

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 in 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 rehobby 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

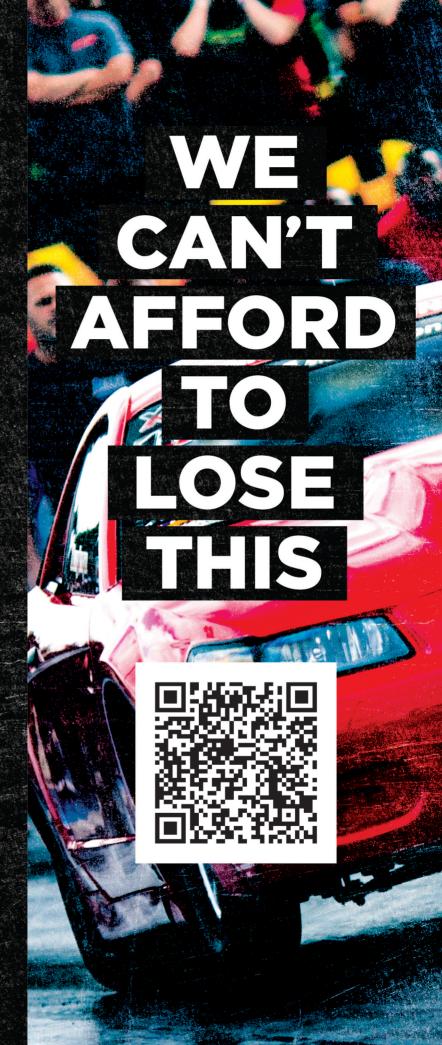
of the Clean Air Act to announce a new position ould be outlawed. This lawsuit is not a racing; rather, it is an essential step we can take is, towards protecting racecars while we wait for Federal Court the EPA's assertion that those who ehicles into racecars are violating the law, a American pastime.

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.

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Customers from coast to coast and around the world trust Motor State Distributing to supply their businesses with the automotive performance parts they need.

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DRIVER'S SEAT







Products They'll Pay More For

veryone—even shop owners and installers—have their favorite automotive accessories. Some are based on personal preferences, others on safety considerations or economic factors.

Most electronic add-ons are a hit with today's drivers. Manufacturers continue to receive high marks for blending innovation with reliability; advanced features with intuitive controls.

As car buying habits continue to change, Rocket Auto surveyed more than 3,000 motorists to determine which features would push Americans to spend more money on a vehicle.

The survey listed 25 common electronic and interior upgrades available from the factory. The five most popular were:

- Back-Up Cameras 80.6%
- Blind Spot Warning 78.6%
- Forward Collision Warning 75.3%
- Built-In Navigation System 74.8%
- USB Fast-Charging Outlets 73.2%

A deeper look at the results shows some differences based on the age of the car buyer. For instance, the top-five vehicle features chosen by baby boomers, in order, were: back-up camera, blind spot warning, forward collision warning, built-in navigation and keyless entry.

Meanwhile, for millennials, first to fifth looks like this: back-up camera, fast-charging USB outlets, built-in navigation system, blind spot warning and forward collision warning.

Maybe most surprising on the list is built-in navigation. Rocket Auto researchers noted drawbacks of the systems, including how quickly they can become outdated and the strong performance of smartphone navigation apps, and could only guess at the reason for their popularity in the survey.

"The appeal of a satellite-linked built-in navigation system could be that the signal is constant, even in remote areas where a cell phone might fail," they surmised. "Or, more likely, drivers are unaware of the new technology (mainly Apple CarPlay and Android Auto) or how to use it. Additional promotion and education around this feature could increase motorists' interest in it."

The good news for the aftermarket is that all of the 25 features listed were marked attractive to more than 50% of respondents, and that used car buyers are just as interested as new car shoppers in the technology.

The Rocket Auto summary outlines the opportunities for our industry:

"If motorists have the money, more than half are likely to pay extra for a car that includes them. But if they must prioritize features in a vehicle they are purchasing, they will first seek a vehicle with features that increase safety and peace of mind," researchers wrote. "This will then be followed by comfort features that they already know they enjoy, like heated seats.

"While drivers like added features and are willing to pay for them if they have the funds, they also like what they know," the report continues. "These are features that once might have been on a nice to have list but, through experience, have become a necessity to motorists."

To view the report, visit: https://www.rocketauto.com/research/buying-a-car/what-carfeatures-will-drivers-pay-more-for. **18**



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Hire motivated people who help your business grow.

hat popular mantra for creating a productive workforce has always been easier said than done. And today the challenge is tougher than ever, thanks to slim pickings in the candidate pool.

The pandemic has caused many workers to rethink their personal goals. Do they really want to return to a workplace where they never felt engaged? Or join one that promises nothing but dull routine?

Today's tighter labor environment comes at a time when hiring errors and subpar performance can seriously impact the bottom line. As advances in technology have reinforced the need to exceed the competition's productivity levels, employers need workers who will perform at the highest levels possible.

"In this competitive environment, companies have downsized considerably," says Pete Tosh, founder of The Focus Group, Macon, Georgia (thefocusgroup.biz). "As a result, they really need to accomplish more with fewer employees."



Engagement requires a match between an employee's passions and their daily work activities.

UNDERSTANDING ENGAGEMENT

The good news is that businesses can take steps to attract and retain their A players.

The process begins with an understanding of the forces that propel top achievers.

"There is a difference between motivation and engagement," explains William J. Rothwell, professor of workforce education and development at Pennsylvania State University. "Motivation is internal to people, while engagement is a passion for what they do. Engagement requires a match between the person's passions and their daily work activities."

Employees who are both motivated and engaged contribute maximum value to their employers. Not only do they get more easily into the flow of their work, but they reduce costly turnover by sticking around longer.

"A recent Gallup survey shows that engaged employees drive 12% more profit," says Tosh. "They are far more productive



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KEEPING EMPLOYEES ENGAGED



and lead to higher customer satisfaction."

Before taking steps to improve employee engagement, a shop needs to assess how staff members currently feel about their work environment.

"The most common misconception by employers is thinking people are engaged when they aren't," says Tosh.

A close look at employee attitudes is likely to be eye-opening. A recent Gallup

report revealed that only 36% of employees at the typical business are *fully engaged*, which means giving their best efforts or working to their full potential.

Meanwhile, 13% are actively disengaged, which means they are miserable in their duties and spreading unhappiness to coworkers—and, presumably, customers.

Perhaps as alarming was Gallup's finding that 51% of employees are *not engaged*—psycho-

logically unattached and just going through the motions. In other words, a majority of employees are not pulling their weight.

The best way to assess employee engagement is to speak with them one-on-one.

"Periodic conversations with employees will reveal any issues about their working conditions," says Rothwell. "The business environment is one thing, but how people perceive it and feel about it is very often another."

Here, the supervisor plays a key role.

"Effective supervisors are catalysts," says Tosh. "They impact and utilize employee talents to achieve business goals."

It's the frequent exchanges between supervisor and employee, he adds, that offer the greatest potential.

"Each interaction, even momentary, is an opportunity to build the relationship, to coach and to improve the employee's performance."

Unfortunately, too many supervisors see worker interactions as interruptions rather than opportunities. Other times, the personalities of supervisors clash with their charges. And that can be a major demotivator.



Before taking steps to improve employee engagement, a shop needs to assess how staff members feel about their work environment.



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The number one thing employers can do to drive employee engagement is show appreciation.

"An employee's perception of their relationship with their manager is far more important than their perception of the organization as a whole," says Tosh.

Bonus tip: Engage the cynics. What do you do with that subset of employees that always seems to have a negative interpretation of workplace events? Harness their energies.

"Sometimes your cynics are your best critics," says Bob Verchota, senior consultant at RPVerchota & Associates, Minneapolis. "Make a focus group out of them. Then you can really work on removing barriers to efficient employee performance."

TOP MOTIVATORS

Supervisors can use motivational techniques to re-engage workers and keep everyone performing at an elevated level. But what techniques will work?

While common wisdom says throwing more money at people will stimulate performance, studies have shown that to be false.

"When people are paid more, their performance does increase temporarily, but then it goes right back down," says Jack Altschuler, president of Fully Alive Leadership, Northbrook, Illinois (fullyaliveleadership.com). "And

they then view higher pay as an entitlement."

He does offer three caveats, however.

"For lower-wage people in financial distress, more money does matter and can change their engagement level," he says.

"Additionally, people who feel they're being underpaid will respond positively to an increased financial reward."

Finally, at the lower end of the wage distribution scale, money can determine



HOW TO MOTIVATE THE DISENGAGED PERSON

Dave has always been one of your best employees. Lately, though, he no longer goes the extra mile. Clearly, he is disengaged. What can you do?

Don Phin, a management consultant, suggests Dave's supervisor invite him to a conversation. An opening gambit may go something like this:

Can I share with you a couple of things I've noticed? [The supervisor states specific observations.] It might just be me, but I get a sense you were more engaged and motivated last year than this.

"The trick here is to speak for oneself," says Phin. "Notice that there was no suggestion Dave was unmotivated, but only that the supervisor observed certain behaviors."

A follow-up question can invite Dave

to share any hidden issues:

Is there anything going on here that's causing this change in behavior?

Dave may reveal a personal problem such as a health issue, a divorce or some home event he normally would not share at work.

Expressing an understanding of how the problem could unsettle things might be all the supervisor needs to say for Dave to adjust his behavior. Perhaps he did not even realize his performance had deteriorated. And management might want to give him some slack until his personal issues are resolved.

Dave, however, may respond in a different way: He may state that something in the workplace is bothering him. If so, it is important to resolve the conflict.





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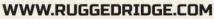
















KEEPING EMPLOYEES ENGAGED



who applies for a job and who stays on once they're hired.

"If somebody is paid \$7.25 an hour, and they can get \$12 someplace else, they're gone."

Those exceptions aside, what really motivates people is a nurturing workplace that meets their basic human needs to be. To establish such an environment, experts suggest supervisors do the following:

Appreciate employee contributions

"The number one thing employers can do to drive employee engagement is show appreciation," says Altschuler. "Very often, doing so is no more complicated than something like this: 'Mary, thanks so much for staying late to finish the report that we needed this morning."

Recognize achievements

"When we do something worthy of recognition, we want to be recognized," says Altschuler. "Whether it's a celebratory party or a plaque that someone can hang on their office wall, recognition creates a sense of personal pride."

Provide autonomy

Anything a manager can do to cut back on stifling bureaucracy is a good thing.

"People need some personal freedom in their work practices," says Verchota. "They need to feel that achieving an outcome is important, but how they get there is something they get to decide."

Encourage new skills

"People need to feel they have become masters at some task," says Verchota. Increasing the number of such tasks can make an employee feel great about the workplace.

Cut checkpoints & paperwork

"Bureaucracy demotivates people by creating obstacles to their job performance," says Rothwell. "It makes people very angry if they need to sit around waiting for their boss's approval to do routine and simple things."

Emphasize larger goals

"People need to feel a sense of purpose," says Verchota. "They need to feel an emotional connection with their work and that their duties align with their value set."

HIDDEN MOTIVATORS

As important as the top motivators are, one size does not fit all.

"Not everyone is motivated by the same thing," says Verchota.

And the only way to discover what those idiosyncratic motivators are is to engage each employee in conversation.

Supervisors should ferret out each employee's hidden motivators in brief weekly meetings. Discuss the individual's attitude toward his or her work, and their happiness with their position.

Rothwell suggests one particularly useful question:

Can you tell me a story about a time when you felt particularly motivated in the work that you were doing? What was happening,



Companies that make a concerted effort to inspire their personnel achieve the twin rewards of higher productivity and greater profitability.

QUIZ: DOES YOUR WORKPLACE ENGAGE?

Does your workplace inspire employees to become engaged with your business mission? Find out by taking this quiz. Score 10 points for each "yes" answer. Then total your score and check your rating at the bottom of the chart.

Do your managers and supervisors:

- Convey appreciation for employee contributions?
- Recognize employee achievements?
- Provide autonomy to employees?
- Encourage mastery of skills?
- Reduce bureaucracy whenever possible?
- Emphasize purpose in the company mission?
- Interact productively with charges throughout the day?
- Discuss engagement issues with charges weekly?
- Identify hidden motivators for each employee?
- Run periodic checks for Objectives and Key Results (OKRs)?

What's your score? 80 or more: Congratulations. You have gone a long way toward building a productive workplace. Between 60 and 80: It's time to fine-tune supervisor-employee relations. Below 60: Your business is at risk. Take action on the suggestions in the accompanying article.

who was involved and, most importantly, what made it so motivating to you?

Then listen.

"The story will come from inside the person," he says, "And most of the time, if they can't come up with a story there is something overwhelmingly bad in their work situation that needs to be addressed."

Another tactic is to assure the confluence of so-called Objectives and Key Results (OKRs).

"If a boss thinks an employee should be doing one thing, and that person thinks they should be doing something else, there's going to be demotivation at some point," says Don Phin, a management consultant in Coronado, California (donphin.com).

He suggests having the employee write down the three most important tasks they do every day, then the three key results they expect. Then have the supervisor do the same for that employee.

"It's surprising how often the two lists do not match," says Phin. "And no performance system will work if they don't."

A cousin to periodic engagement reviews are so-called *pulse surveys*. These are frequent, short questionnaires designed to identify trouble spots in a business environ-

ment. As the name implies, they take the pulse of the organization.

CREATING PROFITS

Companies that fail to improve employee motivation and engagement leave money on the table that competitors are only too happy to collect.

On the other hand, companies that make a concerted effort to inspire their personnel achieve the twin rewards of higher productivity and greater profitability.

"Initiatives to bolster employee attitudes are proven to work," says Tosh. "Such efforts are practical, doable and drive success in the organization."

The right program will retain the best people and attract new ones.

"If we want to be an employer of choice, we must understand we are in a major competition globally for top talent," says Rothwell. "That means we need to create a great work environment where people can do their best and never want to leave." **15**



New York City-based journalist **PHILLIP M. PERRY** publishes widely in the fields of business management and law.



Fairytale Relationships WIH CUSTOMERS

Six characteristics of an Enchanted Brand.

By Jane Cavalier Lucas

hen people face a world that is too complex to understand, constantly changing in unexpected ways and unclear, they put up barriers of distrust and caution.

This environment creates debilitating distress, and most people don't have the tools or training to deal with it. It affects decision making and can lead to irrational choices driven by fear.

Sound familiar? From cancel culture to the Great Resignation, these days people are acting in ways never before anticipated. In ancient times, people created myths to explain what they could not understand, and the rise in conspiracy theories today is not much different.

Regarding today's business climate, as people scramble to find ways of coping in our VUCA (volatile, uncertain, complex, ambiguous) world, companies that develop an *Enchanted Brand* offer them a positive path—inspiring thinking that transcends reality.

Enchanted Brands are the next paradigm in branding to help organizations thrive in a VUCA world. These are brands that serve people rather than sell goods, and in so doing forge a strong, trusted partnership. Rather than tell people how to think and feel, these brands inspire new thinking by stimulating the imagination. Instead of prescribing, they open choices and empower people to create their own desires.

This personal, creative decision making is what makes an Enchanted Brand compelling. People are sparked to imagine something they desire—their own personal view of that perfect hot rod or go-anywhere offroader. They lean in to buying the branded product as a way to pursue their dreams, because the brand is part of the source code and linked to achieving it.



On a foundational level, the Enchanted Brand possesses these six characteristics that you can strive for in your shop:

INTENTION

Has a clear, relevant point to make.

The Enchanted Brand has an emotional and practical outcome it aims to achieve in the life of everyone who touches it.

It should inspire specific thinking and action, and help people overcome the challenges of a VUCA world. It should

also stand for an idea with a high level of meaning.

Chanel is an Enchanted Brand that wants you to experience the thrill of divine, feminine beauty so you can cultivate your own version of it. No matter what happens in the world or in your day, you can always have this gift in your life.

ENGAGING

Must entertain & arouse curiosity.

An Enchanted Brand is designed to make

people feel good and stimulate new thinking. If the brand doesn't evoke positive feelings, it is not an Enchanted Brand.

It also challenges people to use their imaginations. This is what sparks curiosity—a strong desire to know or learn something. To that end, the brand presents something new or unfamiliar in an inviting way.

The John Deere brand, for example, engages you in the fantasy of American farming, even if you've never set foot on a real working farm.





ENRICHING

Stimulates the imagination & clarifies emotions.

The Enchanted Brand seeks to open the aperture of life by introducing the mind to new possibilities associated with positive emotions. Rather than fearing something new, people look to embrace it.

The brand enriches life like a great book, poem or TV show. For instance, many people feel enriched by the level of creativity that the Apple brand makes possible for them.

AUTHENTIC

Tethered to a compelling truth.

Although Enchanted Brands are about fantasy, the fantasy has relevance because it is based in truth. Just like great comedy, you laugh because it's so true!

The truth can be found in many places—in what people are facing or even in what the branded/product can actually do. A Range Rover can go off-road for 4,000 miles, which might inspire someone to feel the rugged adventure of it all. This truth helps validate the fantasy.

ALIGNED

Attuned to anxieties & aspirations of the real world.

Historically, brands have sugar-coated the world and not recognized real human difficulties. This is why many lose relevance.

The Enchanted Brand, meanwhile, recognizes enduring human challenges by providing an antidote to specific anxieties associated with them. The Johnson &

Johnson brand provides a profound level of trust, embedded in the mother-baby bond, to alleviate the high anxiety presented by complex health care solutions that can require a leap of faith.

ENABLING

Promote self-confidence & personal value. The Enchanted Brand is designed to create more personal agency in the world. The purpose of the brand is to counteract the disabling effects of the VUCA world and to strengthen a sense of personal power that can, at times, be overwhelmed.

This is how the Navy Seal brand helps courageous warfighters persevere in

extreme VUCA circumstances, as they are driven by high ideals that can never be compromised.

Imagine if just a small fraction of the hundreds of millions of dollars spent annually on brands in our culture was spent on creating Enchanted Brands rather than on brands that pollute, dilute or refute our personal identities. During this time of epic change, where people face the dehumanizing effects of revolutionizing technologies in work, life and society every day, we need to strengthen what it means to be human.

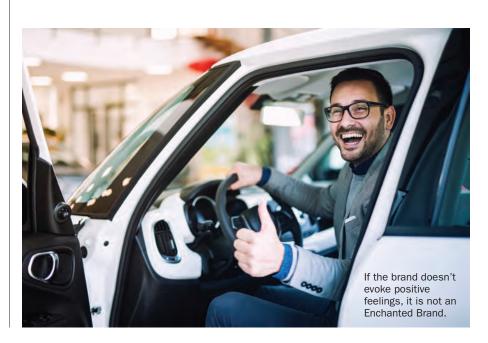
Enchanted Brands bring in the power of art—ideas that touch people in deep ways—and reach for a higher place. This mental power propels people to try and buy products, work hard, invest in the future and stay loyal.

Specialized and accessorized vehicles are a product people want to feel good about. Give them a reason and you're on your way to the fairytale land of Enchanted Brands. **15**



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JUNE 2022

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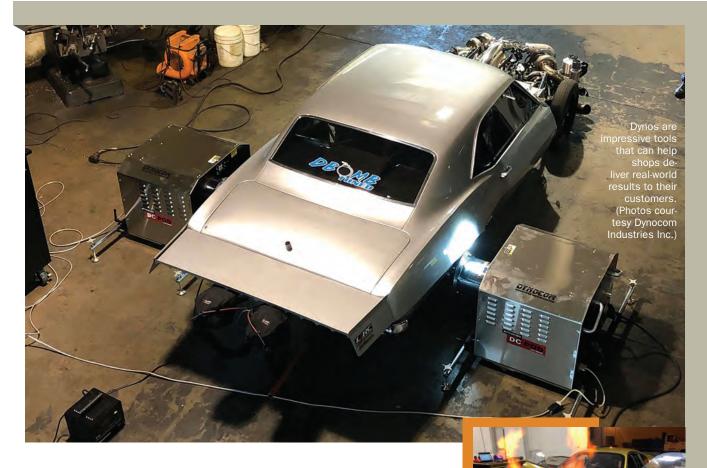
HEARTLAND CUSTOMS



AIRSTRIPATTACK

WHEN DRAG RACING MEETS LAND SPEED RACING





TESTING STATIONS

Dynamometers continue to make inroads. //// By John Carollo

rom being a tool used exclusively by hardcore engine builders to the much wider-open market of chassis dynos, it's a new world for in-house dynamometers.

These impressive tools have become more useful than ever for shops, thanks in part to performance, emissions and other con-

siderations that have more and more drivers looking for the specifics of how their vehicles truly stack up.

Purchasing an engine or chassis dyno is a big decision for many smaller shops. Here are a few tips on what's happening in the market and what to expect if you add your own testing station.



BRAVE NEW MARKET

It wasn't that long ago that many felt dyno testing was best left to the rocket scientists. Tools and training are now making tuning information more available.

"Generally speaking, most people are more knowledgeable than they were a decade ago. Information is easier to access and there are more resources available," says Lauren Ganzhorn, account manager of Mustang AE in Twinsburg, Ohio.

She cites The Tuning School in Odessa, Florida, as one of many businesses that offer hands-on dyno testing instruction.

"There are also videos and books that were not available 10 years ago, including those offered by Calibrated Success in Michigan," she continues. "People stepped up and filled the voids we had for years, and this has raised the average IQ among



tuners. This has been a benefit for everyone, including enthusiasts."

The trend is important, notes Allison Blackstein, COO of Dynocom Industries Inc., because owners must understand the intricacies of how a dyno operates and what the numbers mean in order to give customers accurate information they can use in the real world.

operation," she explains. Does your shop want to run tests that simulate drivetrain operations, where dynamic forces such as inertia and torque multiplication through the gears is present? Will you be testing extremely high-horsepower vehicles that will tax the system? These are the types of questions to ask, Blackstein notes.

well-suited for full vehicle chassis dyno

"Some dyno compa-

nies only have one or

two types of tests that

can be performed. In

many cases it's a RAMP test, which is common on engine dynos but not

"Just like an engine, dynamometers have components with real static and dynamic ratings that should be understood," she says.

It's also important to be able to handle today's specific requests, notes Shawn Kell, performance products specialist at SuperFlow.

> "At the PRI Show last December, the number of inquiries from both

performance gas and diesel customers for an engine dyno capable of 4,000plus hp was some-

diesel trucks and Pro Mods; reduced backlash vs. belts; lower noise; less maintenance; higher static and dynamic torque ratings.

Allison Blackstein

■ HOT PRODUCT: Web-Based

Hole Shot Software

■ FEATURES & BENEFITS: Configurable CAN interface; new five-gas analyzer module for emissions testing; custom sessions program. Also available is VMAS2.0 that measures tailpipe emissions with a flowmeter and CVS for responsible tuning.

> Mustang AE Account Manager

■ HOT PRODUCT: SF-800 Series All-Wheel Drive Chassis Dynamometers

■ FEATURES & BENEFITS: Chosen by SEMA Garage - Detroit for its new mileage accumulation lab; true mechanical roll synchronization using differentials and a telescoping driveshaft to prevent driveline damage on AWD vehicles; solid construction; can achieve 200 mph.

> SuperFlow Shawn Kell Performance Products Specialist



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TESTING STATIONS

STRAP IN

A vehicle launching off of a running chassis dynamometer is an image no one wants to picture. Intact dyno straps prevent that from ever happening.

Mike Buca, product manager for Design Engineering Inc., a heat and sound control products company, explains how DEI Dyno Strap Heat Guards protect dynamometer tie-down straps from fraying and burnthrough caused by hot exhaust pipes.

"It started with a frantic call from a local tuner shop, asking if we offered a protective heat sleeve for dynamometer tie-down straps," he recalls. "It seems this tuner nearly launched a car while on the dyno, because the exhaust

heat exiting the tailpipe had actually burned through an already weakened area on the strap."

Made of high temperature-resistant aluminized mylar material, DEI's Dyno Strap Heat Guards slip on over dyno tie-down straps, protecting against chafing and temperatures of up to 500 degrees direct heat and 2,000 degrees radiant heat. They measure 36-by-

Ems e on

DESIGN ENGINEERING INC.

5-inches.

"In what could oth-

sure to guard against the damaging effects of heat on tie-down straps," Buca says. "Simply adjust them to the desired location near the source of exiting exhaust."

DEI Dyno Strap Heat Guards protect against

tie-down strap damage

from heat or chafing, which can compromise

safety. (Photos courtesy

Design Engineering Inc.)

what surprising. We always have some of that, but the inquiries were probably 10 times what we've had in the past," he says. "Meanwhile, EV testing is growing by leaps and bounds, and we are positioning ourselves to have a stable of dynos for EV testing in the near future."

MORE TO LEARN

While there's a lot of info available, there's

also a lot to learn. Here are some things to keep in mind when investigating dynos.

safety check area around a dyno, these

guards are a simple and effective mea-

erwise be an often-overlooked

"Don't just look at the peak number that a manufacturer advertises," says Blackstein. "Look at the size and diameter of the shafts, the bearings, the types of materials, etc. What about the actual mass of the dyno? Generally, the heavier the unit is, the tougher it is and the more power it can handle." Other questions to ask suppliers, Blackstein suggests, include:

- What's the weakest link inside the
- Are advancements keeping pace with today's technology?
- Where are the electronics and software designed and made?
- Are software updates available?
- Does the supplier provide support, and is there a fee?

Once a dyno is up and running, there are plenty of things to keep an eye on.

"When doing R&D, don't change more than one component between pulls," Kell advises. "Oftentimes customers will change multiple components. If they do this, they often miss the best combinations. When only making one change at a time, the operator truly knows whether they had a gain, loss or remained the same."

Also, consider your operating environment.





HEAVY DUTY STEERING & SUSPENSION COMPONENTS



JEEP, RAM 2500 & 3500, FORD F-250 & F-350, FORD BRONCO



HENNESSEY ADDS ADVANCED TUNING COURSE

Texas-based hypercar manufacturer and high-performance vehicle creator Hennessey has unveiled an all-new training course aimed at educating the next generation of highly skilled automotive performance calibrators.

Called 200 Automotive Technology – Advanced Tuning, the 14-week curriculum teaches high-level tuning through a balanced approach of practical lab-based learning and instructor-led lecture sessions, according to the company. Covering everything from Advanced Engine Dynamics and OEM System Strategies to Data Analytics and Aftermarket Engine Tuning, the new course builds on Hennessey's 100 Automotive Technology – Intro to High Performance course, part of its Tuner School program.

"For 14 years, the experienced Tuner School instructor team has helped hundreds of students fulfill their ambition to work in the automotive performance and racing sectors," says Jason Haynes, Tuner School lead and Hennessey director of research & development. "The addition of our Advanced Tuning course will enable experienced technicians and those graduating from our *Intro to High Performance* course to raise their skills to the highest level."

Hands-on training includes use of Hennessey's own chassis dynamometers, capable of analyzing vehicle output at speeds up to 200 mph with power of up to 2,000 bhp. Practical experience extends to real-world testing on Hennessey's own test track using models including a Chevrolet Camaro SS, Dodge Challenger Hellcat and Ford Mustang GT.



Hennessey has unveiled an all-new high-level training course aimed at educating the next generation of performance calibrators.

Tuner School's focus is to train students to become the next wave of professionals in the performance and racing industries. Hennessey established Tuner School in 2008 and has educated more than 600 students over the years.

"I love horsepower, but what I love more is hearing from Tuner School graduates that our program has changed their life," says John Hennessey, founder and CEO. "It's hugely gratifying to play a small part in the futures of so many talented men and women. We believe wholeheartedly in the program as demonstrated by the Hennessey Performance employment figures—more than half of our technicians are Tuner School graduates."

This article originally appeared on theshopmag.com, where you can sign up for the free daily eNewsletter.

"The most common mistake is not using enough air for cooling and not actively removing exhaust," says Ganzhorn. "Exhaust buildup can end up in the intake and it is toxic—neither are positive outcomes. We offer several properly sized cooling fans and a portable exhaust extraction system that solve these problems."

FUTURE PULLS

Here are reasons why suppliers believe dynos are a wise long-term investment.

"In spite of the crazy times we live in, our

customers have been the busiest they have ever been," says SuperFlow's Kell. "More and more of our customer's customers want their engines or vehicles tested on a dyno. We have seen this in record sales the past two years."

Dynocom's Blackstein encourages potential buyers to consider products that are domestically produced.



MOTUL, MOUNTUNE USA FORM TECHNICAL PARTNERSHIP



Oil and lubricants company Motul has announced a technical partnership with engine builder and parts manufacturer Mountune USA. (Photo courtesy Motul)

Oil and lubricants company Motul has announced a technical partnership with engine builder and performance parts manufacturer Mountune USA, with an eye toward collaboration and testing initiatives to enhance and develop future products.

The collaboration encourages a commitment to rigorous performance testing—whether dynamometric or physicochemical, according to the companies. As part of the partnership, Motul's engineers will analyze oil samples taken from vehicles placed on Mountune USA's in-house engine dyno to test, develop, re-test and refine high-performance lubricants.

"Having a technical partnership with Motul affords great potential for mutual growth and opportunities for both organizations," says Ken Anderson, Mountune USA president. "This new partnership allows increased insight into technical and engine development and also explores new avenues of engagement with the enthusiast and motorsports communities."

This article originally appeared on the shopmag.com, where you can sign up for the free daily eNewsletter.

"Support is here, parts are here, and you support American jobs," she says. "The U.S. dyno companies have made the highest-horse-power dynos for automobiles in the world and continue today, as we build the highest-horse-power vehicles in the world."

If your shop is willing to put in the time and effort, the rewards will follow, says Mustang's Ganzhorn.

"We continue to see growth in the industry, which is promising," she says. "We are seeing a lot of interest from the youth in North America as well as abroad. We are fortunate to have a lot of friends in the Automotive Training and Educational sectors, and they continue to fill seats with tomorrow's technicians, mechanics, automotive small business owners and tuners. We're very optimistic about the future of the performance industry." **15**







RESTOMODS FROM THE HEART(LAND)

Jeff Page's builds are the perfect blend of classic charm & modern muscle.

By Maura Keller

hen Jeff Page, founder and CEO of Heartland Customs, a full-service restomod builder in Purcell, Oklahoma, got out of the U.S. Navy, his father was finishing up a personal 1961 Corvette project.

Page's father integrated a modern suspension, drivetrain and amenities aplenty into the build so that it wouldn't feel like an *old* car. Together, Page and his father took the 'Vette to a variety of shows, where it attracted large crowds of interested enthusiasts.

An idea for a business quickly formed.

"I talked to my father about starting a company where we took classic cars and made them modern," he says.

Page opened Heartland Customs in February 2007, and has spent the past 15 years handling all aspects of custom builds from start to finish.

"In the early days we, of course, would take on any project that fell in the door, but we were very fortunate that a couple of customers came in with large enough budgets to show off what we could really do," Page recalls. "They were both wanting classic Corvettes."

So, Heartland Customs built a couple of really nice 'Vettes, and both cars showed well at Goodguys, ISCA and Corvette events across the country.

"Those builds made a name for us in the Corvette world and made us the go-to place for high-end Corvette restomods," Page says. "We have gone from a small mom-and-pop shop to building cars for customers all over the world, including Fortune 100 CEOs. The future is bright for Heartland

STANDING OUT FROM THE CROWD

Page has always loved vintage vehicles, he says, but agreed with his father that they could ride and drive better.

"I learned over the years that high-end customers and collectors shared my feelings and wanted their classic cars to feel like their daily drivers," Page says.

While Heartland Customs began by focusing on Corvettes (which remain its "bread and butter"), the company has expanded into the wider muscle car market with a set-cost SPEC program that includes Camaro, Chevelle, Nova, truck and Mustang offerings.

It also obtained the rights to produce officially licensed Yenko vehicles.

"Each one comes with a letter of authenticity from Yenko," says Page. "I am working on doing the same thing with Shelby on our SPEC Mustangs."

Page and his team have built multiple vehicles for five different collectors over the years, and have also worked on some memorable projects—including one they got to do twice.

"We have had some interesting customers and things happen over the years, but one of the best was a 1958 SPECVETTE that we built in 2018 for a customer in Miami," he notes. "We were well into the build of the car and the body was ready for paint. We cleaned the car and rolled it outside to dry before it went into the paint booth. A semi-truck passed by our shop and an outside dually wheel came off it and hit that Corvette broadside at about 80 to 100 mph. A 200-pound missile going that speed basically completely destroyed that fiberglass Corvette."

The shop had to start over on the build, but it has a happy ending.

"A year later it was complete and was unveiled at SEMA and won the General Motors Car of the Year award!" says Page.

EMBRACING CHALLENGES

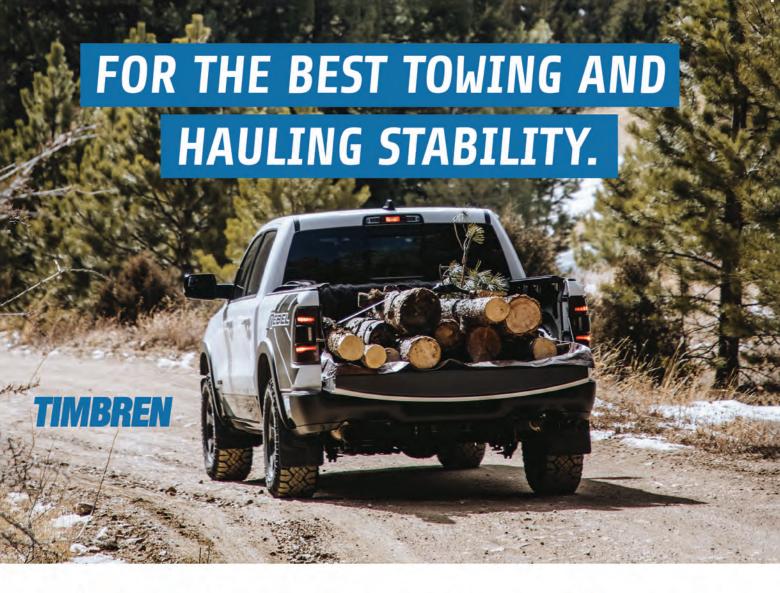
While Heartland Customs (heartlandcustoms.us) has enjoyed steady growth over the years, the company has faced its share

of challenges as well.

One of the biggest is dealing with parts delivery delays, thanks to COVID-caused supply chain disruptions. Another is finding and keeping good workers.

"Finding employees that have a







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passion for what we do and who want to work hard is almost impossible," says Page. "We prefer to find them young and train them in the ways we want these cars built."

Employee retention comes down to the family environment Page has worked hard to establish, he believes. While Heartland could easily expand and grow its workforce, Page prefers to keep his employee count below 10.

"We are able to keep the employees as a closer-knit team that way," he says. "Shops with 30 to 40 technicians typically couldn't care less about their coworkers, whereas ours hang out after hours and attend each other's kids' games."

It's all about maintaining the quality workmanship that Heartland Customs is known for—a reputation most often passed along through word-of-mouth referrals.

"We use free advertisements like social media and YouTube as much as we have time for, but we have never paid for advertising," Page says, noting that 1- to 2-minute edited videos seem to be the most effective.

Page also embraces alliances with local businesses, which have proved beneficial throughout the years. Specifically, Heartland Customs formed solid partnerships with local auto parts stores early on, enabling his technicians to locate parts easier and faster than someone off the street.

"Being able to just walk past the counter and grab something really speeds up the process," Page notes.





LOOKING AHEAD

Even after 15 years, Page still gets goosebumps when something cool happens or he sees the reaction of an owner when they see their car for the first time after the Heartland Customs team has completed a build.

"I love every single facet of this job. Really, the best part is amazing the customer," Page says. "We spend a lot of time interacting with our customers during the build of the car and even after it is delivered, making sure everything is beyond their expectations."

Encompassing approximately 11,000-square-feet in two buildings, Heartland Customs currently has a four-year waiting list of full restomods to build and is signing more every month.

"We have some really cool projects under way and on the waiting list that will show people a completely different side of Heartland Customs," Page predicts. "We also have plans to triple the size of our current facility this year, so all areas of the build will be under one roof." **15**

MAURA KELLER is a freelance writer based in Minnesota. She can be reached at maurakeller@yahoo.com.



here's no denying that the cars that race Bonneville and El Mirage are among the fastest on Earth, and I can't deny that I love both the dry lakes and Bonneville.

Both venues, however, have their drawbacks. El Mo gets windy and you get dust in places you've only ever seen with a mirror, while Bonneville can be blistering hot and icy cold—all in the same day—and mushy like an undercooked pudding.

That said, I go back time and again, and prefer both surfaces to asphalt.

Or so I thought.

That is, until I attended an Airstrip Attack at the Coalinga Municipal Airport, three hours north of Los Angeles on I-5. Airstrip Attacks are sanctioned by Shift-S3ctor.com, an event management company that hosts drag/roll racing, track days, car shows, corporate events, drift events and driving experiences.

Airstrip Attack was founded in 2011 by Shift-S3ctor owners Jason Huang and Ryan Fisher, who met street racing and shared a desire for a legal and safe racing venue. After a few Shift-S3ctor events at local racetracks, they realized it would take a longer stretch of asphalt to accomplish their high-speed

goals—a half-mile race.

Airport runways proved an ideal venue and, soon after, Airstrip Attack was born.

STRAIGHT & NARROW

The inaugural Attack took place in February 2012 and was a private, invite-only event minus timing equipment and spectators—just heads-up, side-by-side racing. More than 80 racers and car enthusiasts showed up with everything from modi-

fied Ford GTs and R32 Skylines to high-horsepower Corvettes and Porsches.

Two years later, Shift-S3ctor partnered with Ryan Randels, owner of Colorado-based Revvolution.com, to build on its vision and put Airstrip Attack on a national stage.



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Airstrip Attack quickly extended its scope to Colorado, Oregon, Indiana and beyond. This year's scheduled events include stops in Indiana, Kansas and Texas, with more in the works.

"Our goal is six events this year," says Huang, partner and legal counsel for Shift-S3ctor LLC, "but we'd ultimately like to be at seven or eight."

Unfortunately for us *left side* enthusiasts, there are no West Coast events planned. That seems to be due to a lack of support from the Federal Aviation Administration, which reportedly has been clamping down on automotive events on airstrips.

Competing cars vie for top speeds in seven different classes on a 1/2-mile section of runway. The classes are: AWD, 2WD (FWD or RWD), Ethanol, German Car, Manual, Naturally Aspirated and Sedan—groupings that make for interesting racing. Each day, drivers compete for top honors in their respective classes.

In many ways the events are similar to no-prep drag racing, but, unlike no-prep, traction compounds for tires are allowed and it's less about hard launches and all about achieving maximum speed within a 1/2-mile.

The big difference between traditional land speed racing, where the cars run one at a time, is that at AA meetings, cars run side by side. However, they are not racing to see who gets to the finish line first—again, it's all about individual top speeds; they just happen to do it side-by-side.

It's quite the spectacle to see cars stage and do burn-outs in pairs, just like drag racing. Basically, Airstrip Attack makes a spectator sport out of land speed racing.

PREPPING FOR THE HALF-MILE

The event I attended was very well organized, with around 140 cars competing. I went along with *Big Red*, whose owner and driver, RJ Gottlieb, has done it all—from open road challenges like the Silver State Classic, to the mountain road at Pikes Peak, to the salt flats of Bonneville (still waiting for that red hat, by the way!).

Although a humble '69 Camaro, *Big Red* has always been on the cutting edge of old-meets-new school, and after studying aero data the team decided it was time to try a big wing built by Klaus Composites in Virginia to provide the Camaro with more downforce. It's not easy putting over 2,000 hp to the ground, especially in an

RWD setup on a non-prepped surface in a brick-like *Hugger*.

Big Red easily went 258.60 mph at Bonneville in 2018, and 266.20 mph over 1.5 miles at the Mojave Mile that same year, so expectations were that it would easily eclipse those marks, given the right conditions and traction.

Unfortunately, both had proven elusive at Coalinga in 2020, when *Big Red* topped out at just 198 mph, due to excessive wheel spin and wheel hop as a result of the dusty surface and the joints in the concrete slabs.

At the April 2021 Coalinga event, despite the addition of the big wing, *Big Red* was again off its game, reaching a top speed of just 194 mph. However, at an Airstrip Attack later last year in Marion, Indiana, it hit 216.5 mph in the 1/2-mile.

According to Josh Oliver of the *Big Red* team, "the surface at Marion was as close to perfect as it gets."

At the event I attended, *Big Red* was joined by a handful of other muscle cars including a 1968 Camaro, a Studebaker Avanti and a Shelby Daytona kit car. The majority of the field, however, consisted of modern muscle cars and exotics.

Top speed honors that day went to Patrick Kennedy's 2015 Nissan GT-R that ran 225.45 mph. It has a rear-biased AWD system, meaning the rear wheels are always powered, receiving 50-100% of engine torque, depending on the driving conditions.

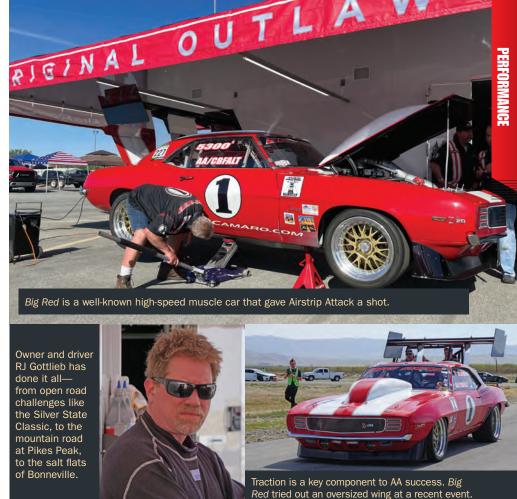
As a matter of fact, six out of the top 10 speeds were set by GT-Rs, with the slowest still managing 200.53 mph.

I'm not saying you could drive those particular GT-Rs home (though it would be fun!), and I'm not saying they would be as fast on dirt or salt (it's surprisingly difficult to race on either slippery surface), but I am saying that Airstrip Attack certainly satisfied my need for speed.

If you live in an area where the nearest opportunity to race on a dry or salt lake is 2,000 miles away, then Airstrip Attack may be for you. For more information, visit AirstripAttack.co or Shift-S3ector.com



Born in England, TONY THACKER is an accredited automotive journalist, author and book publisher, and served as marketing director at the famed SO-CAL Speed Shop.





<u>> PERFORMANCE **PRODUCTS**</u>



Formed Sensor Covers

Design Engineering Inc. (DEI), Avon Lake, Ohio, presents new Formed Sensor Covers that protect vulnerable sensors, plugs and wire connectors on off-road, race and street machines. Lightweight and easy to install, the covers fully encase automotive sensors, acting as a thermal barrier to prevent failures. Constructed with an insulating inner layer and heat-reflective outer layer, they are offered in 25mm and 32mm sizes to fit a variety of applications.

Bronco Cat-Back Exhaust

AWE, Horsham, Pennsylvania, presents the all-new OFG Cat-Back Exhaust Suite for new Ford Bronco 2.3T/2.7TT two-and four-door models. Designed for any terrain, the system is built with 3-inch T304L stainless steel and delivers an improved sound and trailside modularity. An AWE BashGuard is included in every kit.



SCAN TOOL SHOW TROUBLE CODES CLEAR TROUBLE CODES DATA LOGGING DIABLUSPORT

Ram 1500 TRX Tuning

DiabloSport, Sanford, Florida, offers Tuning Solutions for 2022 Ram 1500 TRX pickup applications. The InTune 3 Platinum and Trinity 2 Platinum performance programmers deliver horsepower and torque gains and improved throttle response.

Billet Aluminum Rods

MGP Connecting Rods, Lakewood, New Jersey, a member of the Race Winning Brands family, presents its Aluminum Connecting Rods, now available as shelf-stocked items in an arrangement with fellow RWB company Diamond Pistons. Featuring proprietary manufacturing technology centered on precisely machining specially extruded aluminum alloy billets and using the ILS (Integrated Locking System)



process, the durable rods are in stock for popular applications including small- and big-block Chevrolet and second-gen Hemi engines.



F-150 Fuel Pump Modules

Aeromotive Inc., Lenexa, Kansas, offers Direct Drop-In Fuel Pump Modules for 2015-'20 Ford F-150 models. The pumps come with dual or triple 450-liter-per-hour fuel pumps. The triple 450 LPH pumps are suited for naturally aspirated gasoline engines producing up

to 3,300 hp. The Direct Drop-In Modules are engineered for easy installation and maintain fitment with the OEM fuel tank and lock ring.



Jeep JK Transmission Kit

Silver Sport Transmissions (SST), Rockford, Tennessee, offers a **TREMEC** TR-4050 Transmission Kit upgrade for 2012-'18 Jeep Wrangler JK 3.6L applications. The TR-4050's first and reverse gears are much lower than the options on the stock Wrangler, while second gear is similar to first gear in the OE transmission. The TR-4050 can be launched out of second gear while driving around town and shifted into first to tackle difficult off-road obstacles. The overdriven fifth gear is comparable to the OE transmission for comfortable cruising.



WRX Cold-Air Intake

Injen Technology, Pomona, California, introduces the all-new Evolution Sealed Air Intake System for 2015-'20 Subaru WRX H4-2.0L turbo applications. The one-piece sealed housing uses the patent-pending Injen Twist-Lock System to securely attach a large SuperNano-Web Dry air filter in place and provides horsepower and torque gains out of the box. Features include a front-mounted ram air scoop, roto-molded intake tube and quality hardware for easy installation.



Holley Performance Products,
Bowling Green, Kentucky, presents a
Flowmaster Outlaw Cat-Back Exhaust
System for 2020-'21 GM Silverado/
Sierra 2500HD/3500HD 6.6L gas V-8
standard-bed models. Designed to deliver an
aggressive sound level and performance benefits,
the bolt-on, emissions-legal system features a

stainless steel Outlaw series muffler and large dual 3-inch 409 stainless steel mandrel-bent tailpipes that can be configured to exit either dual straight out or dual out the side behind the rear wheels.

Diesel Turbo

BD Diesel, Abbotsford, British Columbia, presents the new L5P Screamer turbo for 2017-newer GM Duramax diesel engine applications. The drop-in stock replacement upgrade provides greater longevity, reliability and power potential without sacrificing drivability or low-end response. Tuned, the turbo gains 50-60 hp over an equivalently tuned stock turbo, with no increase in EGTs.





Allison Transmission Upgrade Kit

PPE (Pacific Performance Engineering), North Las Vegas, Nevada, presents its 50-state emissions-legal Stage5 Transmission Upgrade Kit, available for GM Allison transmission applications. Built to handle sled pulling, drag racing and everyday driving, the kits feature a triple clutch converter; valve body recalibration kit (recalibration kit does not change shift points, only increases clutch holding power); converter flow valve and upgraded C1, C2, C3 and C4 clutches; and Kolene steels.

Dodge Durango SRT Hellcat
Axle-Back Exhaust Systems

BORLA Performance Industries.

Johnson City, Tennessee, presents a pair of Cat-Back Exhaust Systems for 2021 Dodge Durango SRT Hellcat models. Designed to improve horsepower and torque, the ATAK system delivers a unique sound without any drone or resonance inside the vehicle, while the S-Type system is made from T304 stainless steel,

features all-welded construction for durability and long life, and uses the OE tips.

Smart Packaging Lucas Oil Products.

Corona, California, introduces customer-



centric QR Codes across its lineup of Racing, Everyday Car Care, Motorcycle, Marine and Industrial products. The new QR code smart packaging provides a simple and effective improvement to the customer experience, allowing buyers instant access to relevant product details including performance information, complementary products, environmental and ecological information, disposal considerations, formulation and chemical properties, and more. **15**

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Pickups of the Past p.58

CES 2022 p.70



Higher Power

Have faith in the lift & leveling kit market.

ifts and leveling kits are must-have upgrades for many truck and SUV owners, and especially those interested in towing, hauling or heading

Offering appearance, safety and utility benefits, they come in a variety of shapes and sizes and often require professional installation.

Here's a market update for shops interested in taking their customers a little higher.

DO IT ALL

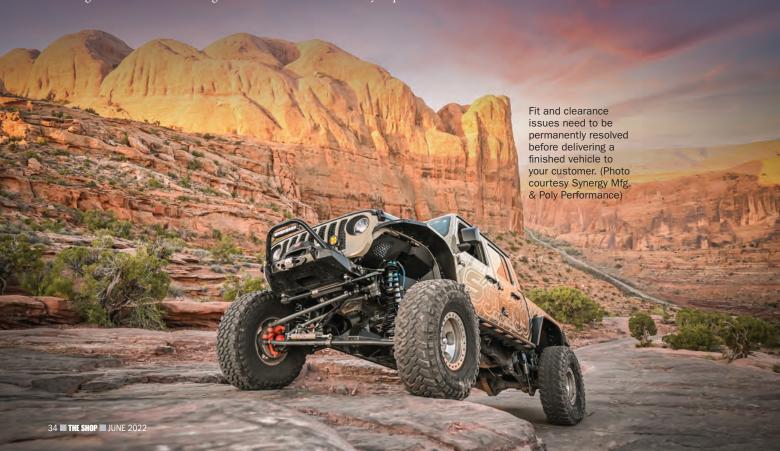
Today's lifts and leveling kits are designed to enhance the already impressive capabilities of modern pickups and SUVs.

"Over the last 10 years, manufacturers have tried to make their pickups ride more like a family vehicle and less like a truck," notes Andrew Hodgson, sales & marketing director for Timbren Industries. "The tradeoff, however, is that they've sacrificed their ability to perform like a truck.

Our kits restore the truck's ability to tow or haul without disturbing the unloaded ride quality. It's the best of both worlds."

Jeeps have made quite an impression as well.

"Two things on the newer Wrangler JL really stand out. First, the next-generation factory Dana axles are stronger than ever, and customers are able to upgrade to a leveling or lift kit and put those larger 35-to 37-inch tires on their vehicle with con-





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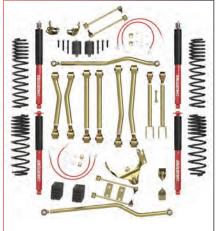


Higher Power









Quality suspension projects start with quality components. (Photo courtesy MetalCloak)



Learn as much about your customers as you can before making a suspension system recommendation. (Photo courtesy Radflo Suspension Technology Inc.)

fidence, knowing those axles can take the added strain," says Rob Jarrell, video production manager/video host for Quadratec. "Additionally, Jeep changed from hydraulic power steering to electro-hydraulic for the Wrangler JL, so customers who want to buy a leveling or lift kit and add larger tires will find it is easier than ever to turn the wheel—especially when off-roading."

Suspension kits are attractive items for all types of rides.

"While the overall vehicle landscape continues to evolve and move toward more fuel-efficient or electric vehicles, people still have the desire to get outside and explore; therefore, the off-road segment remains strong," says Kyle Martin, sales and marketing manager for Radflo Suspension Technology Inc. "Vehicles hitting the market like the new Ford Bronco, Toyota Tundra and Chevy Silverado ZR2 prove that this is a segment that will not soon go away."

Tom Bateman, director of marketing for SuperSprings International, is also optimistic about the market.



Review the pros and cons of each kit with your customers. (Photo courtesy Quadratec)

"We will certainly see more and more disruption with the introduction of electric vehicles and much more advanced suspension systems, but, for now, there's still a full playground of vehicles that need suspension enhancements," he says.

ELECTRONIC CHALLENGES

Newer vehicles feature advanced technology that can affect lift and leveling kit installations.

"You have to work with the electronics, not against them," advises Darren Pilling, owner of Truxxx (Truxxx Distribution Ltd.). "Simple things matter now more than ever, and sometimes it will be the vehicle's computer that ends up determining your maximum height—not the physical amount you can actually lift something."

Ignoring this new technology can put drivers at risk.

"Suspensions must be tuned properly



Understand what the buyer wants from a kit and deliver the correct application. (Photo courtesy Quadratec)

or they affect the computer-controlled interfaces and can cause drivability issues," explains Scott Becker, marketing/media director for MetalCloak. "We address these issues with complete adjustability and patented technologies that are certified with FMVSS 126 testing to be safe."

The systems require a new level of complexity, adds David Boyse, art director/marketing coordinator for Fabtech Motorsports.



Lifts & Leveling Kits

■ HOT PRODUCT: 4-Inch Upper Control Arm Lift Kit for Ford Broncos ■ FEATURES & BENEFITS: Uniball upper control arms, 0.120-inch wall and 1.25-inch OD 4130 chromoly steel tubing; high-quality 1-inch FK stainless, PTFE-lined uniball bearings allow for increased travel without bind; delivers off-road performance for daily drivers.

Fabtech Motorsports David Boyse

Art Director/Marketing Coordinator

■ HOT PRODUCTS:

Steel Helper Springs

■ FEATURES & BENEFITS: Designed to maintain a level ride for enhanced control, comfort and driver confidence; tunable spring rate; simple bolt-on installation; 500- to 3,500-pound level load capacity; available in progressive or constant rate.

Hellwig Products Co. Inc. Mike Hallmark Marketing and International Sales Manager

■ HOT PRODUCTS: 3.5-Inch

Game Changer Jeep JK, JL

& JT Suspensions

■ FEATURES & BENEFITS: Fit 2008-'22 models; Duroflex joints; true dual-rate coils; two-piece Durotrak bushings; long-travel Rocksport or ultra-compact/long-travel 6Pak shocks.

> MetalCloak Scott Becker Marketing/Media Director

■ HOT PRODUCTS: Quadratec Jeep 1.75-inch Leveling Kit; Teraflex & AEV Suspension Lifts

■ FEATURES & BENEFITS: Leveling kit allows tire size upgrades; shock extensions included; Teraflex 2.5-inch includes no shock or all-new shock applications with springs, bump stop extensions and extended sway bars; AEV gives off-road capability while maintaining factory ride.

Quadratec Rob Jarrell Video Production Manager/ Video Host

Higher Power

Lifts & Leveling Kits

- HOT PRODUCTS: 2.5-Inch-Diameter Front & Rear Coil-Over Kits for 2021-up Ford Broncos
- FEATURES & BENEFITS: Ride height-adjustable front coil-overs available in standard or extended-travel lengths; optional features include remote reservoir and compression adjusters; adjustable rear coil-overs feature dual-rate springs and optional remote reservoirs and compression adjusters.

Radflo Suspension Technology Inc. Kyle Martin Sales & Marketing Manager

- HOT PRODUCTS: Toyota SumoSprings
- FEATURES & BENEFITS: Available for Tacoma, 4Runner, Tundra and Land Cruiser; sit where the bump stops usually would; soften harsh rebounds; reduce G-force vibration by 68% on average; manufactured from microcellular polyurethane; reduce rear-end sag; stabilize sway; soften harsh rebounds.

SuperSprings International Tom Bateman Director of Marketing

- HOT PRODUCTS: Synergy 2014-up Ram 2500/3500 & 2005-up Ford F-250/F-350 Leveling Systems; Stage 3 Jeep JL/JLU/JT Full Suspension Kits
- FEATURES & BENEFITS: Leveling kits feature proprietary tuned FOX IFP monotube shocks; aggressive retail pricing; Jeep full suspension kits feature front high-steer steering correction components that correct all steering geometry issues.

Synergy Mfg. & Poly Performance Dave Schlossberg President/CEO

- HOT PRODUCTS: SES Spacer Kits
- FEATURES & BENEFITS: Include two 1-inch and two 1/2-inch spacers and hardware to mix-and-match to achieve desired ride height; designed for use with different types and sizes of lifts; upsell opportunity for customers with lifts who need suspension support for towing and hauling.

Timbren Industries Andrew Hodgson Sales & Marketing Director

- HOT PRODUCTS: Nissan Frontier, Chevy Colorado/GMC Canyon, Ford Ranger, & Honda Ridgeline/Passport & Pilot kits
- FEATURES & BENEFITS: Designed to be used with as many OEM components as possible; suited for daily drivers and everyday real-world uses.

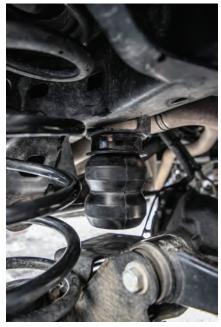
Truxxx Darren Pilling Owner

"We now have to account for all the safety features, cameras, etc.," he says. "We must do additional testing at our facility, as well as third-party testing to ensure the vehicles still meet FMVSS 126 standards."

Nevertheless, manufacturers are up for the challenge of lifting and leveling today's off-road favorites.

"New technology hasn't really impacted

us very much, despite the addition of a lot of new electronic stability controls being integrated," says Dave Schlossberg, president/CEO of Synergy Mfg. and Poly Performance. "The biggest issue with new vehicle platforms is availability and getting them into the hands of the consumers who want them. It seems that the big OEMs are still being hit with major supply chain issues."



Over the last 10 years, manufacturers have tried to make their pickups ride more like a family vehicle and less like a truck. (Photo courtesy Timbren Industries)

Mike Hallmark, marketing and international sales manager for Hellwig Products Co., agrees his company hasn't been significantly impacted by modern vehicle designs.

"It hasn't affected us too much. There are a few applications that create an issue due to auto-leveling headlights and front-to-rear brake bias control modules. Other than that, it's business as usual."

PROPER PLANNING

To help customers get the proper suspension kit for their individual needs, shops need to understand what's in store for the vehicle down the road.

"One of the key problems we've seen over the years is that shops and builders will install a lift kit without taking into consideration how the truck owner may use the vehicle," Hodgson says. "If they tow or haul at all without the right products on the suspension, it will lead to immediate suspension sag. Suspension upgrades solve that issue."

Every project should have a goal.

"An important part of the selection process is talking to the customer to see what they want and what the suspension is for—towing, overlanding, loading-up, etc.," says Bateman "There are a lot of options; bigger isn't always better; and more expensive isn't always the best quality."

And remember, looks aren't everything. "One issue is not understanding what a



leveling kit will do when you put weight on the back of the vehicle," says Hallmark. "Trucks come from the factory poised higher in the rear in anticipation of weight being added to the bed or hitch. When you level the front, the truck looks great unladen, but when you add weight to the rear you get the *saggy bottom blues*. Helper springs help to reduce this sag and keep the truck closer to or at a level ride height."

Martin notes that Radflo is among the companies offering build-to-order kits and

custom valving to meet enthusiasts' need.

"We encourage shops to learn as much about how their customer is using their vehicle as possible prior to making a shock recommendation," he says. "Shops will often recommend what they can get the quickest and/or make the most margin on, but this is not always the best option for customers. Dig a little deeper and explore options that may cost a little more or take more time to get, but will ultimately benefit the customer."



Becker agrees that sometimes delayed gratification will ensure long-term success.

"Understand the customer's end goal and explain that a lower-cost product almost always comes with a lower level of satisfaction," he says. "It's always best to wait and buy quality from a reputable brand."

It's also important to understand the capabilities of the kits you install.

"If you know Product A is more of an entry-level kit with softer shocks and is missing some important components that





your hardcore off-road customer can really use, then pushing that kit really isn't in your best interest," Jarrell says. "All lift and leveling kits have pros and cons that you can objectively review with your customer so they can find something perfect for their needs."

READ ALL ABOUT IT

More than one shop has fallen victim to the allure of opening a box and jumping right into the installation without first doing their homework.

"Hardly anyone reads the instructions, but there are some things with new technology that you just can't skip anymore," warns Pilling. "Even the best techs I've ever met are sometimes guilty. It's never the actual physical install that causes problems—it's always in the details."

Schlossberg agrees there's a lot to remember when it comes to properly installing systems.

"The most common mistake is not cycling suspension and steering components with the springs removed to check body/fender clearances at full suspension compression," he notes. "It is also very important to check bump stop settings and lengths. A lot of kits will mention needing to trim inner fenders, etc., but most don't get very detailed on how to do so. This is important so that customers don't encounter rubbing and interference issues once larger tires are installed."

Also, shops should realize that they can't just throw any wheel-and-tire set on the vehicle, says Boyse.

"Numerous issues arise when the wrong tires

performance of the vehicle or cause unnecessary wear on suspension components."

or wheels are used-it can affect the overall

STEPPING UP SALES

Stepping up sales of lifts and leveling kits can simply be a matter of perspective. Pilling from Truxxx, for instance, notes that sometimes it's easier to focus on the accessories the drivers can see.

"Sell the wheels and tires, not the leveling kit—the kit is a tool to fit different wheels and tires," he suggests. "Learn how offset works, learn the importance of an 8.5-inch rim over a 9-inch rim, and understand that most lift kit manufacturers are probably well-versed in answering questions."

He also stresses the importance of quality. "Steel is not cheap anymore," he explains. "Quality kits will all be similar in price." Synergy's Schlossberg calls it offering a complete solution.

"The most important thing to do is to be selling complete solutions and not just a leveling kit or just wheels and tires. I'm referring to the kit, wheels and tires, along with all the proper trimming/clearancing of inner fenders and body mounts that typically interfere when adding a lift with larger wheels and tires."

And don't forget service, adds Fabtech's

"Become a full service shop," he says. "By that I mean offering installation, alignments and everything the customer needs to get their lift kit installed properly at one location."

PROVEN PRODUCTS

A quality lift or leveling system offers tangible real-world benefits. To get the most out of every sale, Radflo's Martin stresses the importance of carrying proven products.

"Make it known that you not only sell and install lift kits, but also that you do business with and offer the top brands in the industry," he says. "Keeping in mind that no two end-users are the same and that their preferences for their trucks and SUVs will vary, look into carrying brands you may not have in the past in order to provide your customers with more options."

A good reputation goes far, says Bateman from SuperSprings.

"Associate with brands that customers want to be a part of. There's a reason we all have an iPhone or a Yeti coffee mug-we love the brand and they're the only com-



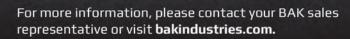






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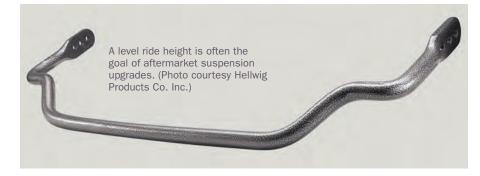
This heavy-duty, all-season truck bed cover is designed to perform in extreme conditions. MX4's resilient infrastructure is for everyday use, featuring premium upgrades to the prop rod clips, rails, elevator bolts, and the A-panel and B-side bumpers that provide enhanced functionality and a more complete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







Higher Power







pany you think of when you're ready to make a purchase for what they offer. The same applies to the automotive aftermarket. When shops carry lines from brands that have a high demand, the consumer is the one initiating the sale and the shop just has to have it in stock."

Knowing those stocked products inside and out will help upfitters become local experts.

"Shops need to be educators, not just a sales desk," Timbren's Hodgson believes. "They need to inform their customers by letting them know that they don't need to sacrifice their truck's ability to do things like tow a trailer."

As mentioned earlier, everything starts with the buyer's plans.

"Simply ask the customer what they intend to use the truck for," suggests Hallmark. "If they answer with anything that adds weight, then this is a good time to suggest Hellwig Steel Helper Springs and, of course, our complementing sway bars."

It's about matching the product with the user, according to Quadratec's Jarrell.

"Understand what the buyer wants from a kit and deliver the correct application," he says. "While it may make sense from a dollars perspective to oversell someone a full suspension lift even though they never offroad, that customer most likely will never be happy with the ride quality and you'll lose out on future sales. By understanding your customers' needs, and giving them an appropriate product that fits those needs, you'll ensure future purchases."

It's about doing the right thing, says Metal-Cloak's Becker.

"Don't just try to make the sale. Create a repeat customer that understands you are looking out for them."

Complete service includes not just selling the products, but taking care of the details to ensure off-roaders can fully enjoy their new suspension upgrades. (Photo courtesy Synergy Mfg. & Poly Performance)



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WRAPPED

TAPPED

Online collaboration has Tap Trailer Co. in high spirits.

By Carly Hollman

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n an Instagram-worthy world, going above and beyond in both design and concept not only gives customers a memorable experience, but allows businesses to stand out. That's exactly what Tap Trailer Co. has managed to deliver to its thirsty clientele.

Founded by sisters Jennifer and Nicole Disotell, the innovative company serves spirits, on-demand and onsite, in vintage and vintage-inspired trailers. The Los Angeles-based company was established in 2018, beginning with its Bubble Tap Trailer model, serving sparkling wines at weddings, festivals and special events.

After generating buzz from the likes of Gwyneth Paltrow's goop, Ellen DeGeneres, *NSYNC's Lance Bass, and, of course, social media, the company exploded to become a leading woman-fronted franchise, which then provided the opportunity for growth.

After multiple requests to add a bourbon offering, Jennifer Disotell began researching her options to bring the trailer to life, including finding a stylized vinyl wrap. An online collaboration led to a memorable visual project.

THE DIGITAL ERA

With Tap Trailer Co. (taptrailerco.com)





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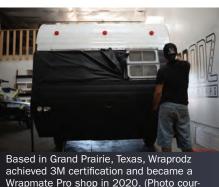


According to wrap designer Travis Olsen, Wrapmate and Tap Trailer Co. decided on a matte black base with a simple white logo, for an on-brand, clean and professional look. (Photo courtesy Wrapmate)



Co-founder Jennifer Disotell was thrilled with the newly re-done towable that adds to the company's fleet of Bubbly Trailers. (Photo courtesy Tap Trailer Co.)







Even with two decades of experience under his belt, Jose Rodriguez, Wraprodz owner, says top wraps installers never stop learning. (Photo courtesy Wrapmate)

being a digital-driven business, it made perfect sense that an Instagram ad led Disotell to Wrapmate.

Wrapmate is a Colorado-based business that operates nationwide through a network of installers and graphics professionals to help produce jobs of all shapes and sizes. The goal is to ensure every step of the vehicle wrap process—including ordering, design and installation—is an enjoyable experience for customers, says Javier Lozano Jr., Wrapmate CMO.

To help make it such, Jeff Luery, marketing director of Wrapmate, says every shop that partners with the company is vetted and approved to work within defined guidelines to guarantee best-inclass products and installation services.

This is in part due to its collaboration with 3M, requiring all partners to use only 3M vinyl films.

Currently, Wrapmate has built a network of more than 1,300 installers and graphic suppliers nationwide, all excited and ready to execute customer projects at a moment's notice, Luery notes.

Wrapmate embraces technology to help streamline the entire process. From instant, exact pricing to a speedy design and approval process, everything leading up to the actual installation is done seamlessly.

When Tap Trailer Co.'s Disotell found Wrapmate, she was looking for a graphics refresh for one of the company's existing fleet trailers to create the bourbon offering.

Travis Olsen, Wrapmate wrap designer, says the goal was to create a look that was aesthetically appealing for Instagram-type moments and would deliver a *wow* factor when it showed up for events.

The final design consisted of a simple matte black background with a white logo design, delivering a high-end, professional feel that is on-brand for the company, Olsen says.

After going through the approval process, it was time to bring the bourbon trailer to life. This would prove to be a challenging, yet exciting, task due to logistics, explains Luery.

"The customer was located in California, while the trailer was in transit to Texas to help promote their brand at a large festival," he says.

Fortunately, Wrapmate had just the man for the job available in the Lone Star state.

tesy Wrapmate)



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WRAPPED STAPPED



WRAPMATE LANDS FUNDING FOR GROWTH

Wrapmate, a Denver-based tech and service company in the vehicle wrapping industry, has raised an oversubscribed pre-seed round of \$1.7 million, led by Automotive Ventures in addition to a supergroup of angel investors.

"Automotive Ventures led Wrapmate's pre-seed round of capital to help accelerate growth, with the belief that the startup will ultimately become a category-defining business. We have a deep conviction that Wrapmate is well-positioned to transform the vehicle wrap industry," says Steve Greenfield, founder and managing director of Automotive Ventures. "We see Wrapmate as a catalyst for expanding the vehicle wrap industry as a whole while providing a better experience for consumers and service providers alike."

Chris Loar, founder and CEO of

Wrapmate, started the company in 2018 after spending over 12 years in the vehicle wrapping industry and finding himself frustrated with the historically underdeveloped and fragmented nature of the space.

Wrapmate set out to reimagine the way customers learn about, purchase and receive their vehicle graphics anywhere in the U.S. using its technology-enabled platform. Through Wrapmate's network of over 1,300 installation Pros representing every major U.S. market, the program provides customers a digital one-stop shop for all their vehicle wrapping needs with a single point of contact.

"We are extremely excited to have an incredible strategic group of investors at this stage," Loar says. "The combination of Automotive Ventures and our angels provides Wrapmate with the perfect support at the perfect time."

BIG IN TEXAS

Enter Jose Rodriquez, owner of Wraprodz, located in Grand Prairie, Texas. The 20-year veteran assigned to the Tap Trailer Co. project opened his shop about five years ago and joined the Wrapmate Pro Network around the beginning of the pandemic in 2020.

"I became 3M-certified about two years ago," he says. "Wrapmate reached out to me shortly after, and about a year-and-a-half after my certification I was added to their list of preferred installers."

Even with two decades of experience under his belt, Rodriguez says top wraps installers never stop learning.

"Every year, you have to find new ways to wrap," he believes.

Vehicles change their design year to year, even if it's the same model, and materials continue to evolve as well, he notes. Fortunately, his training gives him the confidence to handle any project—even Tap Trailer Co.'s less-than-traditional can-shaped design.

"The (3M) certification was a tough process, but I know anyone that passes it is qualified to do any job," he says.

After about a month of design finalization through Wrapmate and a week of Wraprodz (instagram.com/wraprodz) doing the application, Disotell received Tap Trailer Co.'s redesigned Bourbon Trail trailer and was thrilled with the results.

"The wrap exceeded our expectations. It was sleek, high quality and, thus far, has been resilient to the wear and tear we put on our trailers," she says.

The collaborative nature of the Wrapmate process highlights the benefits of working together—consumers get help with the design and installation processes, Pro shops receive jobs in their areas and the entire industry benefits from eye-catching work that gets noticed.

EDITOR'S NOTE: To hear Jennifer Disotell speak about this project and her experience with Wrapmate, please visit https://bit.ly/bourbontap. **75**



carly Hollman is the former editor of NBM-produced Printwear magazine and currently works as a freelance writer, artist and esthetician based in Denver, Colorado. 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.



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don't have any inventory," or "We are mostly preselling all of our vehicles."

These are two common objections you have no doubt heard from car dealers when you or your salespeople talk about preloading some stock inventory or doing a showroom vehicle package. It has been this way for a while now, thanks to the chip shortage and COVID-19, and it looks like it will be at least a while longer until we get back to *normal*—if *normal* ever returns.

The truth is, some manufacturers and dealers hope the industry never gets back to 90-plus-day inventory levels, and I don't blame them. With greater inventories comes the need for discounts, plus little expenses and hassles such as keeping the cars clean, snow removal, moving inventory around, etc. It's no wonder that dealers prefer the current market.

Of course, the biggest reason dealerships and OEMs like this *new normal* is that they are making tremendous profits. In my market, a salesperson who hustled and made \$100,00 annually pre-pandemic is now making \$200,000 a year selling fewer cars, working fewer hours and dealing with fewer problems.

The dealerships don't need as many salespeople, F&I managers, sales managers, detailers, etc., thereby cutting down on operating expenses. Meanwhile, the manufacturers don't need to offer huge rebates or other discounts and can focus on producing their most profitable models. So why change back?

With all of this being said, what are some things restylers can do, immediately and long-term, to maintain their business?

I am offering a few options to help—this month we'll discuss the short-term first options, and next month we'll focus on long-term approaches.

LOAD ONE UP-OR A FEW!

I know the dealers are saying they don't have inventory, but that isn't quite the case. The reality is that the majority of dealers aren't preselling more than 50% of their inbound vehicles (there are always exceptions, of course).

However, when they do get vehicles in, there aren't as many, so they sell much faster. That's why you can watch a dealer





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Helping Dealers Carry the Load



get five trucks in on Friday and have them all sold by Monday. They weren't *pre-sold*—they just sold quickly!

So, what can we do? My shop has had success with two types of preload programs. The first is talking to the dealer and discussing a package we would like to do.

They look at their inbound allocation that is coming in over the next week or two and we find a vehicle that will work. We go ahead and order parts and have everything ready so that when the vehicle hits the dealership, we can grab it and get it done as fast as possible.

The advantage of doing this is now the dealership can mark up the addendum with real added value instead of *market adjustment* or *lack of availability* price hikes that really offend customers.

The trick to being successful is having the inventory ready to go and then also having the time slotted in your shop's schedule to get the package done quickly. We have found that some dealers that weren't willing to do any vehicles now appreciate the fact we are helping justify their higher addendum prices while adding some value to the customer.

One of our dealers even goes a step further and is basically telling customers that some of its 2022 Ford F-150 XLT trucks already have leather in them. When those vehicles arrive, we have a leather kit ready to go and turn it around ASAP. We can create an addendum if the truck wasn't pre-sold with leather already included in the sale.

We have to think outside the box and get creative!

LOAD THEM ALL UP!

While individual upfitting jobs are nice, it's even better if you can do a bunch of them. Some restylers have created successful programs installing products or packages on a dealer's entire inventory.

This works with offerings including Pulse, remote starts, window tint, paint protection film, pinstripes and more. Look for quick, popular, easy-to-install products that are readily available and make sense for every vehicle on the lot.

It also helps if the products are not easily removable, thereby preventing customers from demanding they be taken off and the vehicle discounted. This happened often with large pre-pandemic inventories, but the dealers now have the power to insist the accessories be included without jeopardizing the sale.

Our shop has found a lot of success with paint protection film, and we have dealers that preload every vehicle they sell with PPF. Today's lower inventory levels mean we are doing fewer vehicles, but it's still a decent amount and the dealerships love it because we include an addendum they can post in the window.

The ultimate goal is to build a popular program and get your roots in deep so that if/when inventory levels start to rise, the dealerships will choose to continue your program because their sales staff is used to selling it and the penetration and profit levels will remain high.

Sit down with your staff and discuss the individual or group pre-load programs that would work for you and your dealer clients. Not everything makes sense for every shop, but pre-loads are proven win-win offerings.

Next month, we'll look at a few long-term options for remaining relevant and keeping your dealership business strong. In the meantime, I am always available to restylers and manufacturers to discuss my articles and ideas. Feel free to email me at jpoulson@autoadditions.net. **15**



JOSH POULSON is the principal of Auto Additions in Columbus, Ohio, which was named Restyler of the Year, 2012-'13. Auto Additions offers a complete line of product upgrades including 12V and appearance

packages with a specific focus on the dealership segment. Josh is chairman of the SEMA PRO council and was named 2015-'16 Person of the Year at the 2015 SEMA Show.



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Commercial Vehicle Lighting

Lumileds, Farmington Hills, Michigan, presents Philips MasterDuty headlight bulbs for work vehicles. Built to deliver long-lasting lighting performance on Class 2-8 commercial vehicles, the lamps provide protection against mechanical shock and easily handle the extreme stress and vibration of rough terrain and damaged roadways. The Philips MasterDuty headlight range includes seven new SKUs for coverage of medium- and heavy-duty applications.

Ram Lift Kits

BDS Suspension, Coldwater, Michigan, introduces new 8-inch 4-Link Lift Kits for 2019-'21 Ram 2500 and 3500 4WD diesel trucks. Offering improved strength, capability and handling at a new, taller lift height, the kits join existing BDS Suspension 2-, 3-, 4- and 6-inch lift kit options. The systems include everything needed to correctly lift and level late-model trucks for improved off-road capability, with room for up to 40-inch tires. Kits include a choice of BDS NX2 or FOX 2.0 performance series gas shocks.





4Runner Throttle Optimizer

Hypertech, Bartlett, Tennessee, presents its REACT Throttle Optimizer for new-generation Toyota 4Runner applications. The device provides on-the-fly adjustments to throttle response, allowing drivers to dial-in the sensitivity and intensity of throttle input. Available in Off-Road, Performance and Towing versions, the throttle optimizer offers an easy plug-and-play install and won't void the factory warranty.



Jeep Auxiliary Battery Mount

Westin Automotive Products, San Dimas, California, presents an all-new Auxiliary Battery Mount from Superwinch. Designed to fit Jeep JL and Gladiator models, excluding diesel and 4xe applications, the innovative mount provides added capacity for the Jeep's existing 12V system by adding a second Group 34/35 AGM battery. The mount is positioned safely and securely under the body for a lower center of gravity, and includes an integrated skid plate and all the hardware and cables needed to complete the installation.



Wrangler JK Back-Up Camera

Quadratec, West Chester, Pennsylvania, presents a new Spare Tire Mount Back-Up Camera system for 2007-'18 Jeep Wrangler JK models. Designed to improve safety and overall visibility, the systems are available for vehicles equipped with factory or aftermarket stereos. The easy-to-install kits include a camera, a black powder-coated stainlesssteel mounting bracket, a plug-andplay wiring harness and installation hardware. A 170-degree viewing angle with integrated fixed parking lines delivers maximum visibility.



Gladiator Rock Sliders

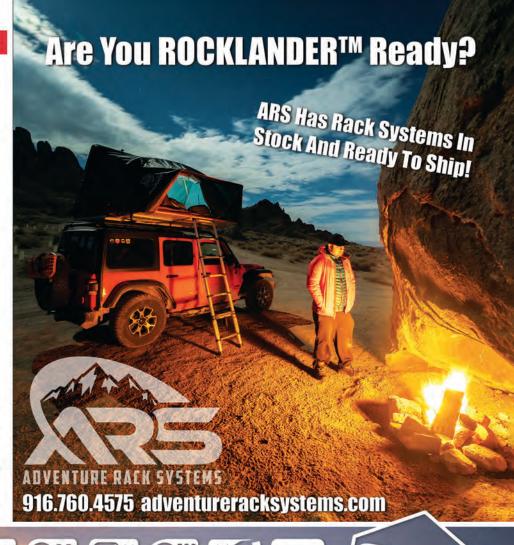
Warn Industries, Clackamas, Oregon, presents WARN Rock Sliders for Jeep Gladiator models. Designed to protect against trail hazards, the sliders feature a stout double-tube design. They are made from thick steel and include a durable, state-of-the-art powder-coat finish for corrosion protection that stands up to rigorous 408-hour salt spray testing. The sliders also accept an optional bolt-on step kit, allowing for easier access to the vehicle's cab.

An American Made Rack Company

Adventure Rack Systems, a MetalCloak owned company, was founded on a rich history from the world of off-roading. Together, these two entities drive the purpose-built designs behind the entire rack system lineup that ARS has to offer. Designed specifically for Jeep JK, JL Wranglers, JT Gladiator and even Toyota Tacoma, these products withstand the punishment that other systems simply cannot. Extreme terrain and technical trails are no match for our rack systems, and we strive to ensure that your cargo finds its final destination intact and without casualty. We also strive to keep products in stock, ready to ship and backed with exceptional customer service and support. Our focus is keeping you and your customers happy prior to, during and after the entire sales, installation and implementation of our products.

So, whether its roof top tents, kayaks, bikes, lumber, rockcrawling, rocklanding or overland, our U.S. Made rack systems offer that peace-of-mind that allows you to simply enjoy the adventure without a worry in the world.

- The ARS Team





Ceramic Coating

Malco Products Inc., Barberton, Ohio, presents EPIC PRO Ceramic Coating, the latest in its line of professional detailing products. The high-end ceramic coating bonds with a vehicle's clear coat to form a durable, hydrophobic barrier that lasts up to three years or 36,000 miles, cures to a ceramic hardness of 9H and offers a high gloss level. It is sold in a single-use kit that includes one 30ml bottle of ceramic coating, one technical data sheet, one applicator pad and 10 suede applicator cloths.



Electric Retractable Tonneau

Pace Edwards by LEER, Elkhart, Indiana, part of the Truck
Accessories Group, presents the UltraGroove Electric Retractable
Tonneau Cover. Featuring a durable and secure metal surface, easy electric operation and a versatile
T-slot rail system for virtually any sport rack attachment, the cover comes in an aluminum matte black



finish and has a wireless control with electro-magnetic brakes. Drain tubes in the front and rear maximize water management.



Five-Lug Racing Wheels

Forgeline Motorsports, Dayton, Ohio, presents its new, one-piece forged monoblock SS1R and SS1R-GT center-lock racing wheels, now available in five-lug versions. Offered in a range of widths and custom offsets, and in diameters from 18 to 22 inches, the wheels can be ordered with a wide variety of fully customizable powder-coat colors and finish options. They were derived directly from the SS1R-GT wheel, which is engineered specifically for ultra-competitive IMSA and WEC GT3 racing.

Rearview Mirror/DVR

Rydeen Mobile Electronics.

Torrance, California, presents the RYDEEN TOMBO 360 DVR Mirror. The 360-degree video rearview replacement mirror features a built-in, touch-capable, 10-inch HD monitor with built-in drive recorder that can capture and record DVR



video, and also houses a 360-degree, 4K high-definition digital video camera. The system provides a full view of both the inside and outside of the vehicle from the vantage point of the rearview mirror.



F-150 Lift Kit

Belltech, Clovis, California, part of KW automotive
North America, presents
a 6-inch Lift Kit for 2015'20 Ford F-150 4WD
applications. Designed to improve ride quality, increase strength, reduce weight and enhance durability, the

system includes a custom strut spacer kit and rear Trail Performance twin-tube shocks for a smooth ride over any terrain. The system can be used with 18-inch OE wheels when paired with a minimum 1/2-inch wheel spacer.



Bronco Air Kits

Air Lift Co., Lansing, Michigan, presents Air Lift 1000 Suspension Kits, now available for 2021-'22 Ford Bronco Sport and 2020-'22 Ford Escape AWD applications. By working with the vehicle's existing suspension, Air Lift 1000 helps with vehicle squat, poor headlight aim, unresponsive steering, trailer sway, body roll and bottoming-out. By properly leveling the load, squat is eliminated, braking is improved and the vehicle is returned to a level and stable state, allowing users to tow and haul in safety and comfort.



By John Gunnell

EVOLUTION OF THE

Today's fancy trucks have a storied, hardworking past.

EDITOR'S NOTE: This is the first in a twopart series marking major milestones in the evolution of the pickup market.

n its Light-Truck Market Snapshot released last year, SEMA Market Research found that more than 90% of Ford, GM, and Stellantis (formerly FCA; formerly Dodge) vehicles sold in the U.S. in 2020 were light trucks (including SUVs and crossovers). Pickups remain a large part of the specialty automotive aftermarket, accounting for more than 30% of specialty equipment parts sales in 2019.

In July 2018, Automotive News reported that during the first five months of that year, trucks outsold cars by a two-to-one margin. Five years earlier, the ratio of carto-truck sales was even-steven at 50/50.

After busting that barrier, trucks saw a massive boom in popularity. Experts say that lower gas prices were the reason, but another big factor was the fact that many trucks had gotten as fancy as passenger cars.

From utilitarian workhorse to luxury ride, the pickup market has evolved over the decades.

GET TO WORK

Pickups earned their stripes through hard work. As late as the 1970s, some trucks still

> had wooden cargo beds and very little in the way





The Pontiac truck later became a GM truck with a choice of a Pontiac or a Buick engine.

Many came with white-painted grilles and bumpers—or no rear bumper at all. Tailgates had chains instead of steps. Truck seats were plain-looking and covered with vinyl upholstery that was usually tan.

The only people who drove crew-cab trucks were work gangs headed for roadbuilding projects, oil fields or construction sites.

That doesn't mean fancy trucks didn't exist before 50 years ago. How about a chauffeured truck? Joseph Martinson founded Martinson Coffee Co. in New York in 1898, to sell cups of Joe from a push cart. By the early 1900s, he upgraded and started delivering his tasty product to restaurants using specially constructed Rolls-Royce trucks.

The fancy truck isn't a new idea. In 1926, Pontiac debuted a 3/4-ton truck with a \$770 price tag. This Deluxe Delivery had a handsome blue body with orange trim. Mechanically, it was based on a Pontiac car, but Deluxe Deliveries had special heavy-duty springs and tires. The rear doors closed tightly and were practically dustproof.

In January 1927, a screen-side Pontiac Deluxe Delivery took its bow at the New York Automobile Show. This model was finished in the same colors as the closed truck and cost \$760.

Both styles had cowl parking lamps and individual sedan seats that provided so-called passenger car comfort. Plate glass windows with high-speed regulators, nickel door handles and a 12-gallon gas tank were featured. The screen-body trucks had sides made of heavy, weatherproof material and included roll-down leather curtains.



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In 1929, Ford added a new Deluxe Delivery Car to its Model A line. Actually a car-based panel truck, it was intended for deliveries from exclusive shops and for speedy, safe transport of fragile goods. It closely followed the lines of a Model A Ford sedan.

The Deluxe Delivery body was all steel and the front-end trim was nickel-plated. There were two folding seats in the driver's compartment upholstered in brown crosscobra-grain artificial leather.

The large rear door had a window to aid visibility. The cargo area was lined with cardboard. The Deluxe Delivery came in three exterior colors. The roof covering was imitation black leather. A dome light was on the windshield header.

KEEP ON TRUCKIN'

The fancy truck concept didn't disappear with the Roaring Twenties. In fact, one of the prettiest and fanciest pickup trucks you could buy before World War II was the 3/4-ton Diamond T Model 80 that came out in 1936.

This Chicago truck maker began in 1905 when C.A. Tilt started the company. He built cars from 1907-'11, making only a few hundred.

A customer's request for a light-duty truck led to a change in focus and success in the commercial vehicle niche. By the mid-Teens, Tilt had started making only trucks using the Diamond T name. Later, the company merged with Reo to make Diamond Reos.

Diamond T pickups competed with light-duty models marketed by Mack, Reo and Federal. The nice-looking Model 80 pickups of 1936-'38 sold well, inspiring Diamond T to release a 1-ton Model 201

These remained in production through 1949. Truck historians believe that about 7,000 were built. A new Diamond T Model 222 debuted in 1950, but it was not as popular. After that, Diamond T made only larger, heavier trucks.

The Model 201 came standard with 16-inch cast-iron wheels, with 20-inch wheels as an option. Power was supplied by a 236-ci Hercules inline six that made 91 hp at 3,200 rpm and 190 pound-feet of torque at 1,400 rpm. It was attached to a Warner T-9 4-speed transmission. The 201 had a full-floating differential and Lockheed hydraulic drum brakes.



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A passenger car-style grille, dual foldout windshield panels and car-like interior appointments were featured. Diamond T wanted to sell trucks that combined handsome looks with a taste for class. Full wheel covers and a side-mounted spare were standard. Stake and panel delivery configurations were available on the 201 during its 11 seasons.

World War II halted civilian car and truck production between 1942 and 1945. The military needed fighting trucks—not fancy trucks. In the postwar years from 1946-'48, manufacturers struggled to catch up. In 1947, *Automotive News* reported statistics indicating that one postwar truck was being manufactured for every two-and-a-half automobiles. In 1950, pent-up demand exploded and trucks experienced record sales.

This led to more people using and liking trucks and would eventually start today's trend toward producing more trucks than cars each year. By the early '50s, as more people switched to trucks, the fancy truck concept began to filter down into models made by high-volume manufacturers such as Ford, Dodge, GMC, Willys and Chevrolet.

For example, in 1954, Chevrolet Advance-Design pickups included a new Deluxe Cab that featured a door ventilator assembly with chrome trim and chrome-plated window sash assemblies. Cloth seat trims for the standard cab interior were offered in three colors: brown, gray or maroon.

Deluxe cloth options included a pair of two-tone combinations—maroon and beige, or brown and white—in addition to solid green. Pickups could also be ordered with cab floor carpeting that came in blue, brown, green or black.

The mid-'50s also brought truck buyers the stylish Chevy Cameo Carrier and GMC Suburban Pickup, both of which had a cargo box with form-fitting fiberglass bedsides.

By 1957, Dodge countered with the Sweptside pickup that had station wagontype tail fins, two-tone paint treatments, full wheel covers and whitewall tires.

Even International Harvester had a special 1957 pickup, marking 50 years of making trucks. It was called the A-series (for *Anniversary*) and featured an all-new cab with a semi-wraparound windshield and fully enclosed front fenders. Its gold-and-white Custom trim package—available only on short-wheelbase pickups—had an all-new 7-foot-long, wide side-styled cargo box with the first one-handed tailgate latch.







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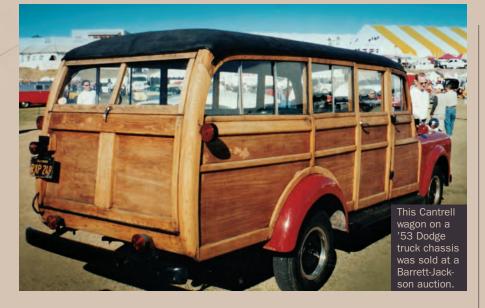












BLENDED

Another type of stylish 1950s truck with car-like features was the *car/pickup*, a concept based on Australian vehicles known as Utes (for *Utilities*). Ford started the ball rolling with the 1957 Ranchero and Chevrolet launched the El Camino two years later.

The early versions of both were based on station wagons and disappeared in 1959-

'60, only to return as mid-sized models in the 1960s, with some lasting into the 1970s.

As the '60s dawned, the market for trucks in the United States was still far different than it is today. In New York City, where we lived at the time, it was rare for anyone to own a truck.

Trucks were driven by the local gas station operator, the TV repairman and Con Edison workers. Many city people had

never been in a truck in their lives. Except for Jeeps, Dodge Power Wagons and IH Scouts, the four-wheel drive truck was a real rarity.

The term *SUV* (sport utility vehicle) hadn't been coined yet. The name *Suburban* now applied to a Plymouth station wagon or a wagon-like truck that only Boy Scout camps needed. Except for some farout British models and a tiny Isetta owned by the local shoemaker, there was no such thing as a mini truck. And the term *van* meant cargo truck—not *hippie hauler*.

A total of 1,190,313 trucks of all sizes were made in calendar year 1960, compared to 6,696,108 passenger cars. However, by the end of the decade, truck production had risen to 1,963,099 units, compared to 8,219,463 passenger cars.

In other words, over the 10-year period, truck production increased 65% while car production grew only 27%. It wasn't exactly the light-duty truck revolution yet, but it continued a trend that would lead to market upheaval in the '70s and later.

Of the trucks made in 1960, 6.5% had four-cylinders, 69.7% had six cylinders and 23.8% had eight cylinders. The six-cylinder



power plants included 95,000 V-6s made by GMC.

It's doubtful many light trucks built in 1960 had air conditioning, power windows or power seats. Car stereos had not yet been invented, much less a tape deck or CD player. You probably could have put an aftermarket under-dash record player in your truck if you really wanted to. Most likely, no one did.

Many trucks had running boards, but tonneau covers, camper shells, bedliners and other accessories would come later. An innovation was the release of a Ranchero based on Ford's new Falcon.

BY THE NUMBERS

A top year for truck sales was 1955, when 1.2 million were built. In 1961, the count reached 1.13 million, with production of four-cylinder models topping 100,000 units.

The new-for-1961 IHC Scout contributed to that record, and the Corvair Greenbrier and Ford Econoline also had good first years. Window-type bus versions of both models were counted as cars back thennot trucks—and they put a dent in Volkswagen bus sales.

In 1962, American truck makers shipped 1.25 million trucks from their factories, of which 96% operated on gasoline and two-out-of-three had six-cylinder engines. Meanwhile, the number of trucks with V-8s under the hood grew by 18%. The truck market was bustling, with no end in sight.

In 1963, factory shipments shattered an 11-year mark as calendar year output surged past 1.4 million trucks. It was also the 17th year in a row that more than 1

million trucks were produced. Ford built 64,000 Econolines in '63. Jeep shipments rose to 98,000, up from 65,000 in '62.

The new maker of the Jeep was Kaiser-Jeep Corp., as Willys vanished. Gas engine trends continued to change, too, as 92,000 trucks got four-cylinder power plants; 863,400 got sixes and 422,200 relied on V-8s.

The five leading truck makers were: Chevrolet (483,100), Ford (424,700), IHC (164,300), Dodge (111,000) and Jeep (110,500).

The entry of Chevy, Dodge and GMC into the front-engine compact van market was also news in '64, when factory truck shipments hit a record for the second straight year. More than 1.5 million trucks rolled off the assembly lines—a 5.8% gain from the prior year.

Buyers continued to swing toward the

WHAT'S OLD IS NEW

Ford has revealed an all-electric concept vehicle, the F-100 Eluminator, The zero-tailpipe-emissions demonstration truck is powered by the all-new Ford Performance Parts Eluminator electric crate motor that was promoted heavily at the recent SEMA Show.

Based on a heritage 1978 F-100 pickup, the F-100 Eluminator concept features all-wheel drive via two electric motors shared with the 2021 Mustang Mach-E GT Performance Edition. Two electric traction motors drive the front and rear wheels, combining for 480 hp and 634 pound-feet of torque.

"Ford owners have personalized, customized and enhanced their vehicles since the beginning—from changing looks to bringing the power," says Eric Cin, global director, vehicle personalization, accessories and licensing for Ford, "Our F-100 Eluminator concept is a preview of how we're supporting customers as they go all-electric and embrace zero-tailpipe emissions performance, even for our heritage vehicles."

The all-electric F-100 Eluminator concept, designed and created by Ford Performance, was built in collaboration with MLe Racecars and sits on a custom Roadster Shop chassis. It's painted in Avalanche Gray with Cera-



kote Copper accents applied by Brand X Customs, while the interior features a billet aluminum dash by JJR Fabrication and avocado-tanned leather upholstery by MDM Upholstery.

The truck is fitted with custom 19x10inch billet aluminum three-piece wheels by Forgeline wrapped in Michelin Latitude Sport 275/45-19 high-performance tires.

The e-crate motor, part number M-9000-MACH-E, is now available at authorized Ford parts warehouse dealers or online at Ford Performance Parts. Retailing at \$3,900, it is targeted for builders looking for a transverse-oriented powertrain to electrify

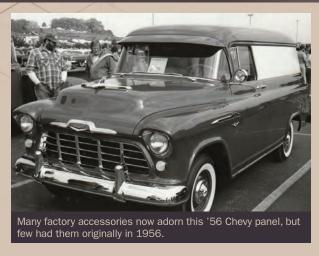
a range of vehicles from modern to vintage cars, trucks and SUVs, the automaker says.

Each Eluminator e-crate motor produces 281 hp and 317 pound-feet of torque and is street-legal in all 50 states.

STAND OUT FROM THE HERD FORD BRONCO PRODUCT SPOTLIGHT

Stand out from the herd with head-turning, accessories for the new Ford Bronco from Trail FX. With several styles of Bumpers and Fender Flares, along with Rocker Guard Steps and a Spare Tire Carrier, TrailFX delivers that custom look you want at a price you can afford.







V-8, which could be found in 523,400 trucks (up from 417,600 in 1963). Six-cylinder models also increased, from 762,200 in 1963 to 776,600 in '64. Meanwhile, four-cylinder engines experienced a slight drop in popularity (down to 89,400 from 91,800).

Ford put V-8s in 56% of its trucks that year, compared to 28% for Chevrolet. This was also the year that the El Camino was re-introduced as a mid-sized model, and the last time that Studebaker trucks—including postal Zip vans—were made.

Chevrolet first started installing air conditioning in its light- and medium-duty trucks in 1965. You could also get A/C, for the first time, in Ford's Ranchero. This was a sign of the changing role that trucks were playing in the lifestyle of many Americans.

That year, 624,300 trucks–37.1% of total production—had a V-8 engine. Sixes were used in 57.4%, and four-cylinders in the rest.

For the fourth year in a row, total calendar year production headed upward, sur-

passing 1.78 million units. That included 619,691 Chevys, 547,427 Fords, 171,638 IHCs, 143,452 Dodges, 136,705 GMCs and 108,601 Jeeps.

This was also the first year that lightduty truck *shipments* in the U.S. passed 1 million units.

STRONG & STABLE

Truck production just missed five straight years of increases in 1966, falling short by 20,000 units. Chevy was tops (621,417), Ford was number two (526,408), IHC was number three (170,385), Dodge was fourth (153,139), GMC was fifth (127,294) and Jeep was sixth (99,624).

Once again V-8 usage increased, now up to 717,200 units. The number of six-cylinder trucks built fell to 887,600, the first absolute decline in the decade. Four-cylinder installations also decreased to 49,900.

Ford built its last Falcon Ranchero this season and introduced the original Bronco, which is now a collector's item.

Another off-year was 1967, when truck production fell to 1,585,481 calendar-year units, an 11.1% decrease. Industry rankings remained the same.

Ford moved the Ranchero to the Fairlane platform to compete better with the El Camino. V-8 engines were used in 41.2% of new trucks. This was the first time in postwar history that more trucks (735,601) were built with V-8s than sixes (715,574).

More than 1 million trucks with V-8s were produced in 1968, when total production hit 1,950,713 units for the calendar year.

Starting back in '65, trucks made by GM, Ford and Chrysler had started to outpace the numbers built by independent makers like IHC and Jeep. This continued in '68, when the smaller firms built only 324,694 units—down by 11,981 units from '67.

The Big Three were gobbling up all the growth in the industry. Important developments of the year included the restyling of the El Camino and the introduction of a Dodge Custom Sports Special called the Adventurer. It had a plush interior and a high-performance V-8. This was also the last year for the military-style Power Wagon.

American truck makers hoped to break the 2-million barrier for 1969. They missed, but managed to build more trucks than in calendar 1968. A record 67% of them had a V-8 under the hood.

Total production of 1,963,099 units included 683,694 Chevys, 639,948 Fords, 165,133 Dodges, 160,255 IHCs, 150,180 GMCs and 93,160 Jeeps.

Struggling-to-catch-up IHC redid the Scout in a futile attempt to fight the Big Three. Meanwhile, Chevrolet launched the Blazer as the SUV wars heated up. This was also the final season for the Kaiser-Jeep name. The old *warhorse* galloped into the AMC stable in 1970.



A LONG WAY

As we know, the boom in truck sales has continued in the five decades since the end of the '60s. Trucks and crossovers are now outselling cars, and most modern pickups offer a blend of standard equipment and options wider than what you can get in many car models.

As noted, the trend toward fast-selling, fancy trucks actually started before World War II and has been growing steadily since the early 1950s.

It's pretty amazing when you think about it. In 1950, a basic Ford F-1 1/2-ton pickup truck sold for \$1,175 and offered only one engine option and hardly any non-functional accessories. Fast-forward to when Ford announced pricing for the 2021 F-150 pickup—it was the first time the base pickup's window sticker jumped over \$30,000. The lowest XL model prices started at \$30,635—\$195 more than in 2020—and topped out at \$75,945 for a four-wheel drive Limited Super Crew with all the goodies.

Yes Virginia, trucks have come a long way. For aftermarket shops, vintage trucks



from the 1930s-'60s are currently a bright spot in the collector vehicle industry. Many are being restored and most of those are dressed up with colorful paint schemes, whitewall tires, lots of chrome and tons of factory and aftermarket accessories to show off their rich looks and stylish lines.

Shops across the country that revive old cars are seeing more truck projects than ever before. And the companies that develop and manufacture restoration parts are turning out reproductions of factory components and accessories.

The pickup evolution continues. Next time, we'll round-out the 1970s-1990s, with special attention to many of the models offered by the Big Three. **15**



JOHN GUNNELL has been writing about classic cars since 1972. He is also the owner of Gunner's Great Garage in Manawa, Wisconsin. He owns 11 cars and seven motorcycles.





t CES 2022, held in March in Las Vegas by the Consumer Technology Association, we caught a glimpse of what technology companies are planning and how it might relate to us vehicle performance and enhancement retailers in the future.

"With the infusion of investment of the most significant government spending on infrastructure in decades on the horizon, we are on the brink of one of the largest transformations in our transportation system history," CTA notes. "We look

U.S. Secretary of Transportation Pete Buttigleg wants to foster innovation between industry and the federal government, as electric and then self-driving vehicles become part of our society.

forward to hearing from those who are leading the charge into this new future."

Among industry stalwarts, Chevrolet came out of the gates teasing its EV Silverado Trail Boss and the rest of its 30-vehicle electric lineup, targeted for 2025.

Overall, trends show vehicle tech is leading the push in three important categories—the economy, safety and the environment.

LET'S TALK TRANSPORTATION

Deploying next-generation transportation technology will require the government to keep up. U.S. Secretary of Transportation Pete Buttigieg wants to foster innovation between industry and the federal government, as electric and then self-driving vehicles become part of our society.

"Transportation and technology have always gone together," Buttigieg says. "History often celebrates the individual visionaries of our greatest achievements, and rightly so. But often history forgets that good government and wise policy has played an important role in supporting the development of many, if not most, of our greatest technologies."

In other words, as much as visionaries like Elon Musk want to bring new technologies to light immediately, sometimes those technologies need government guidance to ensure public safety. Self-driving technologies are attractive, but we're not yet to the point where someone in a Tesla

can hop into the backseat and take a nap.

"Being involved in policy, I have a vision of where I believe government needs to lean in and where government should seek to get out of the way," Buttigieg continues. "The pace of technology is accelerating. We are witnessing the rise of electric and autonomous vehicles, the widespread adoption of recreational and commercial drones, plus a renewed attention to cyber-security vulnerabilities in our infrastructure, increasingly routine commercial space travel and the high-stakes race to dramatically reduce transportation's impact on our climate."

Buttigieg told the CES audience that the best transportation advancements are the ones that work without having to think about them.

"As a former mayor, I am especially interested in the innovations that work best when no one even knows they are there, such as pavements that last longer or are even self-healing so we don't ever experience a rough road or a pothole and the damage to your car that goes with it," he says. "We are here to help innovation. The public sector has always played a crucial role in unlocking the innovative capacity of the American people."

AUTONOMOUS RACING

CES was where the Indianapolis Motor Speedway originally got involved with autonomous racing, examining how it can push the envelope when it comes to tech-



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TECHNOLOGY IN THE DRIVER'S SEAT



nology—something the track has always been interested in.

"The Indy racetrack was built in 1909 to test new technology. Of course, in 1909 the new technology was the automobile," says J. Douglas Boles, IMS president. "We are now testing new technology at the world's most famous racetrack." The Indy Autonomous Challenge (IAC) brought the finals of its driverless racing competition to the Las Vegas Motor Speedway during CES. Team PoliMOVE from Politecnico di Milano (Italy) and the University of Alabama won the Autonomous Challenge.

PoliMOVE competed in a field of five teams from five countries representing seven universities to win the \$150,000 grand prize. TUM Autonomous Motorsport from the Technische Universität

München (Germany) took home second place and \$50,000.

The rules of the IAC competition required each team to qualify in a high-speed autonomous race car time trial, determining their seeds in the head-to-head passing competition. PoliMOVE set the fastest speed record on an oval at 173 mph.

Professor Sergio Savaresi, team leader of PoliMOVE, notes, "today was the real birth of autonomous racing. The real high-speed multi-agent racing was pushed to its very limits. The research on autonomous cars will certainly benefit from this historic milestone."

The IAC is looking to solve real-world problems using advanced technology through racing, believing it will speed the commercialization of fully autonomous vehicles and deployments of advanced driver-assistance systems (ADAS).

The goal is to help push the limits for the entire autonomous community, with the understanding that increased safety and performance are of critical importance not only in motorsports, but across all modes of commercial transportation.

"We came to CES this week, the world's most influential technology innovation event, to showcase to the world how this competition is catapulting autonomous technologies forward," says Paul Mitchell, CEO of Energy Systems Network, lead sponsor of the event. "We're harnessing the power of prize competitions to attract the best and brightest minds from around the globe to further the state-of-the art safety and performance technology of automated vehicles, and the teams did just that today with another historic competition."

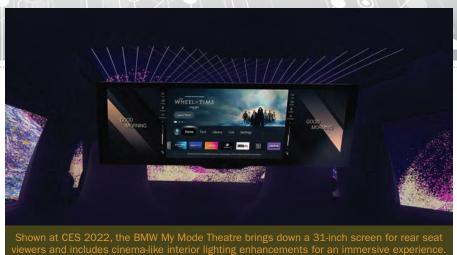
He adds that much of the current development of autonomous vehicles involves low-speed settings.

"They are people movers. They are robotaxis. There are some deployments of trucks that are on the highways, but motorsports in general and race cars give you the opportunity to push technology to the absolute limit," he continues. "You are looking at not just can an autonomous system work, but can it work at extremely high speeds in very close proximity—a matter of inches from other vehicles or a barrier like a wall."

To signal the start of the new era, Karen









Chupka, CTA EVP, began the competition with the call, "Ladies and gentlemen, start your software!"

BLACK OR WHITE

Drive-in movies may be a thing of the past, but BMW is looking to bring the cinematic experience to its rear seats.

Rear-seat entertainment has always been a solid aftermarket upgrade option for shops. The BMW Theatre Screen takes it to the next level with a 31-inch display screen with a 32:9 format that offers 8K resolution. The company is collaborating with Amazon to fully integrate Fire TV.

The system gives passengers access to a wide variety of content so they can stream videos, listen to music, and watch downloaded programs, all while on the road. What is even cooler is the ability to treat the car environment like a home theater.

The BMW My Mode Theatre sets up the car like a home theater in a house. So, once the vehicle knows you want to watch a movie from the backseat, it automatically lowers the theater screen, dims the lighting, and deploys the sunshades. The audio system is automatically tweaked for optimization in the rear seats.

Outside the vehicle, BMW is also offering technology that allows a vehicle to change colors from black to white. E-Ink is a technology used in eReaders that BMW brought it to its new vehicle, the iX Flow.

The secret is a specially developed exterior wrap. When stimulated by electrical signals, the electrophoretic technology brings different color pigments to the surface, ranging from white to black and the shades of gray in between.

The voltage and current needed by the wrap to do its shapeshifting is minimal.

Once a color is achieved, it stays there—electrical current is only used when changing the appearance. The surface coating contains millions of microcapsules, with a diameter equivalent to the thickness of a human hair.

"The BMW iX Flow is an advanced research and design project, and a great example of the forward thinking that BMW is known for," says Adrian van Hooydonk, head of BMW Group Design.

And the concept is just the beginning, adds Frank Weber, a member of the Board of Management of BMW AG, Development.

"Digital experiences won't just be limited to displays in the future," Weber predicts. "There will be more and more melding of the real and virtual. With the BMW iX Flow, we are bringing the car body to life."

Variable exterior colors can have practical advantages. For example, on a hot, sunny day, making the exterior of the vehicle white to reflect sunlight and UV rays makes the end user more comfortable. In cooler weather, a dark outer skin (especially on the roof) will help the vehicle absorb more warmth from the sun.

And, as OLED screen technology advances, we may get to the point where a smartphone becomes an onboard paint shop that can change the exterior color of a vehicle at will. **15**

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MAKING INROADS

EV builds show how technology is here to stay.

rom off-road to performance, aftermarket niches are making room for electric vehicles.

A growing number of consumers are inquiring about EV technology for their next project, leading industry professionals to investigate the possibilities or risk being left behind.

A pair of recent high-profile EV introductions show that there's room for everyone when it comes to high-performing, aesthetically pleasing EV builds. The projects, and others like them, are opening doors to the aftermarket for a new group of enthusiasts.

SHELBY MUSTANG MACH-E GT

Shelby American unveiled the Shelby Mustang Mach-E GT concept at the 2021 SEMA Show. The research test bed, which paves the way for future high-performance electric vehicles from Shelby American, was displayed inside the Ford Motor Co. exhibit.

"My grandfather, Carroll Shelby, relentlessly experimented with new technologies to gain a competitive edge," says Aaron Shelby, board member of Carroll Shelby International. "He researched everything from exotic materials to alternative propulsion systems, including electrification. Before his passing, Carroll told me that he hoped to see the future of EV from a performance perspective. Working closely with the team at Ford, our Shelby Mustang Mach-E GT was built in Carroll's spirit of innovation as we strive to fulfill his visionary dreams."



The research test bed is paving the way for future high-performance Shelby EVs. (Photo courtesy Shelby American)

Carroll Shelby discussed the subject in an interview published by Ford Performance about a decade ago.

"We're getting into so many things that I think are interesting," Shelby said at the time. "Electric cars, different types of fuel. They're calling them the *green years*, and I'd like to be around to see how this works out. I'd like to be a part of it. But, at 88, you've got to realize the reality of life. I won't be around to see it, but until I cross the river, I'm going to be a part of it and interested in what's happening right now."

The 2021 version that was modified by Shelby has electric all-wheel drive (eAWD) and a Performance Edition Extended Range Battery. The Shelby team focused on materials and technologies that reduce weight, add strength and increase performance.

"From the stunning exterior to cuttingedge materials and powertrain enhancements, we explored every element to improve function and performance," says Gary Patterson, president of Shelby American. "We leveraged lessons learned while secretly testing many of the leading EVs on the market over the past several years. Our concept Mustang Mach-E is a glimpse into a new generation of extraordinary vehicles planned for 2022, alongside our V-8 powered cars and muscle trucks. At Shelby American, performance continues to be our business."

Shelby specifically tailored its vision of the Ford Mustang Mach-E with:

- Graphene-infused carbon fiber body pieces including the front fascia assembly, front fender panels and hood
- Select composite suspension components
- Custom one-piece forged monoblock wheels
- EV-specific lightweight tires

"Our team at Shelby American developed a stunning-yet-functional exterior for the Mustang Mach-E," says Vince LaViolette, Shelby American vice president of operations. "We designed a new front fascia and hood that will help keep the batteries cool for optimal performance. Our 20-inch, one-piece forged monoblock wheels and Michelin Pilot Sport EV tires, along with composite carbon fiber springs, will strengthen the vehicle and reduce weight.



The Shelby team focused on materials and technologies that reduce weight, add strength and increase performance. (Photo courtesy Shelby American)





Project Britton is one of two recent Tesla-powered electric Defender 110 projects from E.C.D. Automotive Design. (Photo courtesy E.C.D.)

MAKING INROADS



Project Britton features a Heritage-style grille, swing-away wheel carrier, sidesteps with SVX silver inserts, Front Runner roof rack and ladder, sand beige Porsche Nappa leather, Recaro Expert S seats, a classic Evander Wood wheel, and teak wood flooring and teak wood bench. (Photo courtesy E.C.D.)



The 25-year-old, U.K.-imported work vehicles underwent E.C.D.'s detailed customization, personalized down to the color of the upholstery stitching and restored from the ground up with modern electric engines and quality upgrades. (Photo courtesy E.C.D.)



The designs strive to preserve each old Defender's nostalgic look. (Photo courtesy E.C.D.)

We're also teaming up with industry leaders to delve into powertrain, power delivery, range and other performance enhancements for a potential production version of the vehicle."

Other special modifications to the vehicle include:

- Racing stripes across the SUV
- Custom Recaro leather seats
- Shelby badging inside and out
- Shelby official CSM identification number

The Shelby American team says it will use the concept vehicle to gauge public interest and serve as a test bed for a possible production version.

E.C.D. ORIGINAL DEFENDER 110s

E.C.D. Automotive Design is known for its custom-rebuilt vintage Defenders and classic Range Rovers. Recent projects include two Tesla-powered electric Defender 110s.

These 25-year-old, U.K.-imported work vehicles underwent E.C.D.'s detailed customization journey, personalized down to the color of the upholstery stitching and restored from the ground up with modern electric engines and quality upgrades—all while preserving each old Defender's nostalgic look, the company reports.

Reborn as *Project Britton* and *Project Morpheus*, the refined, one-of-a-kind classic Defenders are the first of their make to be fully rebuilt in-house on U.S. soil.

Designed as true performance luxury vehicles, both Defenders sport 450-hp Tesla engines that can reach 0-60 mph in 5 seconds and drive for over 220 miles on a five-hour charge.

"At the end of the day, we're doing this with deep love of older Defenders and a passion to keep them on the road by modifying them to fit into our clients' lives," says Elliot Humble, E.C.D. co-founder. "Whether it takes figuring out how to engineer an electric engine into a restored Defender or color-matching the paint to match a favorite shirt, our world-class team can breathe life into our clients' wildest

Project Britton sports a breezy, baby blue hue and custom OEM sunroof. Painted in a glossy Cool Khaki Grey with an Alpine

EV LIGHTING TECHNOLOGY

It's not just builders that are dipping their toes into EV projects. Manufacturers are testing their potential as well.

LED lighting company RIGID Industries, for instance, has launched its A2Z for e-Mobility initiative to develop smarter, more efficient lighting technology optimized for electric vehicles. A2Z for e-Mobility builds upon the technology innovations found in the RIGID Adapt E-Series LED light bar, the company says, which can be installed on ICE-powered vehicles but are optimized for EVs.

"As full-size pickup trucks, SUVs and off-road vehicles are rapidly adopting electric power, aftermarket accessories like LED lighting also need to be optimized for EVs," says Aaron Richardson, RIGID Industries president.

The Adapt E-Series has two layers of adaptive response for vehicle and driving conditions: RIGID's Active Power Management (APM) system that continuously monitors input voltage to determine the status of the vehicle's electrical system, and Active View Technology, which utilizes an internal GPS to monitor the vehicle's speed, allowing the Adapt E-Series to properly distribute power among three unique optic zones.

"Whether RIGID customers use their vehicles for work or fun, per-



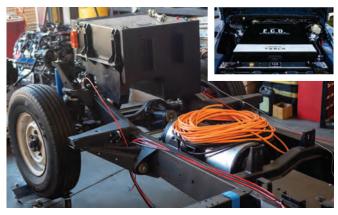
RIGID's Adapt E-Series LED light bar, shown here, is the building block for the company's new **EV-oriented** A2Z for e-Mobility initiative. (Photo courtesy RIGID Industries)

formance is critical. With our responsive technology, drivers can be confident that they'll have ample power and lighting no matter the driving conditions," Richardson notes.

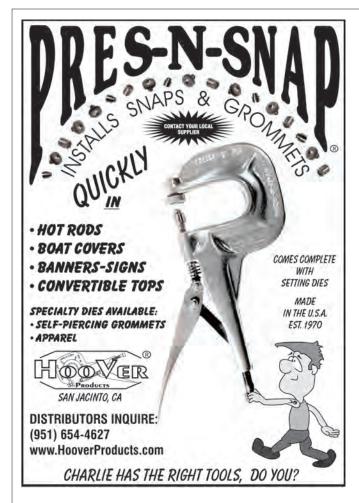
A2Z for e-Mobility is an initiative spanning all Clarience Technologies companies, focused on energy-efficient solutions that improve performance of electric vehicles by reducing battery amp draw.



To complement the deep Arles Blue exterior paint and Chawton White hard top roof, the build features a black Front Runner roof rack with four LED spotlights, a classic black Land Rover mesh grille and black full-length side steps. (Photo courtesy E.C.D.)



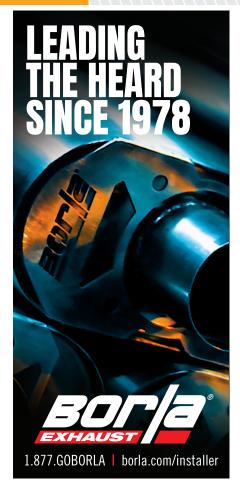
Project Morpheus promises a smooth and silent ride over roads and rough terrain. (Photo courtesy E.C.D.)



AFTERMARKET ALLEY









MAKING INROADS

White roof and silver accents, it rides on custom-painted Kahn Mondial wheels and BFGoodrich Rugged Trail T/A tires with adjustable E.C.D. Air Ride Suspension and high-performance Brembo brakes.

Exterior accessories include a Heritagestyle grille, swing-away wheel carrier, sidesteps with SVX silver inserts and Front Runner roof rack and ladder.

The interior features sand beige Porsche Nappa leather wrapped around heated and ventilated Recaro Expert S seats. The classic Evander Wood wheel is a vintage touch that provides contrast to custom E.C.D. electric gauges.

Project Britton's most unique feature is the teak wood flooring in the cargo area. A matching teak wood storage bench with an upholstered lid sits beside the two inwardfacing jump seats, allowing for ample storage space while traveling.

Finally, premium modern features include an Alpine Floating Halo infotainment system with Bluetooth, Wi-Fi, remote start, blind-spot assist, back-up sensor, front and back-up cameras, three wireless charging pads and more.

Meanwhile, with E.C.D. Air Ride Suspension, performance BFGoodrich Long Trail T/A All Season Tires and upgraded axles, *Project Morpheus* promises a smooth and silent ride over roads and rough terrain. To complement the deep Arles Blue exterior paint and Chawton White hard top roof, the build features a black Front Runner roof rack with four LED spotlights, a classic black Land Rover mesh grille and black full-length side steps.

Inside, passengers sit on seats handstitched in black and caviar Garrett Torino leather with single horizontal stitching. The build has two heated Classic Puma front seats, two Classic Puma middle seats and two forward-facing jump seats in the back.

The caviar black leather-wrapped Puma dashboard, custom E.C.D. center console and Evander Wood steering wheel round out the interior. Other modern upgrades include a Kenwood Excelon Radio, JL Audio sound system, four USB ports, Bluetooth, blind-spot assist, back-up camera and rear AC vents.

The electric Defenders are not E.C.D.'s first foray into custom electric conversions. The company unveiled *Project Ski*, an electric Range Rover Classic, in 2021. **18**

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Highlighting All-Female Initiatives

Il-female initiatives are ensuring that women have a chance to learn more about opportunities in the automotive aftermarket. Here are some recent updates:

SEMA BRONCO BUILD

The SEMA Businesswomen's Network is kicking off an all-female vehicle build of a four-door Ford Bronco Wildtrak provided by Bronco Brand.

The project comes 10 years after SBN led an award-winning all-female Ford Mustang Build, which raised awareness of women working in the automotive industry and brought in dozens of new SBN members, according to SEMA.

The new campaign seeks to highlight successful women in the aftermarket while encouraging more females to pursue automotive-related careers.

"We know that automobiles are exciting and that there are countless job opportunities for women in the industry," said Sara Morosan, SBN chair-elect. "The 2022 SBN All-Female Vehicle Build will again shine the light on this important initiative and help women see what's possible." The project will begin this summer in Southern California. Organizers are currently securing members to assist with volunteer recruitment, events planning, media/content creation, product acquisition, sponsorship and more.

A sign-up link with more information is available at: https://www.sema.org/get-involved/councils-networks/sbn.

CAREERS AT THE TRACK

Female students of Athena Racing—an education program that provides training for girls interested in career paths in the automotive, motorsports and transportation industries—shadowed Honda Performance Development employees during the INDYCAR race at the Long Beach Grand Prix.

Abril Zapata and Makaela Cochran, members of Athena Racing's DRIVE program, worked with HPD trackside engineers Nicole Rotondo and Serena Halterman throughout the weekend as part of an outreach to young girls interested in STEM careers.

Q&A sessions were also arranged with women working the race, including Angela Ashmore, assistant engineer of Chip Ganassi Racing; Marissa Andretti, vice president of Andretti Autosport and managing director for Andretti Technologies; Lindsay Lindsey, Andretti Autosport's senior communications manager; and Lizzie Todd, Andretti Autosport systems engineer.

"We are creating career pathways into areas that very few females consider, and the companies are eager for our talent pipeline," said Loxley Browne, Athena Racing CEO & founder.

ALL-FEMALE RACE CLASS RETURNS

The Holley NMRA Ford Nationals has announced the return of the All-Female True Street category to its upcoming Ohio event. Presented by Baer Brake Systems, All-Female True Street will take place June 9-12 during the NMRA Ford Performance Nationals at Summit Motorsports Park in Ohio.

The All-Female True Street class follows the same format as the popular Torq Storm True Street category, with a 30-mile drive and three consecutive runs down the quarter-mile. It is open to any Mustang or Ford, car or truck, whether it's owned by the competitor or not. **15**





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