific dimensional purpose. But we also tried the smart system with nothing special added—as we suspect many people will do at times. If you happen upon an unexpected challenge, you can often just leave it in automatic and drive through a wide range of conditions and circumstances without really giving settings much of a second thought.

We paid attention to acceleration and power as we reentered the Interstate, where we had an immediate notable uphill, necessary to pull at speed

to join two lanes of full-bore traffic. The V6 was plenty powerful, quickly bringing us to 75 mph as we tucked into position, with buckets of reserve.

Though we sometimes pined for a V8—just because we like 'em—our longer drive reminded us that the V6—on a 5000-pound 4-wheeler that can tow 6200 pounds—is rated 18 mpg city, 25 highway and 21 combined (with 4x4), vs 14/22/17 for the V8. We didn't log our fuel mileage, but were pleased at the end of the week to realize how far we had driven, under such a variety of demanding conditions, yet we still had a half tank of gas.

As always, the new Grand Cherokee L comes in a range of models over a carefully crafted pricing staircase, with our Trail-Rated Overland 4x4 about two-thirds of the way up. The new rig does all its jobs—urban/suburban duty, distance cruising and off-roading—exceedingly well. You know whether you need the seven seats of the Grand Cherokee L, and that third row is well developed for times you need it. And again, the two-row arrives soon.

Grand Cherokee maintains its prominent position: smaller than the new not-a-Jeep Wagoneer, more polished than a Jeep Wrangler, and capable of doing most all of both their same duties.

We've loved the gen-four Grand Cherokee and have adjusted to the new styling easily—readily spotted by a more vertical rear window. Gen four is a classic. But a new one's time has come, and we can report that all is well—brand equity is firmly intact, while they've moved the ball forward significantly. A job well done. ■



## SPECIFICATIONS

ASSEMBLY	.....Mack Plant, Detroit Assembly
ENGINE	...Salttilo South Engine Plant, Mexico
CONSTRUCTION	.....steel uniframe
ROWS / SEATS	.....three / seven (2/3/2, opt 2nd row buckets)
ENGINE	.....3.6L Pentastar V6, 24v, chain-driven DOHC, sequential multiport electronic returnless FI, alum/alum
HP/TORQUE	.....293 hp / 260 lb-ft
COMPRESSION RATIO	.....11.3:1
DRIVETRAIN	.....Quadra-Trac II® AWD, Selec-Terrain® System
TRANSMISSION	.....850RE 8-spd automatic
TRANSFER CASE	.....2-spd electronically shifted: 4x4 low (lock, 2.72), neutral, full-time active 4x4
AXLES	.....conventional, front axle disconnect, F/R: 7.7-in ring gear, F/R: 3.45:1 ratio
SUSPENSION	.....F: multi-link indep, coils, gas-charged twin-tube coilover shocks, all-aluminum arms/knuckles; R: multi-link, coils, load-leveling twin-tube shocks, all-aluminum arms/knuckles incl extruded aluminum spring links
STEERING	.....electric rack-and-pinion
BRAKES	.....elec boost: F: 13.94x1.10 vented, 2.00 two-piston pin-slider caliper; R: 13.78x0.87 vented, 2.00 single-piston pin-slider caliper
WHEELS	.....(std) 20x8.5 machined cast alum w Black Noise pockets; (ours w Off-Road Group) 18x8 polished alum w High-Gloss Black pockets
TIRES	.....(std) 265/50R20 Bridgestone A/S; (ours w Off-Road Group) 265/60R18 Michelin Primacy XC All-Season
LENGTH / WHEELBASE	.....204.9 / 121.7 in
HEADROOM (F/2/3)	.....39.8 / 39.9 / 37.3 in
LEGROOM (F/2/3)	.....41.3 / 39.4 / 30.3 in
TURNING CIRCLE	.....38.3 ft
GROUND CLEARANCE	...(w air susp) 8.5-10.9 in (fuel tank) 10.3-12.6 in
APPR / BRKOVER / DEPART	.....20.6 / 18.2 / 21.5° (Overland w air, position2) 30.1 / 22.6 / 23.6°
CARGO CAPACITY	.....17.2 / 46.9 / 84.6 cu.ft
WEIGHT	.....(Overland 4x4 3.6L) 4,997 lb
WEIGHT DISTRIBUTION	.....( " ) 50/50
GVWR	.....(Overland 4x4 3.6L) 6,700 lb
PAYLOAD	.....(Overland 4x4 3.6L) 1,270 lb
TOW CAPACITY	.....6200 lb
FUEL / CAPACITY	.....unl 87 oct / 23 gal
MPG	.....18/25/21 (city/hwy/comb)

### 2021 GRAND CHEROKEE L LINEUP

Laredo	.....4x2...V6	.....\$36,995
	.....4x4	.....\$38,995
Altitude	.....4x2...V6	.....\$40,195
	.....4x4	.....\$42,195
Limited	.....4x2...V6	.....\$43,995
	.....4x4	.....\$45,995
Overland	.....4x2...V6	.....\$52,995
	.....4x4	.....\$54,995
	.....4x4...V8	.....\$58,290
Summit	.....4x2...V6	.....\$56,995
	.....4x4	.....\$58,995
	.....4x4...V8	.....\$62,290
Summit Reserve	.....4x4...V6	.....\$61,995
	.....".....V8	.....\$65,290

BASE PRICE (Overland V6 4x4)	.....\$54,995
VELVET RED PEARL-COAT PAINT	.....\$345
LUXURY TECH GROUP IV: Nappa leather, auto-dim mirror, wireless charge pad, 12-way power front seats w back massage, manual 2nd row window shades, 4-zone automatic climate control	.....\$1,995
ADVANCED PROTECH GROUP III: heads-up display, intersection collision-assist, night vision w pedestrian & animal detect, surround view camera, interior rear-facing camera, backup camera washer, integrated off-road camera, in-cluster map display	.....\$1,995
OFF-ROAD GROUP: 18x8 polished/painted alum wheels, 265/60R18 on/off-road tires, 230mm rear axle, electronic limited-slip rear diff, fuel tank skid plate, transfer case skid plate, front suspension skid plate	.....\$1,095
UCONNECT 5 nav w 10.1" display, McIntosh 950-watt 19-sprkr high performance audio	.....\$1,795
DESTINATION CHARGE	.....\$1,695
<b>TOTAL</b>	<b>.....\$78,885</b>



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# Concours in the Hills returning

*8th Annual Concours in the Hills roars into Fountain Hills on February 12, 2022*

*High velocity collector car event benefits Phoenix Children's Hospital*

Car, motorcycle and military vehicle enthusiasts, get revved up for the 8th annual Gila River Hotels & Casinos Concours in the Hills on Saturday, February 12, 2022, from 10 am to 3 pm at Fountain Park in Fountain Hills. The free family-

friendly event promises to be high-velocity, in a spectacular venue on the gently rolling hills of the park, all benefiting world class care at Phoenix Children's Hospital.

Concours in the Hills creator Peter Volny built a thriving advertising business around promoting the automobile industry. Migrating to Arizona, a mecca for car collectors, he turned his passion for speed and exotic cars into a premier auto show that draws car enthusiasts from across the Southwest. A childhood cancer survivor, Volny donates all proceeds from the event to Phoenix Children's Hospital.

"2022 is shaping up to be an incredibly exciting year as the details fall into place for Concours in the Hills," Volny says. "This year, for the first time ever, we've added alternative fuel vehicles to the mix. This is the fourth year the event is benefiting Phoenix Children's, and we are continuing to push the fundraising goal for the Hospital. Since 2018, the event has raised over \$500,000 and we have set a new goal to raise \$1 million over the next few years."

In 2022, Concours in the Hills will expand its race car display and will have noteworthy winning cars representing various types of racing. Other vehicles will be arranged by brand, to encourage friendship among owners, grouped in Domestic, European and Asian sections. Several military helicopters will also be on display in the military vehicle section. Continuing tradition, the show will be opened by well-known race drivers from F1, Indy and sports car racing

The free event started in 2014 with 220 cars and 3,000 spectators, and in 2020 featured 1,052 cars, 118 sponsor booths and more than 30,000 spectators, smashing all previous records.

Event admission and parking is free to spectators. The exhibitor entry fee is a minimum \$60 donation for vehicles, \$30 for motorcycles. Additional donations are welcomed.

**WHEN:** Saturday, February 12, 2022  
10 am – 3 pm

**WHERE:** Fountain Park  
12925 N Saguaro Blvd.  
Fountain Hills AZ 85268 ■





# Performance is its name BY JOE SAGE

The world has long sought, or contemplated, a so-called 3-killer—a compact, rear-drive performance sedan capable of taking on the reigning German champion, at least in more clearly delineated times. Contenders have come and gone, but one standing the test of time is the Lexus IS.

So durable is the IS concept that this is only its third generation, starting back to the late '90s. The model also receives constant improvement along the way—style point refreshes and technical upgrades. Gen three, new for 2014, received just such a refresh last year, for the 2021 model year, including bolder sheet metal, updated electronics and driver assist tech, and a more rigid chassis with upgraded suspension and handling.

Available in many trim levels with multiple powertrains, a new set of F Sport Performance models at the top of the heap now rule the IS roost, thanks in large part to bearing that benchmark of the American muscle pony car, the 5.0-liter V8, this one tuned up to just a bit shy of 500 horsepower.

F Sport and now F Sport Performance are born as a Lexus version of what a number of automakers offer—an alternative to their top performance lineup, based upon a more standard build, with various style points upgraded and often with powertrains and handling beefed up a bit, to boot. With Lexus, however, the F Sport treatment has become far more dominant than a pure F build, of which there is currently a grand total of one—the

RC F coupe. This is not purely a set-aside fact, though—RC, though it bears a personality all its own, is the “Radical Coupe” variant of IS.

From there, you could deduce that Lexus chooses to go to four doors for an F Sport equivalent of the RC F, or you could conclude that F Sport is as far as they wanted to take the sedan, at that point migrating to a coupe. Same diff. It's the sedan format of the IS that puts it in 3-killer competition, while also making it quite handy as a daily driver.

The basis not only for the return of F Sport, and now new F Sport Performance—a package recognizable by various badging and black finish details—this is the first IS to bear a V8 since a full-blown IS F in latter years of the 2000s decade, during the car's second generation.

In a small car weighing in the three thousands, granted this creates a notable front-centric weight

distribution—56 to 44 percent—but with modern suspension and handling technologies, you are unlikely to care or in most cases even notice.

A quick way to spot the IS F Sport Performance from the front is the black bar along the lower edge of the spindle grille, which affects this distinctive shape noticeably and favorably, giving it an aggressive new attitude. From the rear, staggered quad exhaust outlets are a quick identifier.

Ours was a pre-production or prototype unit, so not all creature features were operational (we kind of wish you could buy any number of cars this way). Several switches, controls and interfaces seem improved, though we can't know which are final, so we won't go into detail.

The chassis and powertrain are most likely final or close to it, however (engineers will often tweak for as long as they are allowed), and the IS 500 F Sport Performance is properly the sum of its parts. Both the power and the acoustics from its V8 are glorious and, though politely aggressive right out of the box, can be adjusted to taste. We tended to favor sport mode (as set up in this early sample, at any rate) for its more responsive shifts. For an automatic, the driveline is well connected, particu-



larly with the use of paddle shift. Available individually (in ours, anyway), we also changed chassis from normal to sport, for good measure.

Call it F or F Sport or F Sport Performance (we're thinking F Sport may have stronger casual name impact than just F, anyway), if you get your hands on one of these, you are guaranteed to love it. ■

## SPECIFICATIONS

BUILD	.....unitized steel body structure
ENGINE	...5.0L V8, 32v DOHC EFI, dual VVT-iE,
HP/TORQUE	.....472 hp / 395 lb-ft
ACCELERATION 0-TO-60	.....(AMCI) 4.4 sec
TOP SPEED	.....149 mph
COMPRESSION RATIO	.....12.3:1
DRIVETRAIN	.....RWD
TRANSMISSION	...AA80E 8-spd auto, paddles
SUSPENSION	...F: dbl wishbone w high-mount upper arms, coils, gas shocks, stblzr bar; R: multi-link w coils, gas shocks, stblzr bar
STEERING	.....rack & pinion electric
BRAKES	.....F: 14.0 vented; R: 12.7 vented
WHEELS	.....F: 19x8.5J; R: 19x9.5J
TIRES	.....F: 235/40R19; R: 265/35R19 summer
LENGTH / WHEELBASE	.....187.3 / 110.2 in
TURNING CIRCLE	.....34.2 ft
GROUND CLEARANCE	.....5.51 in
HEADROOM (F/R)	.....38.2 / 36.9 in
LEGROOM (F/R)	.....44.8 / 32.2 in
CARGO CAPACITY	.....10.8 cu.ft
WEIGHT / DISTRIB F/R	.....3891 lb / 56/44%
FUEL / CAPACITY	.....prem 91 unl / 17.4 gal
MPG	.....17/25/20 (city/hwy/comb)
<b>BASE PRICE</b>	<b>.....\$61,000</b>
PREMIUM PAINT	.....500
DESTINATION CHARGE	.....1075
<b>TOTAL</b>	<b>.....\$62,575</b>

## 2022 LEXUS IS LINEUP

<b>IS 300</b>	.....241-hp 4-cyl	
	.....RWD	<b>\$38,625</b>
<b>IS 300 AWD</b>	.....260-hp V6	
	.....AWD	<b>40,625</b>
<b>IS 350</b>	.....311-hp V6	
Sport	.....RWD	<b>43,050</b>
Sport AWD	.....AWD	<b>45,050</b>
<b>IS 500</b>	.....472-hp V8 (all RWD)	
F Sport Performance	.....	<b>56,500</b>
F Sport Performance Premium	.....	<b>61,000</b>
F Sport Performance Launch Edition	.....	<b>67,400</b>



# Competitive strategies

By Joe Sage • Photos: Kevin McCauley / capturingthemachine

We drive in the Texas Autowriters' Association (TAWA) Texas Truck Rodeo every year. The pickup and SUV/crossover markets there are very similar to ours in Arizona, which makes it useful exposure, and the people involved make it a great time. Though a few such events, especially open road drives, are unjudged, most vote awards, as this one does.

The venue has evolved over the past few years, from sprawling Texas ranch roads spanning hundreds of acres, to a small purpose-engineered closed course.

The announcement of winners has also evolved, from an immediate tally and trophies at the conclusion of driving, to being revealed later, in this case in early November in conjunction with the upcoming Houston Auto Show. (We delayed this issue until

after normal deadline, to keep this fresh.)

There is much to be gleaned about the manufacturers' thinking on their own vehicles and the marketplace, from what they choose to enter. It's also all based on who participates. And whether for protracted pandemic factors or other reasons, some key manufacturers did not (as at any such event, even in normal times).

The event is broadly divided into SUVs and pickups. Though pavement driving is available for any (a few will often be pavement-only), this is, at its core, an off-road event. Evolution had seen a growing number of crossovers in this event, first on the heels of traditional SUVs. But as more car-like models entered, a decision was made to urge less dirtworthy ones to enter the track-based TAWA Texas Auto Roundup in spring, starting in 2020. Pandemic disruptions both helped and stalled this shift, but it has made great progress in general.

SUVs are divided into three classes by size, supplemented by luxury classes, here separately chosen by the manufacturers.

Pickups are divided by midsize, full-size and full-size heavy duty—with additional categories for luxury and off-road, though in this case the latter two are drawn from among the other existing categories (again the manufacturers' call).

In other words, SUVs are entered once, either by size *or*, if desired, by luxury. Pickups may be entered twice, first by size and duty and then *also*, if desired, by luxury and by off-road. As a wild card of sorts, one SUV *not* entered in any other category was also entered in the off-road category.

There is also a "green" category, pretty much a freestanding affair at this point.

Some manufacturers will enter multiple examples of the same vehicle—different trims, different powertrains, e.g. three Nissan Frontiers, two Jeep Gladiators and so on—within the same category. They have latitude in deciding whether to tally those vehicles' votes separately (which can draw important distinctions but can also have them competing against themselves) or gather them together in a collective vote

(the more common approach here).

It boils down to having a structure that works for the hosting organization and an awards allocation, while allowing the manufacturers the latitude they need, to best present their products in the competitive light as they see it.

All this background may be equal parts complex and enlightening, but in practice it's what makes it all fall together logically.

Because of derivatives and multiples, you can add up the entries more than one way, but a fundamental tally of (45) total vehicles entered in (50) slots—counting each individual machine present—gives us (15) 2021 models and (30) 2022s. Even that is open to some interpretation, as 2021s included the late-in-the-year all-new Jeep Grand Cherokee L (while its sibling two-row model, on display here but not driven, will be a 2022), while any number of 2022 models were fundamentally little changed for the new year. Model years have also been impacted by the pandemic, as well as the computer chip and supply line crises, but with the event late in the year, next year's models were still represented at an above average rate.

Of the (45), (13) were US brands, (21) were Japanese, (7) Korean and (4) European. (Despite their Stellantis global um-

brella, we're counting Jeep, Ram and Wagoneer models as US, and Alfa Romeo and Maserati as European.)

Stellantis, Toyota and Nissan had the heaviest representation at the event. Of (45) total vehicles entered in (50) slots including any repeats for off-road and luxury pickups, all but one of the US entries—a GM utility—were from Stellantis. Ford did not participate (despite Bronco, Maverick, Tremor, Mustang Mach-E and other strong contenders new in this cycle).

Volume representation (many entries) from any one given manufacturer seems bound to skew award results. Or perhaps not. Just one Acura, one Mazda, one Mitsubishi and one Subaru were entered by those brands, and each of the ones in competition has had a significant share of acclaim and success in other comparos and awards events.

There is considerable expense for the manufacturers to get all this tonnage on site. The more vehicles, the more personnel are likely to be sent, too. The decisions are surely always difficult. But the final list is always interesting. And revealing.

(cont'd)







## SUVs

There were three categories of "SUVs" (which here includes crossovers). Luxury entries were as determined by manufacturers, separate from size category entries.

Seven were from the US, (13) Japanese, (7) Korean and (3) European. Underscoring a lack of breadth among domestics, six were from Stellantis (Jeep or Wagoneer), one from GM. Japan, on the other hand, was represented by seven badges (or five, depending how you count Nissan/Infiniti and Toyota/Lexus). Korean models were all Hyundai in the size classes, shifting to all Genesis among luxury entries. (Kia did not participate.) VW, Alfa Romeo and Maserati are the only Europeans, though the latter two are also both part of the significantly represented Stellantis family.

Alfa/Maserati, Hyundai/Genesis, Nissan/Infiniti and Toyota/Lexus entered their mainstream brand by size, premium brand as luxury, with one or two exceptions.

### COMPACT SUV

2022 Hyundai Kona Limited AWD  
2022 Hyundai Santa Cruz AWD Limited  
2022 Hyundai Tucson Limited AWD  
2022 Jeep Compass Limited  
2022 Jeep Compass Trailhawk  
2021 Mazda CX-30 AWD Premium  
2022 Mitsubishi Outlander SEL  
2021 Toyota RAV4 TRD Off-Road  
2022 Volkswagen Tiguan 2.0T SE 4MOTION  
**WINNER: 2022 Hyundai Santa Cruz**

### MIDSIZE SUV

2021 Alfa Romeo Stelvio Quadrifoglio  
2022 Hyundai Santa Fe XRT 2.5 L AWD  
2021 Jeep Grand Cherokee L Overland  
2021 Jeep Grand Cherokee L Summit Reserve  
2022 Nissan Pathfinder Platinum 4WD  
2022 Subaru Outback Wilderness  
2022 Toyota 4Runner TRD Pro  
**WINNER: 2021 Jeep Grand Cherokee L**

### FULL-SIZE SUV

2021 GMC Yukon XL 4WD  
2022 Hyundai Palisade Calligraphy AWD  
2022 Infiniti QX80 Sensory  
2021 Nissan Armada Platinum 4WD  
2022 Wagoneer Series II  
**WINNER 2022 Wagoneer**

### MIDSIZE LUXURY SUV

2022 Genesis GV70 3.5T AWD Sport Prestige  
2022 Lexus NX 350 2.4L Turbo Luxury  
2022 Lexus NX 450h+ Plug-In Hybrid F Sport  
2021 Maserati Levante Trofeo  
**WINNER: 2022 Genesis GV70 3.5T AWD**

### FULL-SIZE LUXURY SUV

2022 Acura MDX SH-AWD Advance  
2021 Genesis GV80 3.5T AWD Advanced+ (3-row opt)  
2022 Grand Wagoneer Series III  
2022 Infiniti QX60 Autograph AWD  
2022 Lexus GX 460 Blackline Special Edition  
**WINNER: 2022 Grand Wagoneer Series III**

### GREEN VEHICLE

2021 Jeep Wrangler 4xe  
2021 Volkswagen ID.4  
**WINNER: 2021 Jeep Wrangler 4xe**

### DISPLAY VEHICLE

2022 Jeep Grand Cherokee (two-row)

**OF NOTE:** In the compact category, with many new models and refreshes—including Jeep Compass, which has such a nice new interior, with McIntosh audio, nobody wanted to get out—Hyundai Santa Cruz follows a familiar path as the newest news (the "new and shiny" fac-

tor). As many debate what the Santa Cruz is (Hyundai calls it a Sport Adventure Vehicle), Hyundai chose to enter it among SUVs here, while at NWAPA Mudfest in the Northwest (also in this issue), they not only entered it as a pickup, but it won the "Best Pickup Truck" prize.

Midsize entries followed suit. Although Subaru's Outback Wilderness is a significant new build (now also available on Forester), an all-new gen-five Grand Cherokee L (a new three-row long version was released first; see elsewhere in this issue) offered ample drive time, with two samples entered, and took top honors.

The full-size trophy also went to the only totally new vehicle (and badge) in the group, Wagoneer—yes, entirely new vehicles often seem to do well at comparos.

Luxury SUVs were originally entered and voted on as one category, but a later decision split them into two awards, by midsize (two rows) or full-size (three rows). Both winners are completely new models, so we can only wonder which might have won without the split.

The new green category (not limited to SUVs, but that's how it worked out) could be seen as a coin toss, with just two entries, both of which have had notable acclaim to date. They say this vote was close.

You can see how category awards are skewed by participation, but also by the many decisions entrants made by size (increasingly overlapping in many cases), and by the decision of whether to enter as luxury.

## TITLE AWARD: 2022 SUV OF TEXAS ★

The TAWA Texas Truck Rodeo's two top awards are not an aggregate of category votes by a matrix of attributes. Rather, driver-judges choose a first, second and third, subjectively. It may seem natural this prize went to the same winner of the biggest and priciest category—but, as you will see with pickups, this is not always the case.

**WINNER: 2022 Grand Wagoneer**

## Pickups

There were four categories for pickups—midsize, full-size and full-size heavy duty, then also a luxury class. Unlike the SUVs, luxury participants were not separate entries, but were derived from among other classes.

Thirteen total pickups broke out as (5) from the US and (8) from Japan. (Hyundai's entry of the Santa Cruz as an SUV here, though as a pickup in the Northwest, may have been partly due to size; perhaps next year, other brands will return and there will be a compact class.)

Stellantis had the most entries, five (four full-size and full-size heavy duty Rams, one midsize Jeep), followed by four from Nissan (three midsize, one full-size) and three from Toyota (the inverse: one midsize, two full-size).

Nissan went heavier on their midsize Frontier, as it is brand new for 2022, while Toyota went heavier on their full-size Tundra, for the same reason. Both paid off.

### MIDSIZE PICKUP

2022 Honda Ridgeline AWD Sport  
2021 Jeep Gladiator Texas Trail  
2022 Nissan Frontier PRO-4X Crew Cab  
2022 Nissan Frontier Pro-X Crew Cab  
2022 Nissan Frontier SV Crew Cab LWB 4x4  
2022 Toyota Tacoma TRD Pro  
**WINNER: 2022 Nissan Frontier**

### FULL-SIZE PICKUP

2021 Nissan Titan Pro-4X Crew Cab  
2022 Ram 1500 Laramie G/T  
2021 Ram 1500 TRX  
2022 Toyota Tundra Hybrid 1794  
2022 Toyota Tundra Limited TRD Off-Road  
**WINNER: 2022 Ram 1500**

(cont'd)

Compact SUV: Hyundai Santa Cruz



Green Vehicle: Jeep Wrangler 4xe



Midsize SUV: Jeep Grand Cherokee L



Full-size SUV: Wagoneer



Midsize Luxury SUV: Genesis GV70



Full-size Luxury SUV: Grand Wagoneer



TITLE AWARD: 2022 SUV OF TEXAS: Grand Wagoneer





## THE BUSTED KNUCKLE GARAGE AN AUTOMOTIVE GIFT SHOP

### Garage Comfort Mats

Our Garage Comfort Mats all have a 3/4" Energy-Return foam core. Standing or kneeling on them reduces all discomfort and fatigue.

Whether you're an automotive do-it-yourselfer or seasoned professional, you're bound to deal with foot, leg, knee or lower back fatigue. It comes with the territory but don't let it rob you of your joy in the shop.

- 20" x 32"
- Slip-Resistant Bottom Surface
- Stain Resistant, Waterproof Top Surface
- Beveled, Curl-Free Edges Reduce Tripping
- Won't Bottom Out or Lose Their Bounce Over Time
- Reduces Discomfort Brought On by Standing On Hard Surfaces
- And They Just Feel & Look Great!
- Must Have for Every Garage!



**Lost 10mm Anti-Fatigue Garage Comfort Mat (shown) / SKU: xxxxxxxx**  
Found it! Your 10mm socket is right on the corner of this mat. Ask your friend to pick it up and hand it to you. The background is a well used concrete that will probably blend right into your own garage floor.

**Repeating Wrench Anti-Fatigue Garage Comfort Mat / SKU: xxxxxx**  
Show you've paid your dues by sporting the Busted Knuckle Garage logo front and center! A subtle repeating wrench pattern wallpapers the background.

**\$49.95 each / Free ground shipping in the lower 48 states!**



**Furnishings | Clothing | Signs | Barware | And More!**

**FREE FedEx SmartPost Ground Shipping over \$99.99!**

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Need a volume discount for your shop  
or business? Call us: 928-708-0987



#### HEAVY DUTY PICKUP

2022 Ram 2500 Limited  
2021 Ram 2500 Power Wagon  
**WINNER: 2022 Ram 2500**

#### LUXURY TRUCK

2022 Ram 1500 Laramie G/T  
2021 Ram 1500 TRX  
**WINNER: 2021 Ram 1500 TRX**

#### OFF-ROAD VEHICLE

2021 Jeep Gladiator Texas Trail  
2021 Jeep Wrangler Rubicon 392  
2021 Ram 1500 TRX  
**WINNER: 2021 Ram 1500 TRX**

*OF NOTE:* Though hard to miss the glaring absence of Ford or GM, this was a solid mix of everything else. Folks have waited for a new midsize Nissan Frontier for a long time, and it was welcomed with open arms.

The full-size category is interesting, as it breaks the pattern seen among SUVs (and so often at any comparo in any class)—although the Toyota Tundra was the all-new entry, once the votes were tallied (a complex aggregate of numerical ratings for a wide variety of attributes), Ram prevailed. (And yet ... see below.)

The next three categories were 100 percent populated by Stellantis. The heavy duty award was considered an aggregate (Ram 2500 overall, not model-specific), while luxury did highlight the TRX, a nod to the fact that this performance off-roader came in at \$88k as outfitted, versus \$61k for the Laramie G/T. Had Ram decided to enter the \$81k 2500 Limited in luxury, who knows?

Off-road is not a pickup truck category, as you can see by the Wrangler entry, but we've included it here because a pickup won. It also generally seems that the more off-road-worthy an SUV is, the more trucklike it is.

#### TITLE AWARD: 2022 TRUCK OF TEXAS ★

Remember how your high school yearbook had picks for best looking, best personality, smartest, best dancer and so on? Yet when the homecoming king and queen were chosen, they might be different people altogether? That can happen here, too. Sometimes the Title Awards may seem to be the sum of the parts of all the others; other times, they may seem to be about pure glory. With Toyota USA now headquartered in Texas and Tundra all new after a long stretch (though still not offering a heavy duty), it took home the biggest crown in this event, which—since "Texas means trucks"—is also one of the most prominent wins among all such events anywhere.

**WINNER: 2022 Toyota Tundra**

#### Other awards

Manufacturers choose whether to showcase individual technologies and features for additional awards.

#### Best Safety Feature or Driver Assist

Lexus Safety System+ 3.0  
Toyota Safety Sense 2.5  
Infiniti ProPilot Assist  
**WINNER: Lexus Safety System+ 3.0**

#### Best Infotainment System

Lexus Interface Multimedia System  
Stellantis Uconnect 5  
Toyota Audio Multimedia System  
**WINNER: Stellantis Uconnect 5**

#### Best Powertrain

Ram 6.2L Supercharged HEMI® V8  
Toyota i-FORCE MAX  
**WINNER: Ram 6.2L Supercharged HEMI V8**

It remains clear that showing up is the best winning strategy. And that's a wrap! ■

Midsize Pickup: Nissan Frontier



Full-Size Pickup: Ram 1500



Heavy Duty Pickup: Ram 2500



Luxury Truck: Ram 1500



Off-Road Vehicle: Ram 1500 TRX



Best Powertrain: Ram 6.2L Supercharged HEMI V8



TITLE AWARD: 2022 TRUCK OF TEXAS: Toyota Tundra





# Clever beast

By Joe Sage  
Photos: Kevin McCauley  
/ capturingthemachine

**W**e promised we'd try to find time during the TAWA Texas Truck Rodeo for a spin in the ZeroNox Tuatara EV, which we did, at the very end—and we're glad we did. Tuatara is a name well chosen for this highly durable, adaptive and capable utility vehicle from New Zealand. Media there has described it as a mini Humvee, a great summation. In fact, it may well be more user friendly and more capable than that in most situations.

**NAMESAKE CRITTER:** The Tuatara is a one-of-a-kind creature with a vestigial third eye, inhabiting islands surrounding the North Island of New Zealand. Though easily confused as a lizard, it's a distinct species. Many call it a baby dragon, and who knows, it just may be. Its lineage has diverged from lizards, snakes and birds long since, but goes back to the Triassic Period, 250 million years ago, making it a direct descendant, or many would say surviving example, of the dinosaur. It's tough. It's kinda cute. And yes, it's real.

**THE UTILITY:** Also from New Zealand, also real and also fantastical is the Tuatara UTV, a light expedition truck for tackling rough coun-

try, nasty weather and the toughest terrain. The Tuatara is purpose-built with standard features not found elsewhere, including the largest bed of any side-by-side. A gasoline-powered version has already been available in New Zealand.

**ELECTRIC TECH:** ZeroNox, founded in 2017, focuses in three areas: battery and powertrain development, EV design and conversion, and new EV manufacturing, with an emphasis on off-highway vehicles. Headquartered in Porterville, in California's Central Valley north of Bakersfield and southwest of Sequoia and Kings Canyon National Parks, ZeroNox is in a great location to understand and build a vehicle equally happy in agricultural

and recreational settings. And roots in Silicon Valley are the basis for a particular emphasis on battery optimization and powertrain system software.

**THE DRIVING FORCE:** In Texas, we met up with ZeroNox CEO Vonn Christenson, a Porterville native with a mathematics degree from BYU and a law degree from Harvard. He cofounded the company with serial entrepreneur Robert Cruess, and they assembled a top tier team who know an opportunity when they see it.

ZeroNox already builds the Ion Caesar 14-person electric shuttle and the Icon EC4, a half-ton-load workhorse, as well as complete battery solutions including an Iron Vault rechargeable Lithium-Iron residential battery storage system. They recognized the Tuatara as an ideal basis for a new EV.

**DETAILS:** ZeroNox forecasts great durability for this machine—after all, its namesake reptile lives to well over 100 years of age and has even been known to father off-

spring at over 110.

The Tuatara is built with enough capacity and power to take on any of its comparable gas-powered peers. Aiming for a lifespan measured in decades, its all-steel body gets an electrophoresis anti-rust treatment and sits atop a purpose-built frame capable of taking the constant abuse of unforgiving terrain and weather.

To show it off, they brought it to the Texas Truck Rodeo, where we took it on the same maximum-challenge course and obstacles as the most capable trucks and SUVs in the most extreme off-road class. We knew right away that this rig is special.

Engineers had benchmarked "tires, shocks and four-wheel drive that would drive the Tuatara up a wall," and they have succeeded. One of our most lasting impressions was scaling a feels-near-vertical dirt and rock climb that caps off the extreme course. The rubber hits the dirt with beefy CST all-terrain tires and a shaft-drive 4WD system with individually lockable differentials front and rear.

Features include a 3000-lb front winch with 100 feet of cable; a rear dump bed for up to 1500 lbs of ranching, building or hunting loads; and additional strap-down cargo space atop the front and

the roof. The differentials, winch, dump bed and a range of lights are operated from the driver's seat.

Another bonus for hunting, livestock or remote outdoors use is the Tuatara's silent EV operation.

ZeroNox Lithium Iron industrial vehicle battery technology with highly advanced battery management software is specifically designed for the high performance power and torque required to haul the Tuatara EV's multiple passengers and ample loads—for 100 miles or more with available range extension. Full recharge take 3.5 hours on 220v.

The Tuatara EV can take on a wide range of tasks you might consider a pricey 4x4 pickup or an ATV for. Whether removing the purchase cost of those, or simply making them last longer when you use this tough guy for the most abusive missions, you can come out well ahead with one of these in the stable. It's so much fun and such a beast, you may well end up using it for everything.

Tuatara battery systems are compiled and the vehicles are assembled at ZeroNox headquarters in Porterville. Sales outlets are currently more likely a tractor supplier than a powersports dealer. The closest now is in Indio, east of Palm Springs.

For more information: [www.zeronox.com](http://www.zeronox.com). ■



## TUATARA 1500E (EV)

MOTOR	ZeroNox 15kW / 108V, liquid-cooled
BATTERY	13 kWh ZeroNox, lithium iron phosphate
TORQUE	max 90 Nm
DRIVETRAIN	shaft drive, 2WD & 4WD selectable, differential lock front and rear, individually selectable
TRANSMISSION	automatic
RANGE	100 miles
CHARGE TIME	110v 6+ hrs; 220v 3.5 hrs
BASE PRICE	\$27,995

## TUATARA 1000-EFI (GASOLINE)

ENGINE	Chery in-line vertical 3-cylinder liquid-cooled DOHC, 12-valve
HP/TORQUE	69 hp / 93 Nm
DRIVETRAIN	2WD or 4WD, selectable rear and front differential locks
CLUTCH	hydraulic
TRANSMISSION	manual (5 fwd, 1 reverse)
OIL CAPACITY	(w filter) 3.5L
FUEL CAPACITY	13.21 gal
FUEL	high octane 91 or better
BASE PRICE	\$24,195

## BUILD SPECIFICATIONS (BOTH)

CONSTRUCTION	steel
SEATS	three w seatbelts
SUSPENSION	F: independent wishbone w preload adjustable; R: indep double wishbone w preload adjustable
BRAKES	dual indep hydraulic disk brakes
TIRES	26x11-12 CST all-terrain
LENGTH / WHEELBASE	128 in / 97 in
OVERALL HEIGHT	6 ft 9 in
OVERALL WIDTH	5 ft 1 in
GROUND CLEARANCE	12 in
BED WIDTH	5 ft 1 in
BED LENGTH	5 ft 6 in
BED HEIGHT	11 in

## WEIGHT / CAPACITIES (BOTH)

WEIGHT EMPTY	2380 lb
TOTAL LOAD CAPACITY	2170 lb
GVWR	4550 lb
CARGO BED LOAD CAPACITY	1200 lb
FRONT RACK	330 lb
ROOF RACK	110 lb
HITCH CAPACITY	2000 lb
WINCH PULLING CAPACITY	3000 lb
TOWING CAPACITY	2200 lb





## THE INSIDE TRACK: BRIEFS & RUMORS



Presented first at CES 2020 in Las Vegas, **Mercedes-Benz** brought their VISION AVTR to the show stand at IAA Mobility in Munich. This concept vehicle showcases their outlook on a future dimension of human-vehicle interaction—operating the user interface through the power of thought. Using thought control to identify your destination, change ambient lighting or tune in a radio station, their proposed brain-computer interfaces (BCI) won't be available in everyday life tomorrow, yet are no longer science fiction, either—applications are already being considered by the medical research community as a viable option for helping people with physical disabilities become more independent. Mercedes-Benz has integrated these first BCI approaches into the VISION AVTR. Visitors at Munich could experience controlling and interacting with the user interface in the vehicle with their own thoughts in real time, in a seat mockup. Dots of light are projected onto a fully digital instrument panel, while a BCI device with wearable electrodes, attached to the back of the user's head, records brain activity and establishes a direct connection to the vehicle after a one-minute calibration. The brain then reacts to the visual stimuli on the dashboard. The BCI device measures neuronal activity at the cortex in real time, analyzes the brain waves and recognizes on which light points the user directs focus and full attention. The stronger the focus, the higher the neuronal activity. The device then triggers the targeted function

in the vehicle. The vehicle recognizes its occupants by their heart rate and comes to life; raising a hand projects a menu onto your palm. Just don't get distracted!

At the Hydrogen Wave online forum held this fall, **Hyundai** Motor Group announced Hydrogen Vision 2040, a program seeking to popularize hydrogen by that date for "everyone, everything and everywhere"—the Group's plans for a new



"wave" of hydrogen-based products and technologies building toward a hydrogen society. Introductions included a next-generation fuel cell system with 100kW and 200kW variations, projecting that in 2023, costs will be lowered by more than 50 percent, physical package volume reduced by 30 percent and power output doubled. Hyundai's stated goal is to become the first automaker to apply fuel cell systems to all commercial vehicle models by 2028, aiming to achieve a fuel cell electric vehicle (FCEV) price point comparable

to a battery electric vehicle (BEV) by 2030. Hyundai plans to apply fuel cell systems to all types of mobility, furthering the technology to all other aspects of society including homes, commercial buildings and power plants as energy solutions. Other future fuel cell concepts revealed included Trailer Drone, a tractorless autonomous semi truck replacement; a high-performance sports car; and fuel cell-equipped emergency relief and rescue vehicles.

Ever wonder how many dollars' worth of desirable cars are destroyed or damaged in some of your favorite movies' car crashes, explosions and such? Surprisingly, even the top budget is less than the cost of many a single supercar. **Uswitch** car insurance has calculated the damage in 15 of the most popular films. *Avengers: Infinity War* came in tops, at \$547,767. Next is *Captain America: Civil War*, at an estimated \$470,489. *Inception* is a close third, at \$461,847. Six of the top ten movies are from Marvel, totalling over \$2.2 million in damages. Though not tops in dollars, *The Blues Brothers* would have written off the

most by quantity, at 28 on-screen cars. Wondering about that 1971 chase scene classic, *Vanishing Point*? Even in today's dollars, it's a mere \$86,229.20 (which kind of makes you want to do it again, right?)

**Tuffy Security Products** of Cortez, Colorado, has introduced the Model 376-01 Security Console Safe for 2021 Ford F-150 trucks equipped with a full center console. Designed to be inserted into the OEM console with no drilling required, Tuffy's latest security safe for the F-150 keeps a stock

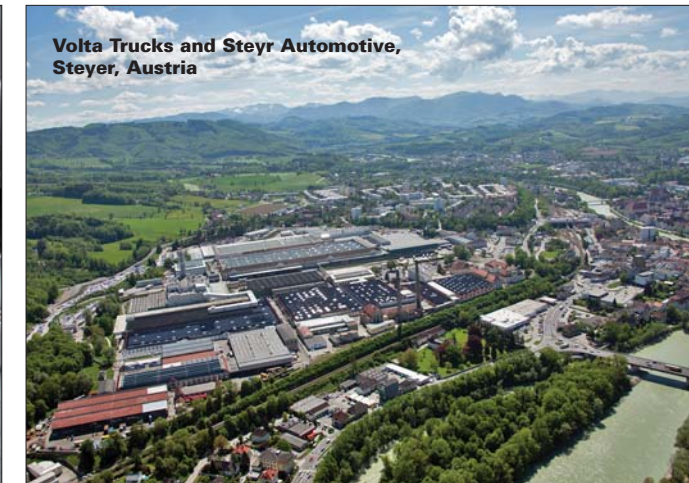
look, while providing superior security utilizing the company's exclusive Pry-Guard locking system. The product is manufactured of welded steel and features a 10-tumbler double-bitted lock that adds pre-



mium security for valuables. Truck owners retain full use of OEM USB and power outlets located inside the console. Finished with a durable black texture powder coat, the console safe provides years of dependable use with full access to the factory accessory tray, armrest and lid. Tuffy's exclusive lid support keeps the console lid open while accessing contents, making storing and accessing valuables easy and convenient. "Owners of these popular pickups can increase their peace of mind by locking away their wallets, cell phones, guns and other valuables in our security safe knowing that they will remain untouched until they return to their truck," says Tuffy marketing director Chip Olson. While installation takes just a few minutes with hand tools—no drilling required—the company also offers quality home installation of its storage/organization products from a certified professional technician, by simply clicking this option when making a purchase online (cost is clearly indicated on the product page for each item). Tuffy Security Products is a portfolio company of Kinderhook Industries and a sister company of Bestop Inc, Baja Designs PRP, Softopper, SpeedStrap, Bullring and Status. Visit [www.tuffypromod.com](http://www.tuffypromod.com).

**Steyr Automotive** (formerly MAN Truck and Bus Austria) and **Volta Trucks** have signed a manufacturing agreement that will see Volta Zero production start in Steyr, Austria, at the end of 2022 as targeted. The partnership is a vital part of Volta's

recently announced Road-to-Zero Emissions strategy. The announcement caps a wide-ranging competitive tender process by Volta Trucks with potential suppliers throughout Europe. Steyr Automotive was



chosen based on over 100 years' experience in large commercial vehicle manufacturing, existing manufacturing infrastructure and consequent speed to market. This will allow Volta Trucks to confidently start series production in late 2022, following customer trials of Pilot Fleet vehicles that will start mid-next year. Over time, the contract will create up to 500 jobs in the region in addition to an estimated 2000 positions within the supply



chain. Expect four Volta Zero models ranging from 7.5 to 19 tons, with more than 27,000 units built per year by 2025. Vehicles are to be manufactured close to their sales markets, reducing the environmental footprint of vehicle distribution. With London and Paris identified as initial launch cities, and a Europe-first, city-specific roll-out strategy, Austria is well situated close to those initial markets, support-

ing the accelerated roll-out. The strategy also confirmed Volta's planned market expansion across Europe, followed by North America and Asia, with additional global plants under consideration.

**BMW Group's** i Vision Circular looks ahead to 2040, focused squarely on sustainability and luxury, designed according to four circular economy principles, stylized as: RE:THINK, RE:DUCE, RE:USE and RE:CYCLE. A full EV, the four-seater offers generous interior space in about a 12-foot-long footprint. The overriding design aim was to optimize closed materials cycles and achieve 100 percent use of recycled

materials and 100 percent recyclability, with particular use of secondary materials that have already completed a product life cycle and certified bio-based raw materials. The all-solid-state battery—100 percent recyclable and manufactured almost entirely using materials sourced from the recycling loop—will achieve much higher energy density with significantly reduced use of the most valuable resources. ■



# UPCOMING FEATURES

2022 Mercedes-Benz EQS S 580



2022 BMW 230i Coupe



2022 Genesis G70 RWD 3.3T Sport Prestige



2021 Ford F-150 4x4 SuperCrew 3.5L Full Hybrid



Artist Lucretia Torva Phoenix Raceway mural



January Arizona Auction Week



Global YouTube sensation Sarah-n-Tuned of Tucson



LA Auto Show



## THE BUSTED KNUCKLE GARAGE AN AUTOMOTIVE GIFT SHOP



### Commercial Strength Shop Stools

Heavy duty garage counter shop stool with full swivel seat & great vintage look! Built in the USA, this shop stool is an industrial/restaurant grade counter stool built for long lasting durability, comfort and strength. Available in 36 designs!

- 30" standard counter height to seat • Vinyl covered seat is 14" wide
- Full 360 degree swivel seat • Industrial strength chrome plated legs
- 1600 lb weight capacity (vs imports rated at 300 lb) • Backrest option available • Built to order, allow 10-15 work days for delivery
- Minor assembly required • Tables to match—please inquire

Miracle Car Repair Shop Stool / SKU: 09-BKG-MCR

Gas, Oil & Toil Shop Stool / SKU: 09-BKG-TOIL

~~Were \$179.95~~ Now \$159.95 each

Free ground shipping in the lower 48 states!

### Neon Garage Clocks

USA Made Neon Automotive Garage Clocks with old school vintage car guy looks for your man cave. No disappointments. Highest Quality & Reliability available.

- Features a spun aluminum black case, glass face and a separate on/off switch for the white neon lamp. (100,000 hours of neon, that's 11 years continuous running!)
- Measures a large 20" in diameter and 5" deep • 8' Power Cord, Chain Pull for Lamp • Limited warranty against defects in material and workmanship; runs on 110 Volt AC • Several Car Guy Styles to Choose From...Check 'Em All Out! • We've been selling these clocks for over 15 years; Never a Return, Never a Complaint, you have our word on it • Looking for something smaller? Check out our BKG-76600 for a 12" alternative

Shown: Vintage Iron Speed Shop Clock / SKU: 09-BKG-VI

~~Were \$399~~ Now \$349 / Free shipping on this item!

### All-Steel Toolboxes

The Greasemonkeys have the feeling their full line of durable all-steel portable toolboxes with lift-out tray and a variety of the most cool car guy graphics (five styles now and more coming!) just may be too good to stash tools in—we may have to call them “deco-boxes”!

- Rugged all steel end cap construction • Powder coated, rust resistant • Heavy-duty stainless steel handle • Nickel-plated steel latch and hinge for added security • Full length lift-out tote tray
- Cool car guy quality color graphics • 6 lbs • 16" x 7" x 7.5"

Wrench-In-Hand Steel Tool Box / SKU: 10-BKG-WCL

Vintage Pickup Truck Steel Tool Box / SKU: 10-BKG-VT

\$49 each / Eligible for free shipping!

♥ Not only are your products awesome, but the service and the people are too! I very much intend to pass the word along about how great it is to do business with the Busted Knuckle Garage.  
— Many thanks! Jackie B.

♥ I just had the most wonderful buying experience! I only hope my father asks for something from The Busted Knuckle Garage for Christmas so I can do business with such a wonderful company once more.  
— Cheers! Michelle

♥ My husband just loves everything, especially me for getting him such cool stuff. I'd have to say we will be lifetime customers, oh ya!! Thank you, Greasemonkeys.  
— Sincerely, Pam

♥ First, let me be the one thanking you! I honestly cannot remember such extraordinary customer service.  
— Thanks again, "JR" Jean



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