

PROTECT YO CONVERT CARS

A few words from Jon Pul

HELP PROTECT RACECARS by challenging in Agency's assertion that street vehicl

I am the co-chair of the Racing Enthusiasts and S a lawsuit in the U.S. Court of Appeals for the Dist Environmental Protection Agency (EPA) has the aperson from disabling, removing, or rendering ind motor vehicle that is being or has been converted and is or will no longer be used on public roads.

RESC and its supporters are comprised of passio thousands of employees and their families that re hobby and passion is under attack, and without you longer exist.

In 2016, the U.S. EPA changed its interpretation of that the conversion of street cars into racecars we replacement for congressional action to protect rourselves, as an industry and as racing enthusiast Congress to act. This case directly challenges in design, sell, and install parts converting street we despite decades of hobbyist participation in this

Without the required funding, we cannot bring th

100% of all donations, after GoFundMe.com fees, to take this critical case up to the Supreme Court and for related RESC advocacy work. Donor mon to RESC should not be considered charitable don your tax advisor regarding any tax implications for donation may be considered a business expense. organizing this fundraiser.

PACER, Public Access To Court Electroni
Please note, you must re

Case Num Case Title: Racing Er Court: U.S. Court Of

UR RIGHT TO INTO RACECARS

li, CEO, Turn 14 Distribution

Federal Court the U.S. Environmental Protection es cannot be converted into racecars.

uppliers Coalition (RESC). The coalition has filed rict of Columbia Circuit to determine if the U.S. authority under the Clean Air Act to prohibit any operative emission controls on an EPA-certified to be used solely for purposes of competition

nate enthusiasts, small business owners, and ely on auto racing for their livelihoods. Racing as a our support, racecars, as many know them, could

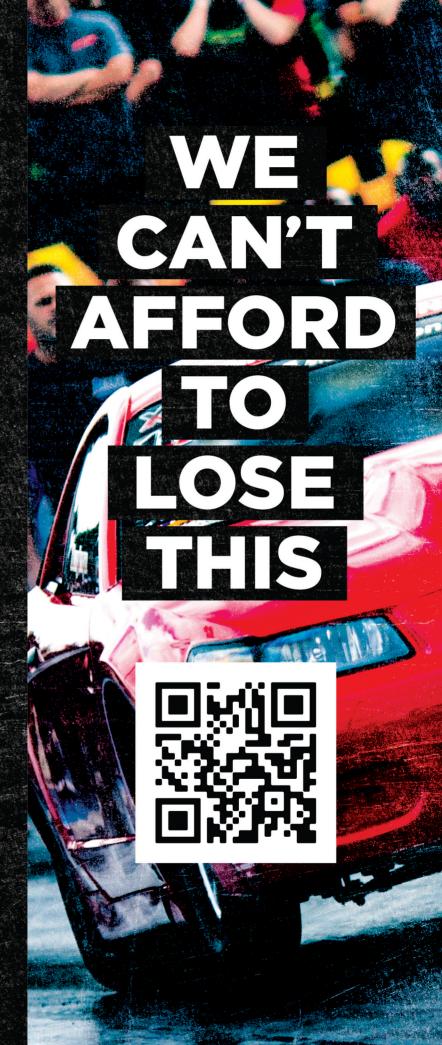
of the Clean Air Act to announce a new position ould be outlawed. This lawsuit is not a racing; rather, it is an essential step we can take is, towards protecting racecars while we wait for Federal Court the EPA's assertion that those who ehicles into racecars are violating the law, a American pastime.

is case to trial.

will be utilized to pay court costs and legal fees, to advocate for reasonable action by the EPA, ey will only be used for these purposes. Donations ations for income tax purposes. Please consult or you or your business and whether your The Racing Enthusiast and Suppliers Coalition is

c Records, can be used to follow this case. egister to use this system.

ber: 16-1447 othusiasts v. EPA, et al Appeals, D.C. Circuit





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DRIVER'S SEAT





Jef White **Executive Editor** www.theshopmag.com

Green Light for Low-Volume Builders

ompanies that want to produce a limited number of replica vehicles have the green light, thanks to final provisions approved through the Low Volume Motor Vehicle Manufacturers Act.

The National Highway Traffic Safety Administration implemented the regulations in early March, opening the door for small-volume motor vehicle manufacturers to produce and sell replica cars that resemble vehicles produced at least 25 years ago.

Builders such as Superformance and Shelby Legendary Cars welcomed the finalization of a process

that has been seven years in the making.

"We're very excited to offer turnkey vehicles under the Low Volume Manufacturers Act and have aggressively been planning for this day since Congress enacted the bill in 2015," said Lance Stander, Superformance CEO. "With all the rules now issued, we'll collaborate with SEMA, engine suppliers and regulators to ensure that our exciting vehicles fit within their framework. Our goal is to sell compliant cars by the end of the year."

SEMA worked with Congress to pass the federal policy change, which became law in 2015 as part of the Fixing America's Surface Transportation Act. The replica car provision created streamlined regulatory requirements for small automakers.

"SEMA applauds NHTSA's final rule allowing companies to market classic-themed cars," said Daniel Ingber, SEMA vice president of government affairs. "Regulatory barriers have previously prevented small automakers from producing heritage cars that are coveted by consumers. The roadblocks have been eliminated. This is a hard-fought victory for enthusiasts, small-volume manufacturers, their suppliers, and all the men and women who will be hired to fill new jobs created by this law."

The law and implementing regulations allow a low-volume manufacturer to construct up to 325 replica cars a year, subject to federal regulatory oversight. While the cars must resemble production vehicles manufactured at least 25 years ago, they are required to meet current model-year emissions standards.

In 2019, the U.S. Environmental Protection Agency issued guidelines for installing engine packages from other EPA-certified vehicles, and the California Air Resources Board issued a regulation for producing compliant engine packages.

SEMA sued NHTSA in October 2019 to require the agency to issue regulations allowing the law to take effect. NHTSA issued a proposed rule in January 2020, but completion of the final rule was delayed during the presidential transition. Low-volume vehicle manufacturers must first register with NHTSA, EPA and CARB before selling vehicles—a process that may take several months—and thereafter submit annual reports on vehicle production, according to SEMA. **18**

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ith your specialty automotive aftermarket operation's 2021 taxes complete or postponed until later, it's time to think about the new ballgame that is your company's 2022 taxes.

Sure, the controversial Build Back Better Act bill may or may not emerge to foil some planned tax savings. Far more certain, however, are the many changes and new taxes that definitely warrant your attention.

Recent changes have affected employment taxes—especially the status of independent contractors—as well as processes to cope with worker shortages, and busi-

ness meal and entertainment deductions. New reporting requirements for digital assets such as cryptocurrencies will also take effect in 2022.

LOOKING BACK BUT ACTING

First, however, many potential tax savings advantages—and currently misunderstood or neglected law provisions—were already on the books before this year. Consider:

Payroll Tax Deferment

The Coronavirus Aid, Relief, and Economic Security (CARES) Act allowed employers to defer deposits and payments

of their share of Social Security taxes from March 27-Dec. 31, 2020. While 50% of those deferred amounts was required to be deposited by Dec. 31, 2021, any remaining amount must be deposited by Jan. 3, 2023.

Going The Extra Mile

The standard mileage rate used by so many shop owners/managers has increased for the 2022 tax year. Reflecting higher prices at the pump, the new rate for vehicles—including passenger automobiles, vans, pickups and panel trucks—is 58.5 cents per mile when used for business purposes.

Related tolls and parking fees can be



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added to these amounts. And keep in mind that if there are more than five vehicles used for business purposes, the standard mileage deduction won't work.

DANGER AHEAD WITH PAYROLLS

The deferment of payroll taxes isn't the only potential problem—or opportunity—many in the specialty automotive aftermarket industry will face in the months ahead. Consider:

Sign-On Bonuses

So-called *signing bonuses* are becoming more common. A signing bonus is money paid to new hires who accept positions in a business.

When paying a signing bonus—or any bonus—this year, remember there are different rules. A signing bonus paid to a new employee contingent (no longer refundable) on a certain minimum amount of time of employment will likely be classified as prepaid salary, a current asset. Once that time is achieved, the bonus would be reclassified as an expense.

From a payroll tax angle, when the shop pays a bonus, it is considered *supplemental* income and requires a higher withholding

rate. Bonuses are not considered deductible expenses for sole proprietorships, partnerships or limited liability companies (LLCs) because the shop owner is considered to be self-employed.

Work Opportunity Tax Credit

The Work Opportunity Tax Credit is a tax credit (not a deduction, but rather a direct reduction of the operation's tax bill) available to shops hiring individuals from targeted groups who have faced significant barriers in employment.

The credit amount for the WOTC can be up to \$9,600 for each qualified new hire, depending on the targeted group the new hire is drawn from. The WOTC has been extended through 2025.

Healthcare Costs

Healthcare is one of the most important benefits workers expect from their employers—and often the most expensive.

Certain small employers may qualify for the Small Business Health Care Tax Credit. The credit is limited to employers with fewer than 25 employees and provides a sliding scale tax credit based on the company's size. The maximum 50% tax credit is paid to employers with fewer than 10 employees who make an average of \$27,000 or less.

The "larger the employer, the smaller the tax credit and vice versa" rule applies to shops with fewer than 25 full-time-equivalent employees and average employee salaries of \$56,000 per year or less. Unfortunately, this isn't a tax credit that can be claimed year-after-year; it can only be claimed for two years in a row.

THE WAY WE DO BUSINESS

Many shop owners and managers recently discovered—or will discover, should they face an IRS audit—that even seemingly common business deductions can have a dark side. Among the restrictions that should be considered in the months ahead are such things as:

Like-Kind Exchanges

Generally, a *like-kind* or *1031 exchange* is a swap of one property or piece of equipment for another. A capital gains tax is avoided, since the exchanged asset is rolled over unless or until it is retired, disposed of, sold, transferred or rolled over again.

Taxes under a like-kind exchange are



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deferred, but not eliminated. However, a like-kind exchange allows the seller to defer the depreciation recapture—sometimes.

When depreciable property is exchanged, special rules apply. If not properly structured, and/or if the properties involved don't qualify as *like-kind* under the rules, the transaction can trigger a profit known as *depreciation recapture*, which is taxed as ordinary income.

Related-Party Transactions

All too often, unsuspecting shop owners find themselves facing penalties, fines and substantial tax bills because the ever-vigilant IRS has detected a transaction it views as having been conducted by *related persons*.

The IRS defines *related* parties not just as family members, but owners or shareholders related to the business, as well as friends, officers, suppliers and others. Below-market loans, property sales, installment sales, like-kind exchanges, intercompany transactions and more may all require special tax treatment.

THE NEW TATTLETALE SOCIETY

Whether innocently or otherwise, many performance, restyling and customization professionals have overlooked some of their operation's reportable income. The IRS has new reporting requirements they should know about, including:

Digital Asset Reporting

It's not only so-called *brokers*—that is, "any person who is (for consideration) responsible for regularly providing any service effectuating transfers of digital assets on behalf of another person"—that are

impacted by 2021's Infrastructure Investment and Jobs Act.

IIJA includes reporting requirements for virtual currency and other digital assets for every trade or business receiving more than \$10,000 through these types of payments. Although applying only to digital assets acquired on or after Jan. 1, 2023, shops are obviously going to need significant lead time in order to comply with these new reporting requirements in the years to come.

These provisions are the first compliance requirements for digital assets, and an indicator that the IRS will soon target the crypto and non-fungible token markets for enforcement.

Third-Party Payment Providers

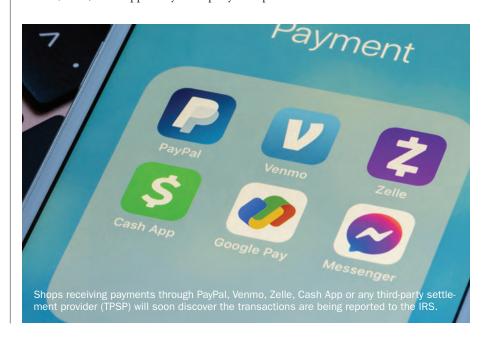
Shops receiving payments through PayPal, Venmo, Zelle, Cash App or any third-party settlement provider (TPSP) will soon discover the transactions are being reported to the IRS.

TPSPs have always been required to report some payments to payees. However, before 2020, the information reporting requirements did not apply until the TPSP made more than 200 payments to the payee totaling more than \$2,000 during the year.

Thanks to the American Rescue Plan of 2021, millions of small businesses receiving more than \$600 through such a provider during the 2022 tax year—regardless of how many customers or clients are paying—will discover the payment service has reported the amount to the IRS.

NOT ALL INCOME IS EQUAL

Much has been written and said about the special treatment of income from so-called





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pass-through entities such as partnerships, S corporations, etc. Anticipated changes in the tax rates for individuals, incorporated shops and those pass-through entities makes understanding how an operation's business entity is labeled important. Consider:

Qualified Business Income

The Qualified Business Income deduction allows the owner of a specialty automotive aftermarket business making less than \$64,900 during the 2022 tax year to claim up to a 20% deduction from its taxable business income.

In general, total taxable income this year must be under \$170,000 for single filers and under \$340,000 for joint filers. Over that limit, complicated rules determine whether the business income qualifies for a full or partial deduction.

Another Way Of Doing Business

A shop that has outgrown its current business structure has options for restructuring. It can, for example, choose to operate as a sole proprietor, partnership, limited liability company (LLC) or S corporation

and, hopefully, benefit from the 20% QBI deduction.

Or it can change into another entity.

Changing business entities can reduce risk exposure, help the operation attract investors, and/or lower the shop's tax bill. Naturally, the IRS will require adjustments to income and deductions to ensure it won't lose revenue as a result of the switch.

In general, entity switches must occur within the first few months of a tax year, although there are numerous exceptions. Our tax laws may change, and the IRS will continue to impose new rules and/or limit write-offs. However, one thing that will never change is the importance of tax planning.

Substantial tax savings are possible with planning, especially early planning during the course of the year. **15**

MARK E. BATTERSBY writes on financial and taxrelated topics. Learn more at thetaxscribe.com.











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SORT YOUR THOUGHTS

How leaders find clarity when challenges arise.

By Jill J. Johnson

ost leaders think they make good decisions. They believe they already have clarity about their situation. Protecting the status quo is the norm.

Then something significant happens. Their financials show losses. Revenues stall. Clients leave. Good employees take better jobs elsewhere.

All managers share a desire to resolve issues when they are in the middle of a complicated or difficult situation. Exceptional leaders make it happen with clear, concise thinking.

They demonstrate a willingness to gain real clarity about what's going on inside and outside the organization. They seek a depth of information to understand the truth about what is right and wrong with the strategies they are implementing.

They identify the factors impacting their ability to be successful. And they take control by looking for ways to innovate their organization to solve problems, meet the evolving needs of customers and improve their market position.

You can do it, too, if you take time to SORT your thoughts.

SKEWED VIEWPOINT Most leaders believe they are already doing the right things. They believe

Most leaders believe they are already doing the right things. They believe their products and services meet valuable needs for their customers.

What they often don't realize is that their view can be skewed by subtle changes that have gone on around them. New competitors may have significantly altered the company's historical market position, but the leaders were so certain they were doing a good job that they didn't even realize that the market was evolving.

Exceptional leaders understand that staying close to their market is crucial to long-term success. They want to understand not only how the market is changing, but also why.

Then they determine what needs to be done to meet its evolving needs. They analyze what they need to do to compete effectively with new competitors to retain or enhance their market position.

They are also constantly assessing customer expectations and whether their needs may be shifting beyond what is now offered. A leader's focus is on the future and moving forward to find ongoing success.

OVERCOMING OBSTACLES Sometimes leaders freeze when confronted with the need to take real action. They are so paralyzed by the fear of making a mistake that they make

fear of making a mistake that they make no decision at all.

They may wait until the situation is dire and then react by putting out the inconsequential fires. By focusing on the wrong things, however, they ignore the main blaze that rages all around them.

This inability to address the real issues



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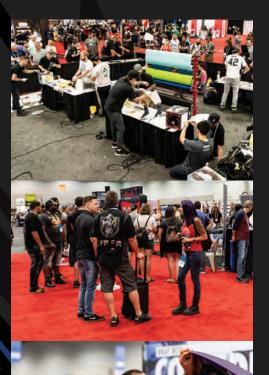
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before there is a complete crisis results in chaos. Poor leaders then blame others.

Exceptional leaders, meanwhile, expect their situations to evolve and have the discipline to continually look forward and assess how changes may affect them. They are always on the lookout for ways to innovate and revitalize their products, services and organization as a whole.

They look for new ways to grow, evolve and succeed. They understand periodic strategic corrections are a necessity to overall long-term success.

RIGHT INFORMATION
Most leaders believe they already have enough information and apply the same sets of assumptions to their decision-making that have worked for them in the past.

They use the same data sources they have always used. They rely on the opinions of underperforming staff to explain the challenges they face rather than engage in proper due diligence to find out the true underlying causes of organizational difficulties.

They fail to understand the significance of how changes in external market forces can impact consumer expectations or their company's long-term survival.

Exceptional leaders look for more than just a superficial answer. They search for the pearls of wisdom buried deep in the data and they are not afraid to rely on advi-

sors who will help them find the truth and interpret it.

Getting the right information for real decision-making is hard work. Top leaders know that it requires significant effort to reconsider every current assumption and look for changes in the trends and patterns the data reveals.

Doing that without a biased view is even harder. Yet, they are willing to invest the time and money needed to bring in a fresh viewpoint to discover the truth.

THE TRUTH

Most leaders believe they already have a complete understanding of what's going on. The fundamental reason for a lack of clarity at the top is usually because no one tells them the whole truth.

Employees tell their leaders what they think they *want* to hear. In business, people are generally penalized for telling the truth. Cultural paradigms cause employees to withhold candid feedback because they don't want to displease others with bad news.

Worse, some leaders can't or won't listen to divergent perspectives. As a result, these leaders lose control of situations and their ability to implement corrective actions before things go wrong.

Exceptional leaders understand clarity begins with a real desire to see the truth of every situation. Truth gives you information. Information gives you insight. Insight gives you clarity to set the right priorities and focus your people on the most critical activities designed to create success.

Top leaders find it refreshing to have someone around who will tell them what they don't necessarily want to hear, but that they already suspect is true. They use objective advisors to get to the truth and help them work through the issues to create real and lasting improvements that move their organization forward.

FINAL THOUGHTS

Complete clarity can be frightening. Recognizing your problems and challenges can scare your managers and staff. It can be humbling to realize that critical strategies you previously implemented are now causing problems within your organization.

Yet, when you have clarity, it becomes much easier to prioritize what needs to be done to resolve the issue or at least improve it, to help your organization and your customers.



JILL J. JOHNSON, MBA, president and founder of Johnson Consulting Services, is a management consultant, accomplished speaker, award-winning author and Business Hall of

Fame inductee. She helps clients make critical business decisions and develop plans for turnarounds or growth. Visit www.jcs-usa.com.



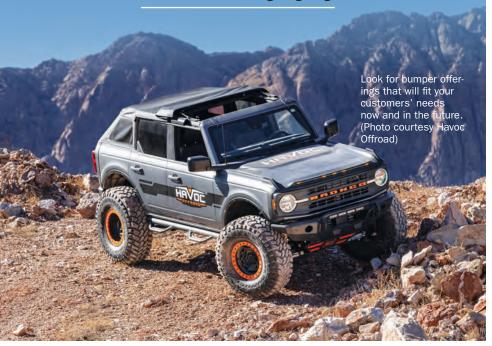


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BUMPER, ROUNDUP

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hether your off-road customers are looking to make a good first impression or want to be remembered as they drive away, aftermarket front and rear bumpers are the answer.

Providing real-world benefits including added vehicle protection and improved approach angles, the latest bumper designs also deliver the rugged 4x4 or overlanding look enthusiasts want. Add in accommodations for OEM sensors and equipment, and bumpers begin to look pretty good to shops seeking connections with customers headed to the trail.

Bumper manufacturers are eager to highlight their hottest-selling bumper products, and outline some of the challenges and opportunities that come with front and rear bumper sales.

HAVOC OFFROAD

Suwannee, Georgia Lee Riser SR. Director of Marketing

Our hottest aftermarket bumper offering is ...

... the Steel Bender Bumper for the Ford Bronco.

Its best features include ...

... it's a cut, fold, weld steel bumper that works with factory sensors and cameras. The low-profile stinger gives the front end a clean

look with added protection. The bumper also works with OE and aftermarket flares, and offers an easy, no-drill install.

How has new vehicle technology affected the bumper market?

Factory sensors, lane change technology and so many of the 360-degree cameras must all be taken into consideration with not only the bumpers' design elements, but also to ensure full functionality of those features with each bumper.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

They go for looks or price or just what is asked for instead of focusing on things like ease of install and quality fit and finish to keep customers happy for the long run.

What's an unexpected benefit for shops that enter the bumper market?

One of the best benefits is they can get tons of add-on sales! Bumpers mean winch sales, D-ring sales, winch fairlead sales, and then a chance to offer related items like winch recovery equipment and gear.

BODY ARMOR 4X4

Ontario, California Nupesh Patel Brand Manager

Our hottest aftermarket bumper offerings are ...

... the HiLine Bumper Series for Toyota and Subaru models. Front bumper applications include 2012-'15 and 2016-'22 Tacomas, 2014-'22 4Runners, 2018-'22 Crosstreks and 2019-'22 Foresters.



Today's aftermarket bumper designs must keep pace with advancing vehicle technology. (Photo courtesy Havoc Offroad)



When it comes to bumper installation, a little homework goes a long way. (Photo courtesy Body Armor 4x4)



Be a one-stop shop for all of your customers' bumper and accessory needs. (Photo courtesy Body Armor 4x4)



Modern bumper designs offer versatility for off-roaders and other enthusiasts. (Photo courtesy Magnum by Raptor Series)

Their best features include ...

... built with 3/16 steel; accommodate a 10K winch for Toyota applications and a 6K winch for the Subarus; built-in or bolt-on bull bar, depending on the application; provisions for a 20-inch light bar; integrated shackle recovery points; no-drill application; easy bolt-on installation.

The HiLine Series is a sleek-looking bumper with added protection.

How has new vehicle technology affected the bumper market?

It has made it harder to accommodate and make sure that the safety sensors stay intact and still work to factory specs. However, our engineers strive to ensure we retain factory safety measures while offering additional protection in the bumper.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

The biggest mistake is choosing a bumper solely based on price. Cheapest isn't always the easiest to install.

Also, read the instructions to fully understand what's going to be needed for the installation, or at least what to expect. A little homework goes a long way.

What's an unexpected benefit for shops that enter the bumper market?

It opens other avenues of equipping the vehicle with more accessories. Whether it's little add-ons for the bumpers or outfitting the entire vehicle, a bigger build leads to a repeat customer.

For a customer, to be able to have a onestop shop for all their needs and not have to drive to multiple places equals revenue. Time is money.

MAGNUM BY RAPTOR SERIES

Phoenix
Rafael Riveros
Director of Sales

Our hottest aftermarket bumper offering is ...

... our Magnum RT Series Jeep Bumper line.

Its best features include ...

... heavy-duty construction and stylish good looks; made with the off-road enthusiast in mind; manufactured from cold

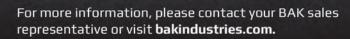






BAKFIP REMIUM MATTE HARD FOLDING COVER

This heavy-duty, all-season truck bed cover is designed to perform in extreme conditions. MX4's resilient infrastructure is for everyday use, featuring premium upgrades to the prop rod clips, rails, elevator bolts, and the A-panel and B-side bumpers that provide enhanced functionality and a more complete matte-finish look and feel. The MX4's solid and robust design is flush mount, and backed by an extended 5-year warranty.









With bumpers being a larger item that often needs to ship via freight, it's important to order the correct item the first time. (Photo courtesy Magnum by Raptor Series)



Winch-capable bumpers offer added versatility for off-roaders. (Photo courtesy Westin Automotive Products)



Bumper sales often lead to accessory sales. (Photo courtesy Westin Automotive Products)

rolled steel and finished with a three-stage coating process.

Front bumpers accommodate winches and include our signature angled steel RT Light Bar Mount, plus 4-inch round holes that allow use of factory or aftermarket round fog lights.

Meanwhile, all Magnum rear bumpers work seamlessly with OE back-up sensors and are compatible with a factory receiver hitch and exhaust. They come with a super-bright LED license plate light, and reinforced shackle mounts are fully welded on both sides and attach directly to the vehicle's frame.

How has new vehicle technology affected the bumper market?

As technology advances with newer vehicles, it's increasingly challenging to engineer aftermarket bumpers to work with all the sensors that come as a stock option.

For example, if you have parking assist, adaptive cruise control, etc., our engineers must constantly adapt to design new products that will work seamlessly with all that technology.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

It's important to ensure that the aftermarket bumper that a shop is selecting for the customer will work seamlessly with the existing features of their vehicle, such as lights, back-up sensors, cameras, etc.

With bumpers being a larger item that often needs to ship via freight, it's important to order the correct item the first time.

What's an unexpected benefit for shops that enter the bumper market?

When shops add bumpers to their product offerings, they immediately open new opportunities for sales of other associated products. Most customers that purchase bumpers are likely to purchase a winch, lights, shackles and other accessories to go along with them.

WESTIN AUTOMOTIVE PRODUCTS

San Dimas, California Cameron Quiroz Regional Sales Manager

Our hottest aftermarket bumper offering is ...



RANCH HAND IN STOCK AT EARL OWEN CO.



TRUCK & JEEP ACCESSORY **DISTRIBUTOR**

Versatility



Ranch Hand does not take a 'universal' or 'one-size-fitsall' approach for any of their products. Each Ranch Hand bumper, grille guard & step is designed for a custom, vehicle-specific fit.

Functionality



Most of Ranch Hand products allow for full function of the factory camera, adaptive cruise control and sensors, as well as fog lights, tow hooks and lights on rear bumpers.

Strength



Built with a one-piece welded design for structural integrity, Ranch Hand's products are frame-mounted directly onto the OEM bumper locations, providing additional strength.

· GRILLE GUARDS · FRONT BUMPERS · REAR BUMPERS · RUNNING STEPS

A Texas-based warehouse distributor, Earl Owen Co. carries a wide variety of aftermarket automotive accessories. Established in 1952 as a small upholstery shop, we have become one of the largest warehouse distributors in the Southwestern United States. As a family-owned business, led by three generations of Owens, we take pride in offering professional, personalized service with family friendliness. Our highly educated staff combines knowledge of the products with genuine care for the customer. We continually stock over 300,000 square feet of warehouse space with the hottest products on the market. Earl Owen Company's product purchasing team is constantly searching the market to find new products and manufacturer lines to give you the leading edge in this competitive aftermarket industry. Become a dealer today at earlowen.com









Always check with the bumper manufacturer regarding winch fitment. (Photo courtesy Warn Industries)



Shops can charge for installations, as well as all the accessories that can come with bumpers. (Photo courtesy Warn Industries)



Adding heavy-duty bumpers is the start of serious off-roading. (Photo courtesy ACE Engineering and Fab)

... our Pro-Series Front Bumper, available for some of the hottest-selling trucks and SUVs.

Its best features include ...

... it's a winch-capable upgrade replacement of the factory bumper; a lightweight, 10-gauge steel shell and 4-gauge steel winch tray provide superior strength at an affordable price; the bumper accommodates most winches up to 12,000 pounds and with a 4.5-by-10-inch mounting pattern; a recessed fairlead mount provides two recovery points for shackles; it is configured to accept most single- or double-row 20-inch LED light bars (sold separately); and is packed with off-road features while still maintaining provisions for factory sensors.

How has new vehicle technology affected the bumper market?

Sensors and front-end safety features have made it more difficult to design a bumper while still maintaining the functionality of those components. Our design team works extremely hard to allow consumers to keep all the creature comforts they have paid for.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

I always suggest going with a winch-capable bumper, if possible. Sometimes, having this insurance on the vehicle can be overlooked when making a bumper decision.

What's an unexpected benefit for shops that enter the bumper market?

The upsell! Most people will rarely want just a front or rear bumper alone.

When they can buy in pairs for the complete look, it's a great advantage to the shop. This also raises the opportunity to talk about other accessories they might like to add.

WARN INDUSTRIES

Clackamas, Oregon

Andy Lilienthal

Strategic Communications Manager

Our hottest aftermarket bumper offering is ...

... our Ascent Bumper for Ford Broncos.

Its best features include ...

... low-profile design, integrated mid-



CURT INNOVATION LEADER IN BRAKE CONTROLS

I ECHO®

- Wireless, portable design allows for easy transfer from one vehicle to another
- Bluetooth connection to control all brake settings from a smartphone and allows storage of multiple profiles



I SPECTRUM™

- · Controls all brake settings with a simple push-button rotary knob
- Clean, dash-mounted, OEM-style user interface with 10 tri-color LEDs
- Main module can be mounted out of sight
- Triple-axis, motion-sensing accelerometer for highly responsive, smooth stops



ASSURE™

- Pressure-sensitive manual override button for precise braking power
- Large, high-quality 1-1/2" OLED screen displays full text readout
- Sleek, low-profile design with tactile buttons







Remember that aftermarket rear bumpers and/or tire carriers can add weight to the rear of the vehicle. (Photo courtesy ACE Engineering and Fab)



Make sure the bumper selection meets or exceeds the customer's expectations. (Photo courtesy Warrior Products)



Today's bumper designs blend good looks and utility. (Photo courtesy Warrior Products)

frame winch mount, optional welded-on grille guard tube, ports for lights, welded eyelets for shackles, and state-of-the-art powder-coated finish that stands up to rigorous 48-hour salt-spray testing. They're made in the USA, too.

How has new vehicle technology affected the bumper market?

We've had to work with things like forward-facing cameras, for example. On the Bronco, we recommend buyers with the SUV's forward-facing camera buy the Ascent front bumper without the grille guard tube.

We also offer control pack relocation kits, so the camera's view is unobscured. Other things like adaptive cruise control and other new-tech features are things we need to always be thinking about.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

I think just making 100% sure the application fits. A lot of people assume that if it fits a 2021 model, it will fit a 2022 as well. But sometimes manufacturers make small changes that can affect fitment.

In addition, if it's a winch bumper, ensuring the winch will fit that bumper. Always check with the bumper manufacturer for winch fitment.

What's an unexpected benefit for shops that enter the bumper market?

Shops can charge for installation, as well as all the accessories that can come with a bumper—especially a winch bumper. This includes not only auxiliary lights, but recovery accessories such as shackles, straps, off-road jacks and so on.

ACE ENGINEERING AND FAB

Bushnell, Illinois Adam Morrow Sales Manager

Our hottest aftermarket bumper offering is ...

... our Pro Series Rear Bumper with Tire Carrier.

Its best features include ...

... quarter-inch construction; recovery points; auxiliary lights; swing-away tire carrier.

How has new vehicle technology affected the bumper market?

The biggest change is building bumpers that integrate with the factory proximity sensors.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

They don't consider the added weight from the bumper and/or tire carrier. This causes the rear to sag with the added weight.

What's an unexpected benefit for shops that enter the bumper market?

Adding heavy-duty bumpers is the start of serious off-roading. Bumpers lead to winches. Winches lead to harder wheeling. Harder wheeling leads to more broken parts. Broken parts lead to customers returning for more upgrades.

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WARRIOR PRODUCTS

Tualatin, Oregon Ryan Wood Marketing



Modern bumper designs offer versatility for off-roaders and other enthusiasts. (Photo courtesy Magnum by Raptor Series)

Our hottest aftermarket bumper offerings are ...

... Jeep MOD Series Rear Bumpers.

Their best features include ...

... integrated steps to provide a large and stable step surface that can be used to gain access to roof racks and other hard-to-reach areas. The steps can also be used as a seat or a spot to set larger items during trail repair or camp preparation.

The extended tube step provides an additional layer of protection from trail hazards and added coverage for tailgate-mounted spare tires as well. The rear bumper includes built-in off-road jack lift points that double as an opener for your favorite bottled beverage.

How has new vehicle technology affected the bumper market?

Manufacturers must use their expertise to customize and adapt additional modifications to the bumpers to accept OE sensors.

What's a common mistake shops make when selecting and/or installing an aftermarket bumper?

Not first consulting with the customer to make sure it meets or exceeds their expectations and is a solution for their bumper inquiry.

What's an unexpected benefit for shops that enter the bumper market?

The additional revenue generated from related products such as lights, brackets, winches and other recovery equipment. **15**



WORKING FOR A LIVING

Can commercial & consumer vans coexist?

Story and Photos by Jason R. Sakurai

ith the newfound interest in, and excitement surrounding Van Life and the requisite camper vans, you may think that van conversions are a relatively new phenomenon. But what's become big business in the recreation space has a blue-collar history.

Commercial vans are the shop tools of plumbers, electricians, locksmiths and more, and they've been around a while. These days, with the advent of online sales, you can get your bicycle assembled and ready to ride, or a set of truck tires mounted and balanced while you wait, thanks to a converted van equipped to do these tasks and more on the go.

Here are some products to help shops serve van-driving commercial customers, and ideas on how to blend consumer and commercial work into a one-stop van conversion outlet.

BUILD YOUR SPACE

We had previously come into contact with Rancho Cordova, California-based Kargo Master, who manufactures complete van

packages for Mercedes-Benz Sprinter, Ford Transit, Ram ProMaster and the recently discontinued Nissan NV models. all designed for trade work.

Kargo Master's packages are earmarked for HVAC specialists, locksmiths and general service. You can order pieces separately, from shelving to work benches, drawers, cabinets, dividers, door kits, reel holders and bins, to more precisely fit the tasks required of the industry in question.

Interior partition kits and accessories provide a measure of security while keeping tools and equipment in their place. Kargo



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Built to protect your gear from the toughest environments, the **Mountain Top Evo Retractable Cover** sets the industry standard in design, quality, and functionality.



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Master also offers van racks, dropdown ladder racks, crossbars to hold long tools and equipment, and cargo racks to tiedown bulky items that would make ingress and egress difficult.

HYBRID DESIGNS

While attempting to find a company who could build a Sprinter van into a rolling showroom and retail outlet for apparel maker Lake Of The Woods Club, conversion specialist American Van Works in Stanton, California appeared on the radar.

A firm that started selling and installing Lance and Northstar truck campers in 1971, along with SnugTop shells, American Van Works has been building commercial vans for decades, and more recently has entered into the consumer campervan market as well.

Owner Mark Gibbs has seen the surfer van craze in Southern California come and go, along with conversions of domestic full-size vans into off-road vehicles, rivaling that of Volkswagen's Syncro vans.

Coming full circle, the van life and overland segments have popularized recreation builds, and Gibbs estimates that at least 50% of the work he's doing currently is on the enthusiast side.

What has caused demand for these Sprinter and Transit vans to ramp up? COVID-19 created the need for separation, and what better way to travel despite restrictions than in a van tailored to your preferences?

The second part was the advent of work from home, which in essence became *work* from anywhere. As long as you could receive a signal through Wi-Fi or use your mobile phone as a hotspot, you could conceivably be anyplace working—a concept not lost on a whole generation of younger, techsavvy Americans.

Thus, it was a perfect combination when Gibbs' trade-based company could not only comply with the requirements for a commercial build, but could also take and add creature comforts for hybrid models that encompass the best of both worlds.

PERFECT EXAMPLES

Some recent American Van Works projects are perfect examples of how shops can cast a wide net with these conversions.

One recent build was coming together for a nurse practitioner who travels to remote areas to see patients. The van will serve as







- Rated to Pull 10,000lbs.
- 5.5 Horsepower Motor.
- Auto Load-Holding Brake Allows to Safely Perform Recoveries.
- Winch is Offered with 82-Foot Synthetic Rope or Steel Cable.
- Includes a Wired Remote with 12 Foot Cable.



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Filled case files and a microwave oven speak to the on-the-go tasks social services employees are delivering.



the examination area, and later convert to a mobile home with all the amenities.

Meanwhile, a series of conversion vans for County of Orange Social Services brings needed services to residents otherwise unable to travel. Armed with case files for all their clients, social workers can even provide economic assistance cards through special onboard printers.

Due to the number of people they accommodate each day, these vans are equipped with microwave ovens so workers can bring their lunches with them, just as they would if their county offices were open for business as usual.

What the county has found, according to Gibbs, is that workers are now able to service residents they otherwise would have missed, or who would have endured tremendous hardships trying to get to a physical office to receive aid. Even postpandemic, the social services unit has indicated it will continue to need vans like these to better serve disabled and disadvantaged residents.

Some builders will prefer to cater to consumers, and camper vans are a popular

way to build your brand that come with a ready-built community of owners. Others will choose to specialize in commercial vans, opting for repeatable builds for businesses or fleets.

A few shops like American Van Works will have no problem accommodating both consumer and commercial customers, working across different vehicle platforms as easily as they do their clients' needs. There's definitely a market for both types of vans, and you'll likely have the opportu-

nity to do these builds anywhere in North America for years to come. **75**



JASON SAKURAI heads up Roadhouse Marketing, a marketing, advertising and sales solutions firm dedicated to the automotive aftermarket. A frequent contributor to THE SHOP,

Jason's byline appears in many enthusiast and trade publications, in print and online.



E-TRANSIT LEADS THE VANTASTIC CHARGE

By Brett Solomon

Ford wanted to be the first to market with a full-size electric commercial work van. The 2022 E-Transit reflects part of Ford's more than \$11.5 billion investment in electrification.

"Ford is North America and Europe's commercial truck and van leader, so the transition of fleet vehicles to zero emissions, especially for the fast-growing last-mile delivery segment, is critical to achieve our carbon neutrality goal by 2050," says Jim Farley, Ford president and CEO. "Ford is ready to lead the charge, starting with the all-electric Transit and all-electric F-150 on the way. This is good for the planet and a huge advantage for customers to help lower their operating costs and provide connected fleet management technologies that will help their businesses."

Ford touts "the all-new E-Transit is backed by Ford's powerhouse network of 1,800-plus global commercial vehicle dealers, including 645 commercial vehicle centers across the U.S.—about

90% of which are electric vehicle-certified—for easy sales and service."

When it comes to customizing the van, traditional Ford upfitters will be pleased with the similarities to the ICE Transit. The battery pack and motors do not intrude on the cargo area.

"E-Transit offers the same interior cargo dimensions and standard mounting points for continued integration with hundreds of upfitters and vehicle modifiers worldwide who provide compatible racks, bins and accessories on gas-powered Transits," the company states. "The majority of U.S. Transit vehicles sold last year were upfitted, and Ford continues to provide the same upfit financing support for van customers, including those who purchase or lease."

Ford notes that the van's range is approximately 125 miles, but we all know that will vary widely depending on the climate and load. Statistics show that most urban cargo vans travel less



The 2022 E-Transit reflects part of Ford's more than \$11.5 billion investment in electrification.

than 60 miles per day.

One notable accessory available on the new E-Transit is called Pro Power Onboard. It is a Ford-engineered power inverter that can provide up to 2,400W of power for North American customers. This transforms the vehicle into a mobile generator that powers tools and equipment on jobsites.

In the U.S., E-Transit is available with a choice of three roof heights and three body lengths, as well as in cargo, cutaway and chassis cab versions. **15**

BRETT SOLOMON is a freelance writer based in New York City, specializing in the mobile electronics market.



FAST-PACED WINDOW FILM & PPF

Turbo Tint is franchising its one-hour tinting services.

lot has changed in the past 30-odd years, including the business model for Turbo Tint and its co-owner, Chandler Goodman.

Chandler's father Greg Goodman started as an independent auto detailer in 1985 and began offering window tinting a few years later. He eventually added auto alarms and remote starts to his product mix.

After nearly a decade of independent success, the company became an Alta Mere franchise for 27 years. Chandler

graduated college and joined the company.

The shop received a complete facelift in 2019, including a front-to-back remodel at its Oklahoma City location, and rebranded as Turbo Tint in 2020.

This new model is a franchise of Moran Family of Brands, which has commitments to develop upwards of 32 U.S. Turbo Tint locations. The outlets offer customers a complete window tint installation in an hour or less while they wait in a lounge-like environment.





FORMULA FOR SUCCESS

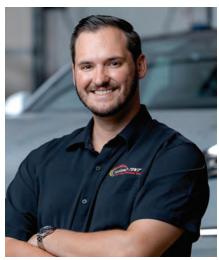
The company's original Oklahoma City location includes nine employees operating in a 4,000-square-foot facility—2,000 square feet of workspace including four bays, and 2,000 square feet for the showroom and office.

With the Turbo Tint formula, customers purchase a tint package and schedule an appointment online. On the day the work is to be performed, they simply select their desired shade of window film and then wait in comfort while the work is performed.

Each location is outfitted with oversized leather chairs, flatscreen TVs, computer workstations with free Wi-fi, and a fireplace setting, capped off with complimentary Starbucks coffee, beer, wine, soft drinks and snacks.

This luxurious new setup helps customers seeking speedy installation feel pampered, even as the 100% retail-only business builds the company's bottom line.

"We actually get paid before we do the



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work, so we don't have to worry about customers not showing up for their appointments and trying to collect money 30-60 days after the fact," says Chandler Goodman.

In addition, the ease of online purchasing and booking has helped increase sales, he notes.

Turbo Tint's related offerings include a choice of five paint protection film packages for vehicles, and architectural film installation services for homes and businesses.

PUTTING PEOPLE FIRST

While the company's unique model has

helped its success within the last year while rebranding, Goodman believes it's a commitment to longstanding values that has facilitated growth.

"We firmly believe our employees are the key factor that makes our business successful," he says.

By providing top pay with a bonus structure, benefits and flexible work hours, the company maintains top talent and a sense of comradery.

"Helping people with their needs to reduce heat, protect their investments and improve the look of their vehicles, homes and businesses is what we enjoy most," he adds.

This passion has led to Turbo Tint (turbotint.com) becoming a recommended local Tesla service center for tint and PPF installations, and helped land subcontractor partnerships with a number of automotive glass and body shops.

The company has also recently been entrusted with protecting a private exotic car collector's large collection with PPF, a job that Goodman says will keep his team busy for a while.

Post-pandemic supply chain issues have not significantly hindered the company's operations.

"Even though we had to shut down for the entire month of April (2020) since we were non-essential, we ended the year only being down 2% in total sales," says Goodman.

The business then experienced a 36% increase in 2021.

Business continues to build as word-of-mouth spreads regarding the company's tint, PPF and architectural services. Goodman says the company plans to continue going the extra mile for customers, delivering quality craftsmanship, top-notch customer service, fast installations, and upscale amenities for a first-class experience. **15**



carly Hollman is the former editor of NBM-produced Print-wear magazine and currently works as a freelance writer, artist and esthetician based in Denver. She has a background

in fashion and 12-plus years of writing website copy and B2B content. She can be reached at carly.hollman@gmail.com.

DELRAY BEACH, FLORIDA WELCOMES TURBO TINT

Moran Family of Brands, one of the nation's leading franchisers of general automotive repair, transmission repair and window tint services, announced its newest franchise location with a Turbo Tint store in Delray Beach, Florida last August.

The Delray Beach store is co-owned by Erich Overhardt and Bruce Bastian, who purchased the rights to four counties in Southeast Florida—Martin, Broward, Miami-Dade and Palm Beach. Overhardt and Bastian are committed to owning 16 Turbo Tint locations and will be the area developer for additional franchises in Florida, the company notes.

"We are very excited to open the newest Turbo Tint store in Delray Beach and bring this concept to Florida," says Peter Baldine, president of Moran Family of Brands. "Erich and Bruce have a proven track record for growing a business and we believe they are the perfect team to expand the Turbo Tint brand throughout the state in the coming years."

Overhardt believes Turbo Tint is an ideal fit for the Delray Beach market and the state of Florida in general.

"We specialize in window tinting and use state-of-the-art products with UV protection. The customer experience is paramount, whether it is through the speed and convenience of ordering or being able to enjoy all the comforts of home in our waiting area," he says. "We will offer an outstanding service for both automotive and architectural window tinting to residents in South Florida."



The first Turbo Tint store in Florida opened last August in Delray Beach.





RESTYLING **PRODUCTS**

Bronco Billet Upper Control Arms

ICON Vehicle Dynamics, Riverside, California, presents Billet Upper Control Arms for the new Ford Bronco. Designed to free-up movement to allow maximum travel for performance shocks and coilovers, the all new Delta JOINT PRO provides a host of durability and performance improvements, including up to 90 degrees of free articulation



to maximize suspension travel without bind. It's also stronger than past models and fully rebuildable. ICON Billet Upper Control Arms are CNC-machined from 6061 billet aluminum with a satin anodized finish.



Retro Manufacturing,

Henderson, Nevada, presents the Grand Prix radio for 1970s-'80s classic European vehicles. The new DIN-style radio is designed to complement the interior styling of classic BMW, Mercedes and Jaguar models.



It features paddle-style controls, low-profile pushbuttons and a digital display. The Grand Prix is compatible with all RetroSound Radio Motors, giving classic European car fans all the features of a modern car stereo.



Start-Stop Deactivation Module

Hypertech, Bartlett, Tennessee, presents its new PowerStay plug-in module that instantly and safely disables the auto start-stop function and cylinder deactivation mode on many modern Ford and GM vehicles. The device plugs into the OBD-II port on select Ford and GM vehicles to instantly disable the auto start-stop and cylinder deactivation modes. When unplugged, the vehicle will automatically revert to its original settings.

Frontier Leaf Spring Kit

Hellwig Products, Visalia, California, presents an all-new Helper Spring Kit for 2022 Nissan Frontier pickups. The single-leaf helper spring improves control, stability and comfort when towing or hauling by maintaining a level ride height. The system is a single-leaf underslung helper spring kit with an adjustable level load weight rating of up to 1,000 pounds. Support can be adjusted using the U-bolts to

dial in the spring rate to match the specific load. The helper springs are made in the USA and include a powder-coat finish.



Wrangler JL Fender Flares

Quadratec, West Chester, Pennsylvania, presents its new Baja HD Fender Flare kit for 2018-'22 Jeep Wrangler JL models. The flares provide an additional 3 inches of vertical tire clearance over the factory Jeep Wrangler JL Sport and Sahara flares, allowing fitment of up to 37-inch tires with no suspension lift. Delivering an extra 5/8-inch of tire coverage over the factory JL



Sport flares, the Baja HD Fender Flares incorporate the factory turn signals and daytime running light assemblies, making them completely DOT compliant.



Sprinter Van Insulation Kits

Design Engineering Inc. (DEI), Avon Lake, Ohio, presents a custom-cut Insulation Kit for 2007-current Mercedes-Benz Sprinter vans, including long and short wheelbase Hi Cube models. The kits include DEI's 30mm-thick D-Mat insulation material that controls heat and cold while absorbing noise, and are available with Boom Mat damping material that eliminates squeaks and rattles, and spray adhesive to complete the installation.



Your outdoor lifestyle deserves gear that looks great and performs even better. Whether you choose the 20, 45, 60, 75 or 110 quart size, BigDog coolers are engineered with insulating properties that keep contents frozen in excess of 5 days. All coolers are packed with value added features including cup holders, a dry goods basket, poly cutting board, molded-in ruler and a limited lifetime warranty. Wheeled options are available in both 45 and 60 quart sizes. So take a BigDog on your next adventure, and see why it's sure to become you new best friend.

RESTYLING PRODUCTS

Roof Rail Crossbars

Overland Vehicle Systems, Santa Fe Springs, California, presents its new Freedom Cross Bars for factory roof rails. Offered in 50-, 55-, 60- and 70-inch lengths, the crossbars are secured to lockable mounts and feature T-slots to help secure a wide variety of accessories including the company's rooftop tents, 270-degree awnings, 180-degree awnings and related overland and travel essentials.





Suburban/Tahoe & F-150 Grille Guards

Westin Automotive Products, San Dimas, California, presents its HDX Winch Mount Grille Guard and HDX Grille Guard, available for 2021-'22 Chevrolet Suburban/Tahoe and Ford F-150 models. Designed to enhance the appearance,

functionality and style of trucks and SUVs, the winch mount guards can handle up to a 12,000-pound winch and provide the strength needed for heavy-duty loads and rough environments.



Audio Accessories

Metra Electronics, Holly Hill, Florida, presents new high-end Car Audio Accessories from T-Spec by Metra **Electronics**. Available products include new oxygen-free ultra-spec copper speaker cable kits, bulk front and rear channel speaker cable spools, a four-way power and ground distribution block, and black nickelfinished couplers. The accessories are competition-rated for top performance.

Bronco Rear Bumper

Warn Industries. Clackamas. Oregon, presents the Elite Rear Bumper for Ford Broncos. A match for the company's Elite Front Bumper, the rear bumper is made in the USA from thick steel for added durability. It retains the durable factory recovery points while allowing for increased departure angles, and includes a powder-coat finish. The bumper fits both two- and



four-door Broncos, accommodates tires up to 37 inches on the factory tailgate and maintains the factory receiver.



Running Board Bracket Cover Kits

Raptor Series, Union City, California, presents new Slide Track Series Bracket Cover Kits for the company's line of Slide Track Running Boards. Designed to install with all Slide Track brackets, the covers deliver a clean, finished look. Their heavy-duty



thermoplastic rubber can survive harsh elements, protecting powder-coated steel brackets from snow, rain, mud and more. Some trimming may be required.



Gladiator Lift Kits

Synergy MFG, San Luis Obispo, California, presents its Stage 2 Lift Kits for 2020-up Jeep Gladiator JT models. Available in 2- and 3-inch lift heights, the coil-spring suspension systems are designed around fitting 40-inch tires for Rubicon models and 37-inch tires for non-Rubicon models. Delivering on- and off-road performance, the complete bolt-on kits are upgradeable and include all necessary components. **TS**



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ALL NEW MODELS AVAILABLE FOR **RAM TRX**

- Direct, bolt-on design
- Superior foot forward winch mount (**may fit up to a WARN 16.5ti)
- · Recessed light ports for auxiliary lighting
- Standard premium 5-stage satin black powder-coat finish
- Lifetime structural warranty
- *Winch and lights are not included





















Ford Bronco Pickup

BDS Suspension debuted a **Ford Bronco Pickup** at the 2021 SEMA Show. Nicknamed *Fire Command Bronco*, the two-door SUV-turned-fire/rescue-truck recalls the *half-cab* early Broncos used by many rural fire departments decades ago.

The team at BDS took a brand-new Black Diamond edition Bronco, disassembled it, then shortened the roof and re-engineered the roll cage. Highlights include oversized wheels and tires, dual winches, state-of-the-art communications, emergency lighting, first aid kit and tools, and a bottom-hinged drop tailgate.

Participants include: Hypertech (React throttle optimizer/speed-ometer calibrator); Ford Performance by Borla (cat-back exhaust system); Nitto Tire (Trail Grappler tires); Method Race Wheels (beadlock wheels); CrawlTek Revolution (front & rear bumpers, fender trim kit); Warn Industries (front & rear winches); Milwaukee Tool (PACKOUT system); Yakima (basket); ARB (jack with custom mounts); Rigid Industries (lighting); Katzkin (leather seats); Garmin (GPS unit & camera); Ford Performance (door sill plates, floor mats, fire extinguisher); CargoGlide (tray system); and Ford Performance by Warn (recovery kit).



1966 Chevrolet Pickup



As the exclusive worldwide distributor of the **GM** Duramax engine, **Banks** showcases its high-performance turnkey diesel engine program with a one-of-a-kind resto-mod named *LokJaw*. At the heart of the rusty **1966 Chevy 3/4-ton pickup** is a Banks supercharged R866SC Duramax diesel engine that represents thousands of hours in engineering, design and development.

To provide instant throttle response, Banks chose to stray from the typical turbo setup and adapted a **Whipple** Gen 5 3.8L twinscrew supercharger and liquid-coupled intercooler to force air into the 6.6L diesel engine. The nitrous injection setup was designed with the help of **Mike Thermos** of **Nitrous Supply**.

Participants include: **ATS Diesel** (Allison 1000 6-speed transmission); **MoTeC** (ECM); **Powertrain Control Solutions** (paddle shifters); **Roadster Shop** (8-lug chassis); **Wilwood** (brake kit); **Nitto Tire**; **Sparc Industries** (wheels); Banks (digital gauges); and **TMI Products** (leather interior).

Banks has three turnkey engine configurations currently in development, including a twin-turbo and a super-turbo.

Rat Rod RZR



(Photo by @aaronbelford)

Robb Johnson from **Quad Logic**, a manufacturer and distributor of parts and accessories for **Polaris** and **Can-Am** off road vehicles based in Ramsey, Minnesota, sends info on the company's newest **Polaris RZR** build.

Nicknamed *Karen*, Johnson explains, "for its loud and obnoxious persona... this machine was built to be low and mean with an old-school hot rod/rat rod stance and image. We slammed, chopped and fabricated our way through the entire machine to achieve a look that stands apart."

It features the company's front tow hook and billet accessories including shifter, cupholders, gas cap, radius rod plate and spring retainers. Special touches include aluminum bucket seats with custom-fabricated pads, lasered steel front grille, blacked-out LED strip headlights, functional blower intake with custom air intake piping to a 3D-printed airbox, hand-fabricated aluminum bed panels, spiked lug nuts, flamethrower exhaust kit and more.

Participants include: **SuperATV** (shocks, extended A-arms, trailing arms); **Fuel Off-Road** (20-inch Runner wheels); and **Firestone** (Firehawk tires).

Ford F-150

The dual-purpose *Double-Duty Ford F-150* project truck by Hellwig Products was featured in the Ford Motor Co. booth at the 2021 SEMA Show. Built by Old Steel Fabrication in Leona Valley, California, it's outfitted with all the necessary tools and equipment for a day at the construction site and a weekend at the campsite.

It features Ford's PowerBoost hybrid platform with the new Pro

Power onboard generator providing 7.2kWh of available power. Hellwig sway bars and Silent Ride helper springs improve the ride and handling.

Participants include: **ICON Vehicle Dynamics** (Stage 5 suspension system, 17-inch Rebound PRO wheels); **Falken** (35-inch Wild Peak All-Terrain tires); **AT Overland Equipment** (Summit bed topper with integrated rooftop tent); **Yakima** (LockNLoad



heavy-duty rack system); Jackson Kayak (Nirvana kayak); Overland Vehicle Systems (Nomadic Awning 270); Addictive Desert Designs (Stealth front & rear bumpers, Rock Slider side steps); Warn Industries (winch); Factor 55 (Ultra Hook); Rigid Industries (lighting); T-Rex Grilles (Laser X grille); Ford Performance (Cat-Back Extreme exhaust, exterior trim, differential & transmission pan covers, off-road

underbody lighting, off-road recovery kit, floor liners); **ARB** (air compressor, fridge/freezer, jack); **Injen** (cold-air intake, intercooler, charge pipe); **Milwaukee Tool** (power tools); **Boxo Tools** (tool bag, hand tools, custom toolbox); **GSI Outdoors** (camping stove, kitchen items); **Front Runner** (camping chairs); **Katzkin** (leather interior); **Dee Zee** (under-seat storage drawer); **Console Vault** (safe); **Pelican** (storage cases); and **sPOD** (accessory switch panel).

PROJECT VEHICLE SKETCHBOOK

1992 Toyota Land Cruiser



Mule Expedition Outfitters unveiled *Project #MULEWAGON* at last year's Overland Expo West. As the North American distributor for Australia's MITS Alloy, Mule decided to help launch the product line and gain exposure for the brand by cutting a 1992 Toyota Land Cruiser 80 Series in half and installing a MITS Alloy flatbed and canopy system.

Power comes from a **Chevrolet** LS3 V-8 mated to a 4L80E automatic transmission. Custom accessories include a snorkel and rear frame section with hidden winch mount.

Participants include: **Edelbrock** (engine management system); **ARB** (air lockers, onboard air, front bumper, recovery kit); **Nitro Gear** (gears, rear full-float upgrade); **Powerbrake** (front big brake kit); **Old Man Emu** (coils, BP-51 shocks, suspension links, trailing arms); **Yokohama** (GEOLANDAR MT tires); **TeraFlex** (Nomad wheels); **Comeup** (front & rear winches); **Baja Designs** (lights); **Front Runner** (roof rack, storage box); **Dometic** (fridge/freezer); **Sunflare** (solar panels); **REDARC** (power management system); **BluOasis** (lithium battery); **Expedition 134** (storage box); and **MAXTRAX** (recovery boards).

1952 Thriftmaster 3100



Vehicle designer ICON 4x4 presents a unique version of its New School Edition TR based on a 1952 Thriftmaster 3100. The Thriftmaster is widely celebrated as one of the most durable, utilitarian vehicles ever made, and ICON evolves the classic with state-of-the-art upgrades.

Hand-built on an **Art Morrison** chassis with four-wheel independent suspension and an incredibly rare Shou Sugi Ban-finished walnut bed, the New School Edition Thriftmaster is powered by a **GM** emissions-certified E-ROD 6.2L fuel-injected LS3 mated to a 6-speed manual transmission. ICON touches include 18-inch forged artillery-style wheels, black chrome trim, badging, acidedged New School-style branding on the tailgate and hubcaps, custom sun visors, gauges, articulating one-piece dash panel, custom control box and more.

Participants include: **Brembo** (six-piston brakes); **Dana 60** (nodular third member); **Porsche** (Chalk White paint); **Pioneer** (8600NEX sound system); and **Moore & Giles** (micro-sanded top-grade leather).

2021 Jeep Gladiator

BOLT Locks hosted the *Shadow Guard* **2021 Jeep Gladiator** show vehicle at the 2021 SEMA Show. Created by **Dave Doetsch** of **Doetsch Off-Road** in Chandler, Arizona, the build is designed as a dynamic mix of rock crawler and overlander.

High-impact vinyl graphics wrap the Gladiator in satin black and are the inspiration for the vehicle's name—the custom **3M** vinyl finish mimics *Shadow*, while the *Guard* highlights BOLT's line of vehicle locks.

Participants include: **PCOR** (Tray Bed system); **TeraFlex** (lift system); **Toyo Tires** (Open Country MT tires); **KMC Wheels** (17x9 Grenade beadlock wheels); **Rigid Industries** (LED lighting, light bars); **Road Armor** (front bumper, front fender flares with liners); **Warn Industries** (front & rear winches); **Factor 55** (ProLinks); **Oracle Lighting** (projector headlights); **Artec Industries** (front axle armor kit); **RCV Performance Products** (CV-style front axle shafts); **Rock Hard 4x4** (front sport cage); **Katzkin** (custom leather seats with suede inserts); **Yukon Gear & Axle** (5.13 axle gears);



Vivid Racing (carbon fiber steering wheel with Alcantara suede inserts); **Rock Slide Engineering** (electric step sliders); **GEN-Y Hitch** (hitch with pintle); and **Unique Car Audio** (stereo system with rear under-seat subwoofers).



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PROJECT VEHICLE SKETCHBOOK

1936 Ford Overlander

Jason Ludwin of Rodz by Ludwin, Fort Johnson, New York presents a unique 1936 Ford Overlander build that started as a stock 1936 Ford two-door sedan slantback. Ludwin disassembled the vehicle, boxed in the factory frame and added an 8.8-inch Ford rear end with custom 4-link suspension, Dana 30 front end with custom 3-link suspension and Radflo Suspension Technology air shocks.



It is powered by an L33 5.3L LS backed by a TH350 transmission and a 231 transfer case. Custom driveshafts spin the axles.

Participants include: **RockJock** (sway bars); **FiTech** (fuel injection); **Ron Francis Wiring** (wiring harness, fan controller); **Norther Radiator** (aluminum radiator, A/C condenser); **Dirty Life Wheels**; **AMP Tires**; **Body Armor 4x4** (bumpers, gas door, rooftop tent); **Summit Racing** (mufflers, shifter, steering column,

accessories); Mile Marker (winch, recovery gear); Warn Industries (rear winch); Bubba Rope (recovery gear); Maxi Trac (highlift jack, camping accessories, 1,000W power inverter); Vintage Air (heat, A/C system); Legacy Products (pull-back sunroof); Rough Country (LED lights, controller); Rock Slide Engineering (power steps); Zippertubing Co. (wire loom); IDIDIT (steering components); CURT (rear tow

hitch, accessories); **Champion Oil** (fluids); **VIAIR Corp.** (onboard air compressor, storage tank); **Hot Rod Fuel Hose** (AN lines, fittings); **Rosie Rockabilly** (custom interior); **CTEK** (battery charger); **House of Kolor** (paint, accessories); and **The Factory** (custom air cleaner).

The vehicle was hosted by **The Wheel Group** at the 2021 SEMA Show.

Widebody McLaren 720S



SWAE presents a first-of-its-kind carbon fiber widebody **McLaren 720S** that utilizes cutting-edge material sciences to create an elite class of exotic car made for unlocking the spirit of adventure.

Conceived as a proof-of-concept for testing 3D printing capabilities, the supercar features twill carbon fiber that establishes a diagonal pattern across the vehicle's exterior. The unique carbon fiber fabric is extremely pliable and adaptive, forming complex contours around the frame while increasing strength and stability, and was created in partnership with **1016 Industries**.

An exclusive performance tune enhances the twin-turbocharged 4.0L V-8. When combined with lightweight exterior elements, the special edition 720S can produce more than 900 hp. Additional features include custom 10-spoke wheels incorporating the SWAE logo alongside a modified exhaust with stainless steel cat-delete pipes, and a specially designed wing and supports.

1967 Chevrolet Nova



The Custom Shop in Flanagan, Illinois built a custom **1967 Chevrolet Nova** named *CaSSaNova* that includes radical custom **ProSpray** paint and body mods, carbon fiber ground effects and spoiler, and a **ProCharger**-equipped LSX with an 8-stack bypass system.

Participants include: Billet Specialties (wheels); Toyo Tires; Air Lift Performance; Sony (audio); Auto Custom Carpet; American Autowire; Badger Airbrushes; Cerakote; COMP Cams; Covercraft Industries; Creative Works; C-Tek; DiabloSport; Eastwood; Eddie Motorsports; Enduratex; Fairchild Industries; Grote Industries; Goodmark Industries; Hedman Hedders; Holley Performance Products; McGard; Metra Electronics; ODYSSEY Battery; Presta Products; Prismatic Powders; POR-15; Pypes Performance Exhaust; SATA; Seatbelt Planet; Tanks Inc.; Thermo-Tec; Trulers; Tuff Stuff; U-POL and Vintage Air.

REVO SIDE STEPS







005-2021 TOYOTA TACOMA





- O DEGREE ANGLE
- 1.75" TUBING .120" WALL
- DESIGNED TO PROVIDE ADDED PROTECTION BETWEEN YOUR VEHICLE AND OBSTACLES
- NO DRILLING REQUIRED-BOLTS THROUGH FACTORY HOLE LOCATIONS
- SOLID STEP ALONG THE ENTIRE CAB GIVES GREAT ACCESS TO INSIDE OR TOP OF THE TRUCK
- STRONG ANCHOR POINTS ALLOW ROCK SLIDERS TO BE LIFTED WITH A HI-LIFT JACK AT ANY POINT
- PROTECTS ROCKER PANELS AND/OR AGAINST DOOR DINGS
- FITS 5FT BED







2005-2021 TOYOTA TACOMA

REVO ROCK SLIDERS



PN:TC-4125

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- 1.75" TUBING .120" WALL
- DESIGNED TO PROVIDE ADDED PROTECTION BETWEEN YOUR VEHICLE AND OBSTACLES
- SLIGHT KICK OUT ADDS REAR PROTECTION WHILE STILL BEING LESS SUSCEPTIBLE TO GETTING HUNG UP ON OBSTACLES
- NO DRILLING REQUIRED -BOLTS THROUGH FACTORY HOLE LOCATIONS
- STRONG ANCHOR POINTS ALLOW ROCK SLIDERS TO BE LIFTED WITH A HI-LIFT JACK AT ANY POINT
- PROTECTS ROCKER PANELS AND/OR AGAINST DOOR DINGS
- FITS 5FT BED











PROJECT VEHICLE SKETCHBOOK

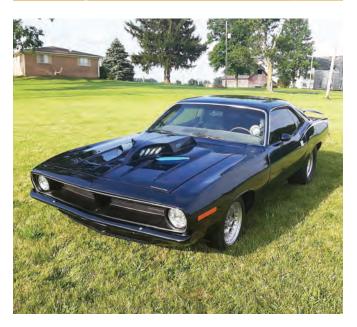
Cunningham C8 Corvette



The new Cunningham C8 Corvette is a modern supercar that celebrates the storied history of Le Mans legend Briggs Swift Cunningham.

Cunningham will produce 60 of the special anniversary Corvettes, powered by a specially tuned **Lingenfelter** 600 hp (naturally aspirated) LT2 engine with a high-flow **Performance Design** carbon fiber intake manifold; **CORSA Performance** headers, exhaust and airbox; an 8-speed DCT transaxle; Cunningham/**MOV'IT** disc brakes; a tuned suspension; a motorsports-derived aero kit; and 20- and 21-inch **Michelin** Pilot Sport 4S tires mounted on bespoke forged aluminum **HRE** wheels that are modeled on the racing **Halibrand** *kidney bean* wheels used on the original 1960 Le Mans-winning Cunningham Corvettes.

1970 Plymouth Barracuda Clone



Scotts Restorations of Dover, Indiana shows off a **1970 'Cuda** clone that is 440-stroked to 501 ci to reach 750 hp and 635 pound-feet of torque.

The roller motor features **FiTech** injection and **NOS**. Highlights include a 9-inch rear end with **Mooneyes** rear diff cover, **Hoosier Racing Tires**, **Center Line** Convo Pro wheels and a handmade scoop to cover the **Indy** cylinder heads and intake.

Chevrolet C8 Corvette



The Custom Shop in Flanagan, Illinois built a custom C8 Corvette named *C8.CFR* for the 2021 SEMA Show.

The build features a **Sigala Designs** widebody kit, plenty of carbon fiber, **Pirelli** 355/25/21 tires on Transparent Gold wheels from **Forgeline**, and custom paint and graphics by The Custom Shop.

Other additions include **Sony** audio upgrades, **American Car Craft** stainless steel trim on the engine bay, and a **ProCharger** P1X supercharger.

1967 Chevrolet Nova



Scotts Restorations in Dover, Indiana is rebuilding a **1967 Chevrolet Nova** drag car into a formidable street machine.

Highlights include a 1968 302-ci engine with a Powerglide transmission from **Coan**, trans brake and the original 12-bolt rear with 4:11 gears.

2018 Ford Mustang CT

Josh Parker of Parker Performance in New Port Richey, Florida, shares the story of his special 2018 Ford Mustang GT:

"It was initially optioned as a 400A, 10R80, Premium, Performance Package car. This one was destined for something a little different though, as it was for **Vaughn Gittin Jr.**, **RTR Vehicles** and the team over at **Galpin**



Autosports (GAS). It was to be the very first production unit RTR Spec 5 Mustang (widebody, supercharged, every RTR option available).

"I ended up purchasing the car secondhand from a **Nissan** dealership in Clermont, Florida, and they had no idea what the car was or its history and heritage. It wasn't yet supercharged, which seemed odd to me, as the Spec 5 cars were all to be **Roush/FRPP** blower-equipped.

"I ended up getting in touch with Vaughn and the RTR crew, and got the backstory—I found out why there was no blower, no serial number, etc. and proceeded to take on the project of getting it serialized, because when I found out it was serial #001, I felt like the car deserved it.

"It's been an ongoing journey to get there, and we finally achieved that just this past May (2021) at **Formula Drift Orlando (FDORL**), where we got the chance to meet with Vaughn and get him to tell us the story about the car from his perspective, and also got him to place the #001 serial badge on the vehicle—you can see it on YouTube.

"I'm currently in the process of having the car re-wrapped into something a little different. It features a Fast Forward Race Engines-built engine, Brett LaSala-built 10R80 transmission and a host of goodies from our sponsors and vendor partners like RTR Vehicles, Nitto Tire, Mickey Thompson Tires & Wheels, V Squared Auto Styling, Wheel Tec, UPR Products, Fuel Injector Clinic, 1320 Junkie Performance, Li Tuning & Racing, GripTec, CORSA Performance, Steeda, BMR, Power by the Hour, JL Audio and more."

1955 Chevrolet Delray



Mark Vieau of Scott Performance Wire in Mooresville, North Carolina shares *Bad Attitude*, a 1955 Chevy Delray.

Participants include: Hedman Hedders, VDL Fuel Systems/Holley Performance Products (carburetors); Pro Comp (cylinder heads); COMP Cams (camshaft, valvetrain); Edelbrock (manifolds); CP Pistons; Total Seal (piston rings); CP-

Carrillo (rods); Lakewood (bellhousing); Auto Gear Equipment (4-speed transmission); Cragar (wheels); BFGoodrich (tires); Master Power Brakes (full brake system); and Dutchman Axles.



PROJECT VEHICLE SKETCHBOOK

1969 Dodge Charger



Ringbrothers has rolled out a custom **1969 Dodge Charger** known as *CAPTIV*. Making an impressive-yet-streetable 707 hp from its **Mopar** Hellcat crate engine mated to a **TREMEC** 6-speed manual transmission, the build was completed for New Zealand-based motorsports legend and TV personality **Greg Murphy**.

Once the build arrived from New Zealand, the Ringbrothers team completed the extensive metalwork, including making the Charger unibody and integrating the **Flowmaster** exhaust system and a Ringbrothers steering wheel. A custom **BASF** Pile Up Yellow paint job was then applied, and the Hellcat crate engine was installed and filled with **Motul** engine oil.

Highlights include: custom **HRE Wheels**, a **QA1** carbon fiber driveshaft and adjustable shocks, **Baer** six-piston brakes and a set of **Michelin** Pilot Sport 4S tires.

It was also fitted with a top-of-the-line **MoTeC** engine management system and gauges. Participants include **Holley Performance Products** and **GFS**.

1993 Land Rover Defender 110



The latest build from **Osprey Custom Cars** is an adventure-ready, brand-new **2021 OC110 Soft Hood**. Based on a **1993 Land Rover Defender 110**, it seats eight, is painted a rich Arles Blue and includes a wide variety of body styling and utilitarian enhancements, plus suspension upgrades from **Terrafirma**.

It is powered by a 6.2L Corvette LS3 V-8 mated to a 6L80E 6-speed automatic transmission controlled by a custom **PCS** pushbutton gear selector with LED display. In the cockpit, the modern **TDCI** Puma-style dash handles heating and A/C, and up front are heated **Exmoor** Denim Twill front sport seats.

Participants include **Griffin** (aluminum radiator) and **PermaCool** (dual electric cooling fans).

1947 Power Wagon



For a truck meant solely for slow, heavy-duty jobs, **Legacy Classic Trucks**' newest two-door **1947 Power Wagon** is filled with surprises behind the wheel. Start with a decidedly modern 4BT Cummins-powered engine running with compound turbochargers and oversized injectors that's capable of 250 hp and 600 pound-feet of torque with little-to-no turbo lag.

The Legacy Power Wagon also comes with a NV 4500 5-speed manual transmission, corporate 14-bolt axles, an **ARB** air compressor, 9-foot bed and two high-powered truck batteries. Inside are sealed carline marine rocker switches and levers that stick up directly from the floorboards.

MegaBronc



The success of the oversized **MegaRaptor** by **MegaRexx** trucks encouraged owner **Aaron Richardet** to expand the line by adding a second model—the **MegaBronc**.

Based on the **2021 Ford F-250 Super Duty Crew Cab Lariat**, the MegaBronc was built with specific design criteria—install 40-inch tires, include larger fenders, keep the lift mild to maintain a low center of gravity, increase the track width to maintain stability when cornering, include a longer-travel suspension system for improved off-road capability, retain the ability to tow heavy payloads, and use strong fiberglass body parts.

Featuring seating for seven and a removable hardtop, the truck is powered by a 6.7L Power Stroke V-8 turbo diesel boasting 475 hp and 1,050 pound-feet of torque.

Participants include: Method Race Wheels, Atturo Tires, Dana 60 and LINE-X.

Volkswagen Atlas & Trailer



Lance Camper debuted its latest prototype camper and demonstration vehicle, together called the *Adventure Pass*, at the 2021 SEMA Show. The setup has a **Volkswagen Atlas** towing the company's **Enduro** concept travel trailer.

VW Atlas tow vehicle participants include: **H&R** (coil-over suspension); **Firestone Industrial Products** (Ride-Rite air bags); **MAXXIS** (RAZR A/T tires); **Black Rhino Wheels**; **aFe Power** (cat-back exhaust, cold air intake); **Front Runner** (roof rack, storage packs, camp table); **Pelican** (cargo cases); **KC Lights** (fog lights); **KICKER** (audio system enhancements); **RAM Mounts** (mobile mounting solutions); **Grey Man Tactical** (MOLLE webbing system); **Toccoa** (fly rod case); **MAXTRAX** (recovery boards); and **Daley Visual** (wrap).

The Enduro concept is an off-grid-capable, lightweight overlanding-oriented travel trailer that measures 18 feet and weighs 2,700 pounds. Participants include **Timbren** (independent suspension); MAXXIS (tires); Black Rhino Wheels; **Roofnest** (rooftop tent); **ZERO BREEZE** (A/C unit); **Truma** (air & water heating system); **MRX** (water purification system); **weBoost** (cellular signal booster); and **23ZERO** (awning).

1972 Ford F-350 4x4 Sport Crew Cab



Gateway Bronco unleashed a reimagined monster **1972 Ford F-350 4x4 Sport Crew Cab** at the 2021 SEMA Show. It features the world's first Godzilla 7.3L engine with a **Harrop USA** supercharger delivering over 1,000 hp.

The F-350's custom paint scheme blends **Porsche**'s Miami Blue and **Shelby**'s Wimbledon White, paired with Gateway's exclusive barnwood bed. Highlights include an **Eaton Performance** differential package featuring Eaton ELocker front and rear differentials, plus pushbutton 4x4 control, a powder-coated custom 4-link chassis, a 6-speed automatic transmission and a custom leather interior, including distressed bench seats. **18**



PAY 2022

Exhausts p.50

Heat & Sound Control p.56

Performance Products p.60



Tips for increasing performance exhaust sales.

hen searching for improved performance or an upgraded appearance, the answer is the same: try a performance exhaust.

One of those rare dual-threat add-ons, today's cat-back and complete exhaust systems attract a wide array of enthusiastic customers. Add in muffler and tip choices, plus straightforward installations, and the market starts to sound pretty good to shop owners as well.

A staple of the specialty aftermarket for

decades, it may seem like everything there is to know about these systems has already been revealed. Not so, say suppliers, who share information on hot new sales areas, market evolution and successful project examples.

OFF-ROAD FAVORITES

It's easy to picture a menacing exhaust system on a street machine, or loud pipes at the racetrack. But, these days, aftermarket exhaust systems have another favorite place to call home: the trail. "The Jeep, truck and SUV markets continue to grow, and show no signs of slowing down anytime in the near future," says Tim Sayers, muffler development manager for Borla Performance Industries.

Off-roaders love the combination of added power and aftermarket looks that performance exhaust systems provide. Manufacturers, meanwhile, are focusing on alleviating clearance and routing issues so that today's 4x4 machines can fully explore their potential.





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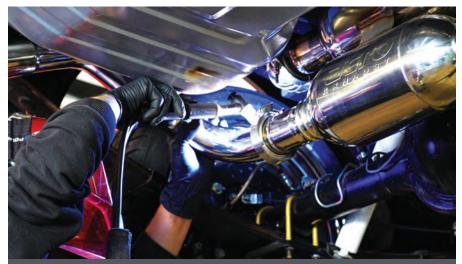
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T STRATEGY



AERO Exhaust recently collaborated with Custom FN Customs in California on a 1966 Ford Mustang build that shows how performance exhaust systems work as part of complete upgrade packages. (Photo courtesy AERO Exhaust)



Versatile exhaust systems and components offer a solution for any application. (Photo courtesy AERO Exhaust)

"The off-road vehicle market (Wrangler, Gladiator, Bronco, 4Runner) and the highperformance SUV market (Edge ST, Explorer ST, Grand Cherokee SRT and Trackhawk, BMW X5M/X6M, etc.) have the greatest potential for growth," predicts James Provencher, senior project engineer for advanced FLOW engineering. "Owners of these vehicles are typically automotive enthusiasts who want a performance exhaust system."

Do you have customers who own trucks or SUVs for work instead of play? Don't let that stop you, advises Kurt Kruse, product manager for SpeedFX.

"The light- and heavy-duty truck markets will continue to lead growth for the upcoming years in performance exhaust systems," he states. "Even with an increasing amount of hybrid and electric vehicles, internal combustion engines will stay strong for many years to come."

Of course, just about any modified vehicle is a performance exhaust candidate.

"Whether you specialize in domestic or foreign applications, there's always room for improvement and, most importantly, the customer is always open to professional recommendations," says Alex Ortega, director of business development for AERO Exhaust. "The aftermarket exhaust industry is massive, and we're all in the business of providing performance and sound solutions. Custom exhaust solutions are available in various flavors and can yield strong profit margins."

EXHAUST EVOLUTION

Even for professionals, performance exhaust systems may not be quite as simple as they appear at first glance. That's especially true with all of the technological advancements happening throughout the automotive industry.

"Engine and engine control technology is creating new and different exhaust signatures, which is making it increasingly difficult for both the OE manufacturers and aftermarket performance companies to provide a great sound, both inside and outside of the vehicle," says Sayers. "Some of the new OE technologies include variable compression ratios, variable valve timing, and a varying number of cylinders operating at any one time. In addition, consumers expect multiple options for sound levels, tip finishes and system exit locations."

These changes and others have kept aftermarket designers hopping, Provencher notes.

Performance Exhaust Products

- HOT PRODUCTS: Hi-Tuck Rock Basher Exhaust Systems
- FEATURES & BENEFITS: Available for Jeep Wrangler/Gladiator and Ford Bronco applications; provide 4x4 enthusiasts the sound and clearance they want at a price point that won't make them regret taking their vehicle off-road. advanced FLOW engineering James Provencher

Senior Project Engineer

- **HOT PRODUCTS:** All-New Stainless Steel Quick-Release V-Band Flange Assemblies
- FEATURES & BENEFITS: Enable assembly and disassembly of exhaust systems on demand; locktight male/female design provides a reinforced grip and a secure seal on any street or strip-driven application.

Alex Ortega Director of Business Development

AERO Exhaust

HOT PRODUCTS: ATAK Systems FEATURES & BENEFITS: Aggressive performance sound throughout the driving spectrum; no drone or resonance; bolt-on installation; freeflow design; all-welded construction utilizing premium T304 austenitic stainless steel; made in the USA.

> Borla Performance Industries Tim Sayers Muffler Development Manager

- HOT PRODUCT: 6.2L Silverado/ Sierra MaxFlow Xtreme Cat-Back System
- **FEATURES & BENEFITS: T304** stainless steel system utilizing 300 series weld filler; 304 stainless steel hardware; high heat-baked, black powder-coated 304 exhaust tips; rich, aggressive tone with power.

SpeedFX Kurt Kruse Product Manager



A Mid-Section for the Ram TRX shows how exhaust systems are adapting to new vehicle technology. (Photo courtesy Borla Performance Industries)

"Technology has been evolving. There have been innovations in multi-mode exhausts that incorporate valves, better materials and electronic valve control. There is also a shift toward a technically designed exhaust system using digital scanning equipment and incorporating 3D printed fixtures to produce a better-engineered product."

The evolution of the market is keeping pace with increased demand.

"The biggest change in the performance exhaust market has been growth," Kruse believes. "With an increase in both vehicle sales and disposable income, performance exhaust systems have done well over the last few years."

He's hopeful that trend continues this year through the industry's most recent challenges.

"While the used vehicle market will attempt to maintain performance exhaust sales in 2022, the market will level off until the chip shortage turns the corner and new vehicles start replenishing dealer inventories," he predicts.

Another factor driving growth is personalization, Ortega adds.



Trucks and SUVs are now a strong portion of the performance exhaust market. (Photo courtesy SpeedFX)

"Every enthusiast has a unique preference and their own definition of the *perfect* sound level—a trend that has pushed performance exhaust companies to step up their games," he notes. "Our mission is to help facilitate solutions, which is why we also offer accessory-type products that will enable the customer to run their ideal setup."

EXHAUSTS IN ACTION

Typical R&D for exhaust manufacturers includes project-driven, custom-made pieces and systems that yield tangible results that can be used for production components. The results provide plenty of success stories that are pushing the market forward.

"New to the exhaust category, our



EXIT STRATEGY

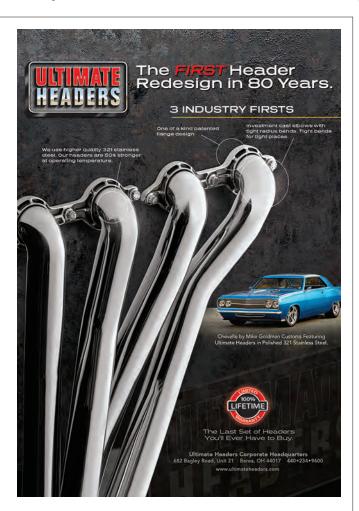


Consumers expect versatility and options when choosing a performance exhaust system. (Photo courtesy afepower.com)



Engineering advancements are driving exhaust system innovation. (Photo courtesy afepower.com)

recently unveiled T304 systems are finding their groove with truck and Jeep owners looking for a system that not only provides the sound owners want, but an exhaust system that will stand the test of time against road and sea salt and rust," says Kruse from SpeedFX.





Fire Command Bronco from BDS Suspension includes a stylish cat-back system. See vehicle on page 40. (Photo courtesy BDS Suspension)

Trucks are also a focus for Borla at the moment, Sayers says.

"Our Mid-Section for the 2020-'21 Ram TRX is a good example of how the aftermarket can utilize new OE technology. The TRX comes from the factory with a new technology in the tailpipes called Resonance Free Pipe. When we designed our Mid-Section, we retained the factory tailpipes and tuned our Mid-Section to work with them."

On the road and at the track, Corvettes have been a staple for exhaust companies for well over 60 years.

"Our Corvette C8 Exhaust and Shorty Headers show the potential of the performance exhaust market," says Provencher from aFe. "Our C8 products retain all the OE valves and remain emissions-compliant while providing performance gains and a great exhaust sound."

AERO Exhaust recently collaborated with Custom FN Customs in California on a 1966 Ford Mustang build that shows how performance exhaust systems work as part of complete upgrade packages, Ortega explains.

"The goal was to improve the exhaust system in order to meet the engine's horsepower and torque enhancements. More power typically requires a larger pipe diameter in order to evacuate the exhaust pulses at an optimal rate. What created this opportunity were the engine mods—more power creates more possibilities," he says.

The shop helped the client identify the challenges and facilitated the solutions.

"Not only did the customer pull the trigger on a custom TIG-welded, 304-grade stainless steel exhaust system, but they also upgraded their brakes with a complete Wilwood package. Again, more power creates more possibilities!"

A center-outlet Double-D exhaust highlights the limited-production RPO PCY Corvette from Callaway and Chevrolet that designates the B2K 35th Anniversary Package for the 2022 model year. (Photo courtesy Callaway)

A Peek at the Headers Market

Headers are an exciting part of the performance exhaust market. Jim Browning, president of Ultimate Headers in Berea, Ohio shares some thoughts on what's working.

What's your current hottest product?

JB: Right now, our most popular headers are for Ford Coyote engine swaps in various vehicles, including early Mustangs and Broncos. They are manufactured from 321 stainless steel and feature our patented Investment Cast Flanges and elbows.

Which markets are showing the greatest potential for growth?

JB: Ultimate Headers started with building headers for swap markets—LS, LT and Ford Coyote engines going into early vehicles on stock and custom aftermarket chassis.

Jim Browning Sr. started Ultimate Headers in 2013. As our business has grown, restomod vehicles have become very popular.

Name an example of a recent project that shows the ongoing potential of the performance headers market.

JB: As the swap market continues to evolve, we have a Fox Body Mustang with a new Ford 7.3L Godzilla engine. We are engineering a long-tube header for this Mustang that is a full-time drag race vehicle, with hopes of about 1,200 hp.

We believe the new Ford 7.3L will become a popular option out there.





CALMING INFLUENCE

Heat & sound control products help reduce stress levels.

By Jef White

ool and comfortable is a great feeling just about any time in life, but particularly when driving your favorite customized vehicle.

Aftermarket thermal and sound control products block unwanted noise and heat, bringing a moment of Zen to vehicle interiors. They can also be used to protect vulnerable components from early failure due to scalding or excessive vibrations, and even around the house in non-vehicle applications.

With a choice of pre-cut kits and a wide variety of universal-sized mats, pads, tapes and rolls, heat and sound control can be part of any project, whether it's bound for the street, track or trail.

Manufacturers explain the benefits of incorporating this easy, versatile offering into your product mix.

IT JUST FITS

If your shop is just getting started in the

heat and sound control market, know that pre-cut kits are available to speed projects while gaining technicians valuable installation experience.

"We continue to add custom pre-cut kits," says Mike Buca, brand manager for Design Engineering Inc. (DEI). "We utilize modern 3D scanning technology to make patterns that are then cut on our CNC knife cutters or waterjet machines."

The products also have a strong performance history that continues to shine.

"Even though technology is always evolving, some things remain the same," says Randy Pugh, marketing coordinator for Thermo-Tec Automotive. "There are many time-tested ways to combat heat and sound, no matter the source of the problem or the age of the technology."

Tim McCarthy, founder and CEO of HushMat, explains that the products are extremely versatile.

"Noise and hot/cold are major issues





Quality heat and sound control products are extremely versatile. (Photo courtesy HushMat)

for consumers in every vehicle on the road and in the garage," he says. "They are also problems in the home, in the RV and on the water, and HushMat has cost-effective solutions for all."

Such diverse uses mean suppliers must continue to innovate.

"Updates in manufacturing over the last decade have allowed us to develop new materials that combine both heat and sound control into one product," says Joseph Rock, brand manager for Retro Mfg. "Meanwhile, advances in eCommerce and logistics have helped us get our product in front of a larger customer base more efficiently."

And these are products that are in demand.

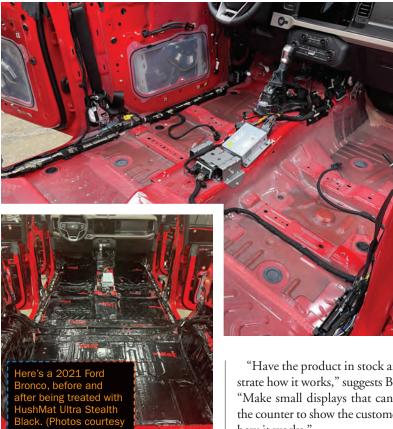
"We have noticed that to save weight (and money) vehicle manufacturers are putting less sound and heat control materials in from the factory," observes Charlie Mallory, director of technical for Dynamat Inc. "We are seeing more requests for noise and heat solutions for more contemporary cars and trucks."

AND THERE'S MORE

Some people use the general term *insulation* when referencing specific heat and/or sound control products. And, while technically incorrect, it does convey the message that these components offer a wide array of benefits.

For instance, "when a part or component is protected with one of our mats or sleeves, spills, leaks from engine fluids or flying debris can be deflected," says Pugh.

Another interesting aspect of heat and sound control products is that the job possibilities don't end when the vehicle leaves the work bay.



"We see a lot of customers that use our Boom Mat damping product to quiet pipes, sinks and appliances," says Buca.

McCarthy lists some specific out-ofvehicle applications:

- Home appliance sound-deadening
- Dishwashers
- Washers/dryers
- Air conditioning units

And Mallory has a few more:

"Generators, RVs, boats, home theaters, washers, dryers and kitchen sinks, to name just a few.'

Even in the vehicles themselves, there are areas installers may sometimes miss.

"Most customers forget about the top of the trunk or under the hood," Rock notes. "Applying a good sound-damping material in the trunk greatly improves the overall sound quality. Adding our product under the hood absorbs vibrations and heat coming from the engine bay area, leading to a much quieter and more comfortable ride."

BY WAY OF INTRODUCTION

Suppliers offer effective ways to introduce heat and sound control products to your customers.

"Have the product in stock and demonstrate how it works," suggests Buca of DEI. "Make small displays that can be put on the counter to show the customer firsthand how it works."

Retro Mfg.'s Rock agrees.

"Shops can benefit from a small counter display with the product applied to one side," he says. "A small display like this can demonstrate how the material absorbs vibrations and insulates from heat."

McCarthy explains the process.

"Utilize small demo devices like a piece of sheet metal with and without HushMat to hear the difference when tapped," he says. "Also, show it on an installed vehicledemonstrate the solid sound when the doors, trunk and/or hood are closed."

He adds that HushMat offers an extensive library of educational videos as well.

Once shops get customers talking, they can go into detail regarding just how much these products benefit vehicle projects of all types.

"Explain that extreme heat is produced by every engine. Extreme heat can damage



Noise and heat abatement is attractive to customers in many markets. (Photo courtesy HushMat)



CALMING INFLUENCE

HEAT & SOUND CONTROL

Here's a roundup of some of the hottest heat and sound control products:

■ HOT PRODUCT:

Under Carpet Lite

■ FEATURES & BENEFITS: Sound decoupling material is an all-around product to reduce noise and heat in the cabin area; lightweight; easy to form and install.

Design Engineering Inc. (DEI) Mike Buca Brand Manager

- **HOT PRODUCTS:** Xtreme coupled with Dynaliner Foam
- **FEATURES & BENEFITS:** Both products are a simple peel-and-stick application.

Dynamat Inc. Charlie Mallory Director of Technical

- **HOT PRODUCT:** HushMat
- FEATURES & BENEFITS: Toprated sound reduction and thermal insulation material for use in automotive and household applications; made in America; flexible and easy to cut; peel-and-stick with no surface prep; custom kits available for over 366,000 different makes and models.

HushMat Tim McCarthy Founder & CEO

■ HOT PRODUCT:

RetroMat Mat30-SD

■ FEATURES & BENEFITS:

Sound damping material reduces road noise and rattles; includes a thermal layer to control excess heat; helps classic vehicles feel and sound like a brand-new car.

Retro Manufacturing Joseph Rock Brand Manager

■ HOT PRODUCT:

Adhesive-Backed Heat Barrier

■ **FEATURES & BENEFITS:** Lightweight; adhesive; withstands up to 2,000 degrees of radiant heat; useful for many applications.

Thermo-Tec Automotive Randy Pugh Marketing Coordinator





Think outside the vehicle for additional heat and sound control projects. You can use the products on just about anything—even the kitchen sink! (Photos courtesy Design Engineering Inc./DEI)

any part that is under the hood," explains Thermo-Tec's Pugh. "Having a product that can withstand and reflect away that heat will lengthen the part's lifespan. Who wants melting wires and cables, or starters that won't start due to overheating?"

Heat and sound can be greatly reduced inside the car as well, he adds, through a variety of mats and barriers.

"Most provide sound damping also," Pugh continues. "Along with heat, the noise from the road or engine will also be reduced, allowing for a more comfortable ride."

In fact, Dynamat's Mallory asks why not include the service with every project?

"Whether they are doing a car audio install or a complete restoration on a vehicle, shops should offer sound and heat control products as part of the service package. Some shops will add these products right into the cost of the project." **18**







Cool and comfortable is a great feeling just about any time in life, but particularly when driving your favorite customized vehicle. (Photo courtesy Dynamat Inc.)







PERFORMANCE **PRODUCTS**

Cummins Tunes

Bully Dog, Sanford, Florida, part of Derive Systems, presents the Bully Dog GT tuner, now available with preloaded tunes for 2018 and 2019-'21 Ram 2500 and 3500 6.7L applications. Designed to unlock more horsepower and torque, the tuners include benefits such as shift-on-the-fly and customizable gauges, and offer a wide variety of hauling features.



GM Engine-Mounting Brackets

Holley Performance Products, Bowling Green, Kentucky, presents Hooker BlackHeart GM LS and Gen-V LT Engine Mounting Brackets for 1988-'98 GM C1500/K1500 2WD and 4WD 1/2-ton truck applications. Designed to eliminate the installation guesswork and compatibility uncertainty that comes with using universal swap plate mounting methods, the brackets are available



with forward bias, rearward bias, or dual-engine mounting positions that optimize powertrain placement based on user-selected priorities.



Exhaust Insulation

Heatshield Products. Escondido. California, presents Heatshield Armor exhaust insulation that provides heat reduction and exhaust scavenging benefits. Made in the USA, the insulation offers a significant reduction in heat radiated by the exhaust, delivering decreased spool time and exhaust lag on turbo engines. Insulating the exhaust system also decreases heat exposure for underbody components, helping to extend their lifespan. The outer layer of Heatshield Armor can be covered with high-temp paint without any surface prep.

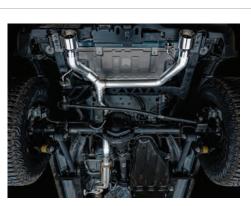
Ram 1500 TRX Mid-Pipe With X-Pipe

BORLA Performance

Industries, Johnson City, Tennessee, presents its patented Cat-Back exhaust system for 2021-'22 Ram 1500 TRX models that improves horsepower and torque. The Mid-Pipe with X-Pipe (SwitchFire)



delivers a performance sound without any drone or resonance inside the vehicle. The system is made from T304 stainless steel and features all-welded construction for durability and long life. Reuse the OE tips or add optional bright chrome or black chrome on T304 tips.



Bronco Cat-Back Exhaust

AWE, Horsham, Pennsylvania, presents its all-new, OFG Cat-Back Exhaust Suite for the sixth-Gen Ford Bronco, 2.3T/2.7TT two- and four-door models. The 3-inch modular stainless steel systems are available in three modular cat-back configurations with various tip options, and include the AWE BashGuard—a reinforced turndown-style axle-back outlet to improve clearance issues.



Cummins Tuning

Edge, Ogden, Utah, presents its Competition Juice with Attitude CTS3 tuner, available for 1998.5-2002 Dodge Ram 5.9L Cummins engine applications. Featuring Power Level 7 and an all-new touchscreen display, the system offers more rpm and more fueling, with power gains up to 150 hp and 380 pound-feet of torque.



Tesia Swap System

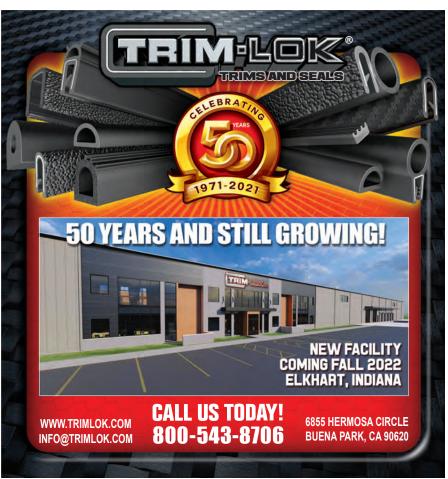
AEM EV, Hawthorne, California, introduces a Comprehensive Controls System for EV conversions using a Tesla Large Drive Unit (LDU) Base Drive. AEM EV's VCU200 and Tesla LDU Inverter Control Board combo is a thoroughly validated system that delivers OE-level safety, full vehicle control and increased power. The system eliminates the uncertainty and limitations of CAN-spoofing control and hobby-level capabilities of open-source alternatives.





C10 Interior Pattern

TMI Products, Corona, California, presents its newly designed Double Diamond interior pattern for use in 1960-'87 Chevrolet C10 truck applications. Designed to pay homage to the early days of cool, the pattern plays off the diamond stitch's timelessness, but gives it an update using modern manufacturing capabilities. Find it in the company's Pro-Series line of universal low-back seats and door panels. **15**

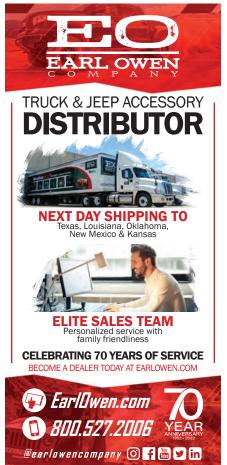


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3D Videos Help Shape Custom Builds

and Rover restoration company E.C.D. Automotive Design has begun using 3D videos to help customers envision the build of their dreams.

Constructed using the 3D creation tool Unreal Engine by Epic Games, the life-like animations include dynamic physics and lighting effects straight out of today's videogames.

"It's crazy-powerful software that places E.C.D. at the forefront of automotive design and ahead of the curve," says Tyler Godby, 3D artist and developer for E.C.D. "With Unreal Engine, the visual fidelity has increased exponentially. Everything from the way the light shines to the reflections in the glass contribute to making the videos look realistic."

E.C.D. specializes in customizing 25-yearold vintage Defenders and classic Range Rovers into modernized luxury vehicles that celebrate the creativity and style of each client while preserving the rugged charm of the originals, according to the company.

Each vehicle is rebuilt in-house in Kissimmee, Florida from the chassis up and personalized down to the seat stitching so that no two are ever the same.

After selecting from E.C.D.'s range of classic Land Rover models—be it a Defender 90, Defender 110, Defender 130, Series IIA or a Range Rover Classic—clients make further customizations including body style, paint, tire and wheel specifications and more, and then choose from a long list of accessory options such as grilles, roll cages and winches.

Next comes a selection from up to nine different drivetrain solutions, including a 450-hp Tesla electric motor. For the interior, clients select their preferred seat configuration and style, customize the audio and infotainment systems, and finish it off from a wide selection of leather and stitching colors.

Once clients finalize their personalized design, a 3D model of the car is digitally rendered with a variety of programs and powered by Unreal Engine. A design video is then created with the model, teasing the upcoming build.

The cinematic video includes pans of the exterior, shots of the interior and callouts that point out key features of the personalized build. High-fidelity textures, accurate lighting and dynamic shadows make it a fully immersive experience.

Godby has been doing 3D modeling and design, both as a hobby and professionally, for more than 20 years. He uses a custombuilt PC with an Intel processor and Nvidia 3070 card—equipment typical of game developers—for his design videos.

Soon to come are more detailed, realistic environments and weather effects to further enhance E.C.D.'s one-to-one experience, he adds.

"The possibilities truly are endless with this technology, and it'll only enhance the service that we offer to our clients," says Scott Wallace, E.C.D. co-founder. "We plan to use the engine to create an interactive online configurator that clients can play with. They can zoom in and out and make any updates to their builds in real time, tweaking the paint color, the seat leather type and more with just a few clicks."

Additionally, E.C.D. hopes to use Unreal Engine to create a virtual reality experience for its clientele. With a VR headset and controllers, clients can check out the interior of their vehicles and make changes, if desired. **15**

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Land Rover restoration company E.C.D. Automotive Design has begun using 3D videos to help customers envision the build of their dreams.



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