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Offering safety and utility benefits and a rugged 4x4 appearance, winches are high on the lists of truck, SUV and Jeep owners looking to upfit for their next adventure. See article on page 38. (Photo courtesy Westin Automotive Products)



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DRIVER'S SEAT





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

Demand for Accessories Remains High

ith continuing uncertainty surrounding gas prices, inflation, lingering supply chain challenges and worker shortages, performance and restyling shop owners have plenty to keep an eye on.

For those who sell and install aftermarket accessories for new vehicles, however, consumer demand worries are thankfully not on the list.

According to a report released in February, nearly half of all new retail vehicles sold in the U.S. will be accessorized within two years of delivery, yielding

\$18 billion in new vehicle accessory spending.

Michigan automotive insights firm Foresight Research's U.S. Accessory Immersion Report finds that more than 6.2 million new vehicles are accessorized in the first year of ownership, representing over \$12 billion in spending. Another \$6 billion in accessory spending occurs within the two-year period from delivery.

And interest runs deep. No longer is the focus on simply a few truck accessories, wheels or floor mats, says Steve Bruyn, Foresight's CEO.

"The top installed accessories are connectivity-based, with Bluetooth, iPods, cell phone holders and charging devices topping the list, he reveals.

Calling it "a whole new direction for the automotive accessory business," Bruyn adds that the findings are "right in line with what is going on in the industry. Appearance and protection accessories are also top performers."

The report shows that successful accessory marketing plans are rooted in advance market planning. Accessory buyers perform significant self-research in advance of purchase, gathering accessory information from digital media, brochures and print articles, as well as during visits to local auto shows.

"These are the low-hanging fruit that automakers can and should actively support," the report states, "and with today's increasing digital car buying, these advance consumer research channels will likely play an even more important role moving forward."

As an example, the report notes that only half of all new vehicle buyers recall having a discussion about accessories with their dealer, and the majority of those discussions were initiated by the consumer themselves.

"Since the average buyer is spending \$1,000-plus on accessories in the aftermarket, these are sales that dealers are surrendering by not proactively selling. And with limited dealer vehicle inventories, accessorizing at the dealer will be an even more important part of the dealer revenue in the coming year," Foresight predicts.

Find more at foresightresearch.com. **TS**

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Protecting valuable assets from outside threats.

TRUSTS

EDITOR'S NOTE: This is the second in a twopart series highlighting plans and procedures important to family businesses. To learn more about buy-sell agreements, see the March 2022 issue of THE SHOP.

ames runs a rapidly growing family business. Things are going great now, but he worries about the future.

If he should suddenly become incapacitated, who would run the enterprise for the benefit of his wife and children—none of whom have yet mastered the skills required to manage a commercial operation?

After consulting with his attorney, James comes up with a solution: a revocable trust, which designates a skilled trustee to take the reins of the business in the event James can no longer perform his duties.

of the enterprise, the trust gives the family considerable peace of mind.

"A revocable trust is created while a business owner is still alive," explains Michael P. Sampson, partner in the Minneapolis law firm of Maslon LLP (maslon.com). "It allows the owner to retain control of business assets while arranging for a trustee to step in and manage things in case the owner becomes incapacitated."

The revocable nature of the trust is important for anyone who, like James, wants to retain ownership and control of business assets. Plus, a revocable trust would also help the family avoid costly probate if James should die.

AVOID PROBATE

Family businesses everywhere establish trusts to solve a host of critical problems. Upon the death of the business owner, for example, a trust can protect against costly probate, secure sensitive business informa-



FAMILY BUSINESS TRUSTS



tion from prying eyes, guard family assets from crippling lawsuits and creditor claims, and even obviate turf wars among surviving children.

(The traditional use of trusts to avoid estate taxes has become less important, since federal tax law recently increased the estate tax exemption to \$11.2 million for individuals and \$22.4 million for married couples.)

The good news is that trusts can be created by organizations of all sizes.

"Even smaller family businesses can utilize trusts," says John J. Scroggin, partner in Atlanta-based Scroggin & Co., a law firm active in business and estate planning (scrogginlaw.com). "The issue is driven not by size, in terms of revenues or assets, but by a desire for long-term protection of a business."

How can trusts help your family business? For starters, consider using one to efficiently allocate assets to the next generation. Although a will can do the same thing, a trust is more difficult to challenge and has the advantage of avoiding probate.

"Probate can be expensive and time-consuming," says Sampson. "This is especially true in states such as California, Florida, Illinois and New York, where probate is very complicated, or for businesses operating in more than one state."

In the latter case, survivors may have to deal with the complications created to satisfy the requirements of more than one set of probate laws.

In addition to saving you money, avoiding probate can also protect your business secrets.

"You might not want your competitors looking up your will at the courthouse to see how much money or debt your family has," says Sampson.

Public records are also sometimes accessed by predators who try to victimize people who have inherited money.

"Having your property passed along under the terms of a trust avoids the creation of public records that result from court involvement," he adds.

PROTECT ASSETS

Can a trust that allocates family business assets to the next generation be *revocable*? Yes, but it has inherent risks.

Consider Sarah, who wants to do just that. Sarah's attorney tells her that if she makes the trust revocable, all of the business assets will remain under the ownership of the family. As a result, those assets will be at risk of being attacked by creditors or lost in lawsuits.

The assets might also be seized to satisfy any nursing home bills incurred by the person who establishes the trust.

For these reasons, Sarah decides to set up an *irrevocable trust*. Because the trust will own the business assets, they will not be subject to the above risks of loss, either before or after Sarah dies.

The terms of an irrevocable trust can address the demands of complex family dynamics. Here are a few examples:

To protect the income of a young child

Adam and Sylvia, who own all of the stock of ABC Co., have a 9-year-old child named Jane. They establish an irrevocable trust that designates Adam's brother Jason as the trustee. In the event of the death of the parents, Jason will run the enterprise. Jane, the trust's beneficiary, will receive stock dividends and distributions from any assets.

To avoid sibling disputes

Andrew and Beth are concerned that when they die their children might squabble about the family business assets, putting the organization's survival at risk. Daughter Suzy has already said she wants to run the business, while her brother John feels the business should be sold and the assets distributed.

"A trust can designate that Suzy will run the business, and that John will not be involved but will receive a certain amount of money monthly from the trust," says





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FAMILY BUSINESS TRUSTS



Nicole N. Middendorf, CEO of Prosperwell Financial, Plymouth, Minnesota (prosperwell.com). "And the trustee will make sure the provisions of the trust are carried out."

In a case like this one, says Middendorf, a trust is especially valuable because it can mandate the disposition of assets at a time when emotions might run high.

"Money often brings out greed," she says. "People can be tempted to make decisions based on their own interests rather than on what makes sense for the future of the company and the family."

To protect a victim of addiction

Bart and Susan want to avoid leaving a sudden windfall to their son Chet, who is struggling with drug addiction. How can they make sure Chet is taken care of in the event of their deaths, while avoiding a waste of inherited assets?

"A trust can designate that Chet receive a certain amount of money every month," says Middendorf. "Or, to avoid funding the addiction, a trust can pay his rent so he always has a roof over his head. The trust could even mandate that he pass a drug test to receive his monthly payment."

A similar arrangement can also help out when the beneficiary might have a mental disability.

To control a spendthrift

Some people are just bad with money. Henry and Ida are afraid that their daughter Beverly will spend her inheritance on fancy cars and travel. That's why they decide to set up a *spendthrift trust* that will release

funds only for expenses related to health, education, maintenance and support.

"A spendthrift trust can be a valuable way to protect beneficiaries from spending all of their inheritance," says Arlene Cogen, a certified financial planner and philanthropic leadership consultant based in Portland, Oregon (arlenecogen.com). But she warns that it's not a foolproof mechanism.

"Bear in mind, beneficiaries can be very creative when it comes to petitioning trustees for health, education, maintenance and support," she says. "This can create an adversarial relationship between the beneficiary and the trustee. One way around that is to create a trust that provides the

individual with a set income stream, so they cannot keep knocking on a trustee's door for money."

To obviate claims from an estranged spouse

While Amy and Clark feel their son Andy is skilled enough to run the family business, they are concerned about his marriage to an estranged spouse. In the event of a divorce, will the spouse sue to obtain business assets?

Scroggin offers this solution: Amy and Clark establish a trust that calls for Andy to be paid a salary for his work, while the equity of the business, along with any profits, remains in the trust for protection from lawsuits. In the same way, a trust can protect business assets from the claims of creditors if the inheriting person is in debt.

To avoid claims arising from multiple marriages

Multiple marriages can create their own problems. James wants to make sure that if he dies his wife Mary receives income for life from the company dividends and asset distributions, so that she can take care of their children Betty and Jack.

However, if Mary should remarry and then later die, James wants to make sure the money from the business then goes directly to Betty and Jack, and not to Mary's new spouse or to that individual's own children.

Again, a trust can mandate this more complex asset distribution pattern.





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FAMILY BUSINESS TRUSTS



"The division between ownership and benefits can be helpful when people get married more than once and have children from multiple spouses," says Sampson.

To avoid claims arising from a childless marriage

Harris and Marge have three children named Deborah, Francine and Bart. Deborah is married to a man named Frank, but has no children and is not expected to. Harris and Marge are concerned that if Deborah is given some of the equity and then dies, the equity will pass on to Frank, a nonfamily person who may try to dictate business decisions and make unreasonable demands, such as the hiring of his friends.

Furthermore, if Frank remarries and then dies, his new spouse, a stranger to the family, might end up owning a third of the business. And that person might demand an exorbitant buyout to avoid a lawsuit.

"In this example, when Deborah dies without any descendants, a trust can call for her interest to pass on to her siblings or their descendants," says Scroggin. "Trusts often are used to assure that business interests are retained for the benefit of family members rather than passing to outsiders."

STAY FLEXIBLE

The above scenarios illustrate the flexibility

of irrevocable trusts. They can do all kinds of things for people who are too young to run a business, have no interest in doing so, are incapacitated or need to be protected from their own damaging decision-making habits.

Trusts solve business problems by separating legal ownership and control of a business from the enjoyment of the business assets by beneficiaries.

Flexibility, though, runs both ways. Attorneys advise against micromanaging the family business transition.

"Sometimes, people take control too far by not including enough flexibility for the beneficiaries," says Sampson. "As a result, what seems like a reasonable provision in a trust today might make no sense some years down the road."

Sampson gives this example: Mark heard that *incentive trusts* could be established to obviate the problem of a child becoming a *trust baby* and slacking off instead of working. So, to inspire a work ethic in his son Jerry, Mark established a trust that would provide distributions to match his son's earned income each year.

However, Mark's attorney encouraged the inclusion of a provision allowing additional distributions at the trustee's discretion, just to provide flexibility.

One day Jerry was riding home on his motorcycle when a serious accident left

him unable to ever work again. If it were not for the provision allowing discretionary distributions beyond the amount of Jerry's earned income, the trust assets would not have been available to provide the money required for his medical attendant.

That story carries a moral. "Don't try to design for a scenario that is too specific," advises Sampson. "It's a good idea to include a provision that the trustee can make distributions of income and principal at the trustee's discretion just in case something unanticipated happens."

Sampson also suggests another point of flexibility: the ability to change a trustee who is uncommunicative or too tight with distributions.

"There should be a way to replace the trustee," he says. "You can even give that power to beneficiaries, as long as the new trustee is truly independent. The replacement should not be an employee of one of the beneficiaries, for example, or a relative. The flip side is that the trustee must be strong enough to sometimes say *no* to the beneficiaries. The balancing act is to provide enough flexibility without giving so much freedom that the trust becomes a sham."

DISCRETIONARY PAYMENTS

As the above comments suggest, trusts need to recognize the possibility of future surprises. That's why the trend today is toward the use of *discretionary trusts*—irrevocable trusts that do not specify a set amount of income for beneficiaries, but allow for trustee discretion.

Sampson says that many business owners tell trustees something like this: "I want my kids to be educated, and I don't want them living in a van because they encounter a health problem. But I do not want the money used for lifestyle enhancement."

Such terms may be included in the trust itself, or in a side letter addressed to the trustee.

Discretionary trusts offer considerable protection from creditors and lawsuits. That's because the law says a creditor can only access the assets of an irrevocable trust to the same extent as the beneficiary. So, if the beneficiary cannot get at the money in the trust to pay a business expense without the permission of the trustee, neither can a creditor.

Discretionary trusts also free the trustee to invest for the highest total return

without needing to worry about meeting arbitrary mandated payouts.

For example, the trustee may decide to invest more money in a broad basket of stocks and bonds rather than only in lower-yielding bonds, which would provide guaranteed, but limited, income.

START EARLY

Starting the trust planning process early will help protect your family business assets from a sudden loss through an unexpected lawsuit or death.

"Planning should start as soon as your business has assets worth protecting," says Bill Babb, senior consultant at the Family Business Institute, Raleigh, North Carolina (familybusinessinstitute.com). "You want a smooth and safe transition program in place before the death of someone in an ownership position."

When seeking outside help to plan your trust, toss a wide net. A family business transition has implications for income and estate taxes, the protection of assets and the outstanding agreements of banks and creditors.

Because so many areas are involved, experts suggest assembling an advisory team that consists of an attorney, an accountant, a management consultant and a banker.

Having bank lenders represented is especially important.

"It often happens that when a key person dies, the banks get squirrely and call outstanding notes," says Babb. "To avoid that, take the initiative long before the actual transition takes place by helping your bankers develop working relationships with whoever will be taking over the reins of the business."

If designing a trust takes resources away from management duties, the result is worth it.

"Protecting family business assets requires a commitment of time, effort and money," says Babb. "It's easy to procrastinate and allow the decision-making process to get bogged down. But no one has the promise of tomorrow. The risk of delay is that your business assets go to creditors and the IRS rather than to the people you want to receive them."



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



CONSIDER A PHILANTHROPIC TRUST

Some family businesses accumulate more wealth than can be productively utilized by the next generation. Those assets could be put into a charitable trust.

"History shows us that successful families pass down not only wealth, but also values," says Arlene Cogen, a certified financial planner and philanthropic leadership consultant based in Portland, Oregon (arlenecogen.com). "A business transition is a good opportunity to set up a philanthropic vehicle such as a donor-advised fund or a private foundation. They allow multiple generations to work, give and serve the community together while reducing taxes."

Your business can be seen as a valuable community resource when you establish programs that help youth, educational efforts or the homeless. There is no shortage of needs.

"Giving money away is good for business," says Cogen. "It elevates you in the community and that tends to come back tenfold."

—Phillip M. Perry



Reframing Your Business Value



Discover the hidden assets of your organization.

By Lisa Apolinski

s your business matures and grows, you may start to think about how you plan on moving toward a significant end goal: selling your company.

Whether you are in products or services, every business has to decide on an exit strategy. Will you sell the business to a family member so your shop can continue to grow? Will you bring in investment capital to expand? Will you sell to a competitor as part of a merger and acquisition? Or will you someday simply close the bay doors and turn off the lights?

Many companies only look at revenue goals and inventory or client lists when determining value. There is a misconception that only companies with physical inventory are worth purchasing, and there is an even broader misconception that, if you are in the services industry and do not have a tangible asset, that you don't have something worth buying.

Regardless of whether your company sells widgets or ideas, however, you likely already have business value—it's just that you may not have recognized it yet. Regardless of your current situation, here are ways to calculate your overall business value:



A scientific process, with documentation that can be accurately followed, is a repeatable process. Processes that are repeatable and allow a company to achieve consistent results take the guesswork out of efficiency and growth.

When you have a workable process, you remove chance and become more effective at repeating the formula for success.

There are things you most likely do for your company every day that you con-

sider standard operating procedures. While obvious to you, for someone outside of the organization these pieces of common knowledge are not always so common.

No matter how small the process, take the time to set up a written document that catalogs what you do, how you measure it and what your standard results are. When it comes to calculating value, having a proprietary process that demonstrates easy repeatability is gold in the eyes of potential buyers.

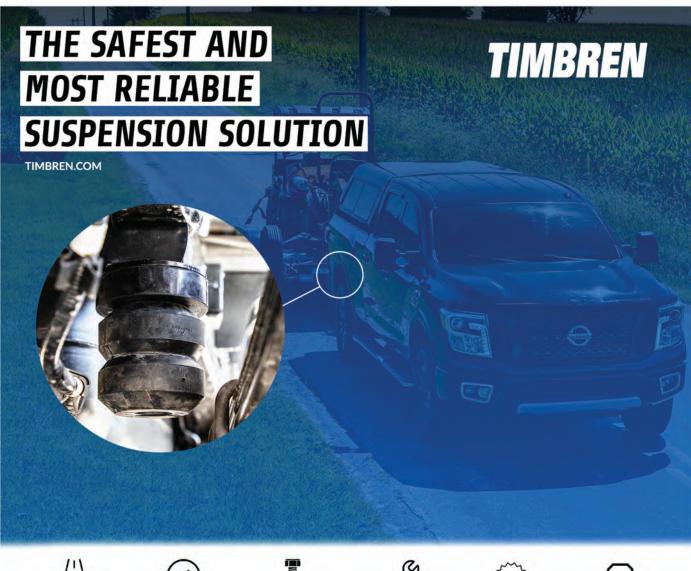


If you look beyond sales and revenue in your company, the next best source of income and business is your company contact list. By having a large pool of contacts (different from purchased lists), you have a community of individuals who know and respect you.

This list goes beyond business-to-business engagement. Each individual can provide introductions, be a champion for your work and give your organization a foot in the door with other potential clients.

Many companies forget their community and the way in which business contacts can attract new projects and endorse their reputation. Do your happy customers spread the word at their car club meeting or out on the trail? These contacts can be a source of consistent sales through referrals, thereby becoming champions for your company's growth.

And, as we know, growth equates to revenue, and increased revenue is a clear value-add.





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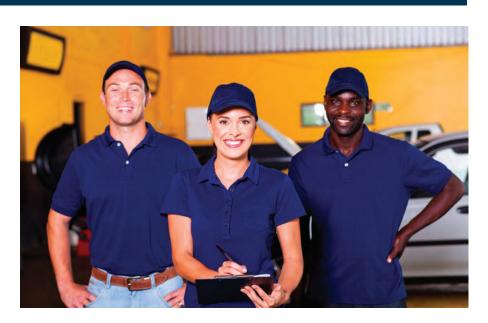
TALENT MAKES YOUR COMPANY RESOURCE-RICH

Whether you have employees, subcontractors or freelancers, the performance of your team members can be evaluated at the end of each project to make sure they are bringing value to your company and your clients.

You may need a reminder that if you want to see value in that talent pool, however, then you have to remove yourself from the equation.

Your job, on top of running day-to-day operations, is to grow your company and bring in amazing talent to do the work. This is the hardest idea to implement, but the real value lies in the team you build to serve your clients.

A top team will be very attractive to someone looking to buy your business.



LEADERSHIP MAKES YOUR COMPANY PROGRESS



One way a member of your executive team can increase the company's value is by becoming a recognized thought leader and expert in the industry. A leadership role can be demonstrated in different ways, including providing expert advice to peers or customers, mentorship of up-and-coming individuals, teaching or lecturing at industry events, and volunteering for a board position with an industry panel

or association.

For example, are there voluntary board positions in your industry associations or at colleges in your area where you can help mentor and guide the next generation of automotive aftermarket professionals? The experience of working with rising talent will help you become a better leader and more in-tune with emerging issues.

Leaders can also prompt discussions

around these issues, leading to the industry doing better in the long run.

So, take an inventory of the non-monetary value that you've already built within your company. Your organization is more than just your bottom line—it includes intangible assets that make your business what it is today.

When you consider the processes, client lists, employee talent and leadership your shop provides, it may suddenly be more valuable than you initially thought. **75**



LISA APOLINSKI is an international speaker, digital strategist, author and founder of 3 Dog Write. She works with companies to develop and share their message using digital assets.

Her latest book, Persuade With a Digital Content Story, is available on Amazon. For information on her agency's digital services visit www.3DogWrite.com.





STILL By John Carollo HOLDING

The performance clutch market keeps progressing.

rom street and race vehicles to off-road applications, performance clutch systems remain an important part of the specialty aftermarket.

Innovations continue to drive the market to new heights, with power numbers and drivability characteristics both on the rise.

Manufacturers are excited to share their latest advancements and ideas for increased sales with shops that deal with these important components. Here are some markets to watch, mistakes to avoid and recent projects to inspire.

HOT MARKETS

The death of the manual transmission

has been greatly exaggerated, particularly with drivers who value performance. If your shop offers aftermarket clutch installations and service, here are some markets to target.

"Transmission and engine swap customers," says Mike Norcia, co-owner of RAM Clutches. "The ability to put a modern transmission in an earliermodel car and not have to cruise down the highway spinning 3,000 rpm makes the drive so much more fun in these older vehicles."

The same can be said for newer-generation muscle cars, adds Geoff Gerko, owner of Mantic Clutch USA.

"We are seeing an increase in demand for 2018-current Mustang, sixth-gen



Camaro and Dodge Challenger/Hellcat applications."

McLeod Racing is also enjoying a strong presence in the modern muscle car market, says Krista Baldwin, creative director.

"Sales of kits for S197 and S550 Mustangs and C6 and C7 Corvettes continue to grow as the vehicles start to age and require either their first or second replacement clutch," she notes.

But it's not just domestics that are grabbing gears.

"Currently the import market is offering us the greatest potential, as many of the new vehicles are being offered with turbo options and manual transmissions," says Richard Weiser, product manager for Advanced Clutch Technology.

Add in the interest coming from the off-road and overland crowds, and it may be easier to list markets that performance clutch packages don't impact.

"Nearly every aspect of the clutch market is strong," says Trent McGee, marketing manager for Centerforce Clutches. "We've seen steady growth in both the Jeep market and the touring car/autocross world."



hicles to off-road applications, performance clutch systems remain an important part of the specialty aftermarket. (Photos courtesy Mantic Clutch USA)





In fact, anyone seeking better drivability from their manual transmission is a potential customer, notes Steve Kaminski, USA sales manager for XClutch.

"As manufacturers continue to refine the driving experience in modern vehicles with highly specialized NVH (noise, vibration, harshness) reduction technologies, it is important to keep up and produce performance clutch upgrades that are drivable but also keep that NVH in the cabin down," he explains. "Without this, the reduction in damping results in significant changes to cabin noise, which is no longer as accepted in the performance and tuning markets. Producing the right clutch kits for these new vehicle applications offers excellent potential for growth into the future."

PITFALLS

There's no teacher quite like experience. Here are some mistakes for shops to avoid.



Step one: know what you're dealing with before you get started.

"The biggest mistake we see is that shops fail to read our instructions for our clutches," Gerko says. "Our kits are made with higher-quality billet components and the assembly process is a bit different than an OE clutch or basic replacement clutch. All our kits come with complete instructions. These are also available from our

website and we are always available for a phone call to answer any questions."

Norcia gives an example of how these systems are a bit different from factory replacements.

"Many of these installs involve using hydraulic release mechanisms, and not taking the time to properly measure and set up the bearing in the vehicle can lead to frustration for the installer when the system does not function properly," he says. "Take the extra 15 minutes and double- and triple-check your numbers."

One big number is the SKU on the box. For top performance, you must start with the proper system for each application.

"We see shops sometimes recommend the wrong type of clutch for the application, and this often stems from not discussing what the customer's expectations and usages are before making a sale," says McGee. "This can result in choosing a clutch that's not designed to hold up with the customer's uses, or just the opposite—a clutch that ends up being more aggressive than what the customer really wants or needs."

On the installation side of things, he adds, a common pitfall is to not inspect



HOT CLUTCH PRODUCTS

- HOT PRODUCT: The ACT Mod-Twin
- FEATURES & BENEFITS: High torque-holding capacity; street drivability; low pedal effort; quiet operation; long service life.

Advanced Clutch Technology Richard Weiser Product Manager

- HOT PRODUCTS: SST Twin Disc Clutches
- FEATURES & BENEFITS: Available for a growing number of applications; SST stands for Solid Street Twin; budget-friendly twin-disc clutch system designed to hold around 900 pound-feet of torque, depending on the application; discs feature high-quality friction materials.

Centerforce Clutches Trent McGee Marketing Manager

- HOT PRODUCTS: 9000 Series Twin Disc Clutches
- FEATURES & BENEFITS: Good for vehicles making between 400-800 pound-feet of torque at the tires; drive like an OE clutch; light pedal effort; smooth engagement; quiet operation; lightweight designs reduce rotating inertia and hold more power.

Mantic Clutch USA Geoff Gerko Owner

- HOT PRODUCT: The RXT Twin Disc
- FEATURES & BENEFITS: For daily drivers that see the track on weekends; includes two MIBA-lined ceramic discs, a strapped floater plate for a clean and quiet release, and a steel or aluminum flywheel; holds up to 1,000 hp at the crank; retains the drivability of a stock clutch.

McLeod Racing Krista Baldwin Creative Director

- HOT PRODUCTS: Dual Disc Systems
- **FEATURES & BENEFITS:** Hold extreme amounts of power and still retain good street drivability, offering the best of both worlds for owners who race high-horsepower street machines on the track.

RAM Clutches Mike Norcia Co-Owner

- HOT PRODUCTS: 9.0- & 10.5-inch Twin Disc Organic Performance Upgrades
- FEATURES & BENEFITS: New sprung hub versions of existing rigid-style kits; ideal for very high-horsepower street vehicles that want to keep noise, vibration and harshness (NVH), as well as transmission shock loading, to a minimum; complete kits.

XClutch Steve Kaminski USA Sales Manager









other wear items related to the clutch, such as the front bearing retainer, clutch fork and pivot ball.

"Some applications, especially late-model Jeeps, are highly susceptible to noise and improper function due to relatively modest amounts of wear to these components," he says. Weiser calls choosing too big of a system *over-clutching*, "meaning they are selling or installing clutches that are using either too high of a clamp load, too aggressive of a friction material or, in many cases, a combination of both, for daily-driven street vehicles," he notes. "This ultimately

leads to a shorter clutch service life and an overall poor experience for the end-user."

Baldwin stresses that the customer's plans should be the starting point.

"We want to make sure the end-user is clear with their power goals, so they only have to buy the right clutch once," she says. "As far as installations go, simply follow the instructions. While it's relatively simple to install a clutch, there are tidbits of information we include in our instruction manuals to ensure everything is covered and the installer isn't having to drop the transmission again."

As more kits become available, it's easier to make a mistake, notes Kaminski.

"Most clutch manufacturers now offer a huge variety of performance clutch kits for everything from street cars all the way through to dedicated motorsport applications. Often these clutches are hard to pick between and may have subtle differences," he says.

It's important to speak with the distributor or manufacturer if you are unsure on the best kit for a specific application.

"They can help guide you through the options and get you a kit with the right drivability, performance and NVH characteristics for what the vehicle is being used for," he continues.

REAL-LIFE WINS

For inspiration and motivation, the manufacturers share some recent innovations and successful installations.

"Our soon-to-be-released clutch systems for both the Jeep Wrangler JL and the Toyota Tacoma address a number of factory shortcomings while also delivering additional performance and holding capacity," says McGee from Centerforce. "The new Bronco is also available with a manual option, proving that manuals remain a popular choice among off-roaders."

Kaminski notes that XClutch has just launched a performance hydraulic release bearing that offers a universal fitment for a wide variety of applications, including custom clutch builds.

"We are constantly developing custom clutch kits for people with engine or gearbox conversions, and this new hydraulic release bearing will provide a great solution for people wanting to complete these conversions," he predicts. "It is getting easier and easier for us to develop and engineer specialized kits for one-off conversions,

MANUAL TRANSMISSION AVAILABLE IN NEW CIVIC HATCHBACK

Honda designed the all-new 2022 Civic Hatchback to combine Euro-inspired fastback styling and world-class driving dynamics with improved versatility—plus an available manual transmission in two models.

Built in the U.S. at the Honda auto plant in Greensburg, Indiana using domestic and globally sourced parts, "this is the most fun-to-drive Civic Hatchback we've ever made," says Dave Gardner, executive vice president of national operations at American Honda Motor Co.

A slick-shifting 6-speed manual transmission is available on the Civic Hatchback Sport (2.0L 4-cylinder) and Civic Hatchback Sport Touring (1.5L turbo) models, both featuring a leather-wrapped shift knob.

Built on the 11th-generation Civic Sedan platform, 2022 Civic Hatchbacks benefit from extensive improvements to the body, chassis, powertrain, safety technology and overall performance,









and this is a really interesting area of the industry heading into the future."

The one-off trend is strong, Norcia agrees.

"Lately, RAM Clutches has been partnering with several distributors as they develop their own systems for specific vehicles. One of these is a specific package to adapt the Magnum F transmission to earlier LT engine platforms."

And the industry always wins when builders push the envelope.

"A great project we have is Garret Van Winkel's manual-swapped Dodge Charger," says Gerko of Mantic Clutch USA. "It's a *huge* turbo build, making 1,400-plus hp and running our new Quad Disc Clutch."

Such power numbers are truly amazing, and a driving force in the performance clutch market.

"Our SFT2000 is designed for street cars that are making 2,000 hp," says McLeod's Baldwin. "With high-horsepower cars becoming the norm nowadays, being able

to push the envelope and develop a clutch that retains great drivability and the ability to handle 2,000 hp and still remain cost-effective shows that we are

here to cater to you."

Even if your customers aren't bringing in over-the-top builds,

Kit selection becomes even more important as manufacturers continually add to their offerings. (Photo courtesy RAM Clutches) however, new vehicles still offer plenty of potential for upfit sales, adds ACT's Weiser.

"Vehicle manufacturers develop their manual transmissions and clutch offerings for NVH, fuel economy and drivetrain failure contingency. Their clutches and flywheels do not offer much in reserve capacity and are usually very vague in engagement input for a driver," he believes. "As newer vehicle offerings, especially vehicles using forced induction, are easily tuned for higher power output, these clutches and flywheels tend to fail quickly. These failures provide the potential for the performance clutch market to offer clutch and flywheel options that can hold more power, provide the driver with predictable engagement input and, in the case of flywheels, are usually lighter in weight, which can also improve throttle response and acceleration of the vehicle." TS



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ALEX XYDIAS TURNS 100

He's left an indelible mark on the world of hot rodding.

t 100 years old you're bound to have more than a few chapters in your book of life and Alex Xydias (rhymes with hideous), founder of the So-Cal Speed Shop, is no exception.

His father was an early Hollywood silent movie producer, but due to illness he missed the shift to talkies and the family fell on hard times. At an early age, Alex (born March 22, 1922) learned how cruel life could be—one minute you're in a limo, the next your mom is taking in lodgers.

Middle school was probably equally difficult as he attended Bancroft Junior High with the likes of Judy Garland and Jason Robards. Then it was on to famed Fairfax High with Mickey Rooney and Ricardo Montalban, while his mom became *Madame X*, reading fortunes to the movie set in a restaurant.

Meanwhile, Alex got into hot rods, but driving on an expired license earned him time in the pokey and before he knew it, he was in the Army Air Corps. His hot rod on blocks, he was sent to Luke Field in Phoenix, where he worked on AT-6s.

Next, it was off to Buffalo for P-40 training and then, finally, B-17 school in Las Vegas, where he became a flight engineer and gunner.

Following WWII, Alex was 23 and had married his childhood sweetheart, Betty. Like many young men at the time, he wondered what he should do to make a living.

His mother loaned him \$100. Adding it to a few bucks of his own, he ventured over the Hollywood Hills and opened the So-Cal Speed Shop at 1806 N. Olive Ave. in Burbank, California.

It was a tiny shop, and Alex soon moved

to a Sears' prefab building at the appropriately named 1104 Victory Blvd.

Although completely untrained, Alex had an instinct for marketing, understanding immediately that a win on Sunday meant a sale on Monday. With the help of many friends, his now-famous red and white race cars littered the dry lakes and drag strips of southern California. At Bonneville the group raced *The World's Fastest Hot Rod* and took the *HOT ROD* trophy.

SPREADING THE WORD

Unfortunately for Alex and many others, the flathead Ford V-8s he specialized in were being eclipsed by new-fangled overhead valve engines. Things would never be the same at the track, so Alex picked up a 16mm movie camera and followed a new route.





Long before ESPN, Alex filmed motorsports, from Bonneville to Indianapolis to Sebring, from Pomona to Pikes Peak. He hustled back and forth across the country recording races and then tackling the laborious task of editing.

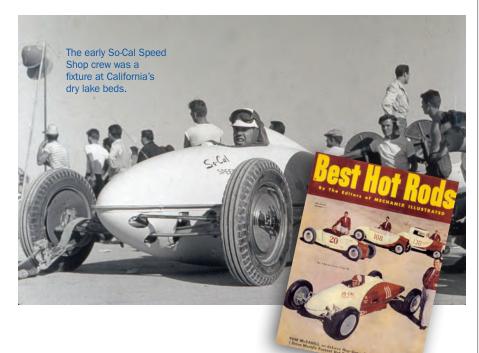
Sadly, Alex was way ahead of the curve and soon discovered that folks just weren't ready to pay to watch motorsports in a movie theater. Today, his films are precious screen captures of the glory days of racing in the '50s.

In 1963, Alex shuttered So-Cal Speed Shop and joined the staff of Petersen Publishing. He had been friends with Wally Parks and Robert E. Petersen since *Pete* launched *HOT ROD Magazine* in 1948. Heck, he even advertised in the very first issue.

Alex began as editor of *Car Craft* magazine, but after a year he moved over to Petersen's trade publication *Hot Rod Industry News*, first as editor and later as publisher.

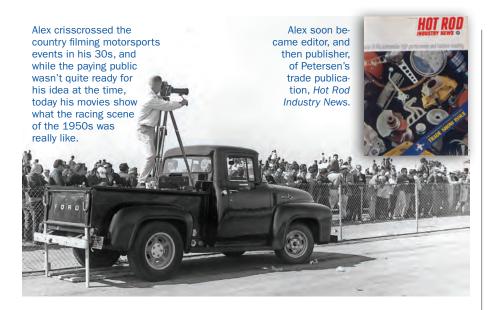
The first official SEMA trade show was held in 1967 under the cold, damp grandstands of Dodgers Stadium in Los Angeles. It featured 98 exhibitor booths and attracted 3,000 attendees, and Alex was there. It was working for Petersen on *HRIN* that Alex honed his trade show skills; heck, he knew everybody in the industry, and easily positioned himself for the next chapter.

After 12 years, Alex left Petersen and joined forces with Mickey Thompson, who had founded Southern California Off Road Enthusiasts (SCORE) in 1973





ALEX XYDIAS TURNS 100



with the intention of maintaining off-road racing in Baja. The events led naturally to the SCORE International Off-Road Trade Show that Alex ran in partnership with Thompson.

Meanwhile, Thompson had reasoned that nobody saw him racing in the desert, so in 1979 he invented short-course indoor off-road racing in stadiums such as the Los Angeles Coliseum. Sadly, in March 1988, Thompson and his wife Trudy were brutally murdered in the driveway of their home in Bradbury, California.

Alex was 66 and decided to retire, though little did he know that his career was far from over.

STILL GOING STRONG

Always a clever promoter, Alex continued to produce commemorative So-Cal Speed Shop catalogs and hold reunions for his buddies.

Then, in 1997, out of the blue, his friend Pete Chapouris called to say he'd had an epiphany. His hot rod business PC3g was struggling for an identity and Chapouris wondered if there was a way he could resurrect So-Cal Speed Shop.

Because Alex had protected the name for all those years with catalogs, reunions, etc., it was a simple formality to license the iconic brand and bring it back to life.

The new, uppercase-spelled SO-CAL was officially launched at the California Hot Rod Reunion in November 1997, and to say it took off like a SpaceX rocket would be an understatement. Chapouris was in the right place at the right time when people had tired of the cookie-cutter Hot



In 1963, Alex shuttered So-Cal Speed Shop and joined the staff of Petersen Publishing to become editor of *Car Craft* magazine.

Rods by Boyd and yearned for something more traditional.

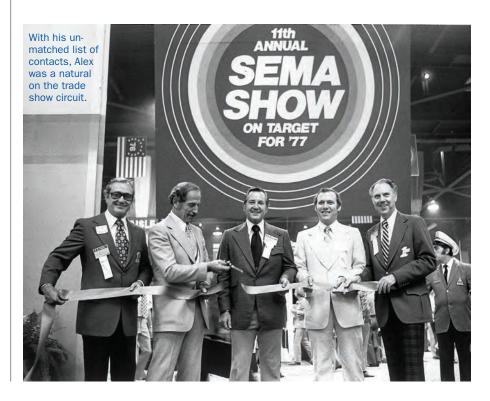
Alex was 75, but still had the enthusiasm and energy of a man 20 years younger, and no matter what the event or where, he was there waving the SO-CAL flag.

Without a doubt one of the highlights of the reborn SO-CAL Speed Shop was an association with GM to return to Alex's lakes racing roots and field a fleet of GM-powered, SO-CAL-liveried land speed racers. Included in the fleet was a concept belly tank as well as two race tanks that soon set land speed records.

Ironically, success on the salt came 60 years after Alex had first launched the speed shop.

And there was still more to come. In 2011, Alex was approached to lend his name to the Alex Xydias Center for Automotive Arts (AXC). Based at Fairplex Pomona, AXC was a component of Fairplex's Career & Technical Education Center and comprised a series of auto shop classes targeted at helping young people develop skills for a viable career in the automotive industry.

As would be expected, Alex was not a passive name-lender—he attended every committee meeting and many other events promoting the program until COVID-19 changed everything. He was also extremely active in fundraising, helping bring in the all-important dollars needed to fund such an undertaking.





Alex, shown here with Chip Foose, has left an indelible mark on the world of hot rods and racing.

After 100 years of rocketing around the sun, Alex Xydias has done more in each chapter of his life than most of us can hope to do in an entire lifetime. It makes you tired just thinking about it, but not Alex. **15**



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.





In 1997, Alex (left) and Pete Chapouris signed an agreement to bring the new, uppercasespelled SO-CAL Speed Shop back to life.



In 2011, Alex was approached to lend his name to the Alex Xydias Center for Automotive Arts (AXC).



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ా PERFORMANCE **Products**

GM Pickup Insulation Kits

Design Engineering Inc. (DEI), Avon Lake, Ohio, presents new custom-cut Damping and Insulation Kits for late-1960s to late-'90s General Motors pickup

models. CNC-cut for a precise fit, the kits offer thermal insulating properties through a blend of high-tech composite materials. Install the damping kit first to reduce noise and vibration, then finish with the insulation kit for total in-cabin comfort.





Fox Body Hydraulic Kit

Silver Sport Transmissions (SST), Rockford, Tennessee, presents Hydraulic Kits for Ford Fox Bodies that include everything needed to change out a cable clutch and replace it with a custom hydraulic kit. Features include a heavy-duty concentric slave cylinder, high-quality master cylinder and custom master cylinder mounting bracket for an aligned pushrod angle. The low-maintenance concentric slave cylinder is the same style found on today's cars, trucks and SUVs and is rated at 7,000 rpm.





Heavy-Duty Sway Bar Links

SuperPro Suspension, Australia, presents heavy-duty Sway Bar Links with extended threads. Designed to fit lifted vehicles from 2 to 8 inches, the systems allow users to set the sway bar length to provide adequate tail shaft clearance and sway bar alignment. They include quickrelease pins to return added flex if needed.

Ram 1500 TRX Mid-Pipe With X-Pipe

BORLA Performance Industries, Johnson City, Tennessee, presents its patented Cat-Back exhaust system for 2021-'22 Ram 1500 TRX models that improves horsepower and torque. The Mid-Pipe with X-Pipe (SwitchFire) delivers a performance sound without any drone or resonance inside the vehicle. The system is made from T-304 stainless steel and features all-welded construction for durability and long life.

Reuse the OE tips or add optional bright chrome or black chrome on T-304 tips.

Bronco Exhaust System

MagnaFlow, Oceanside, California, presents an Overland Series Exhaust System for Ford Bronco 2.3L turbo I-4 applications. The cat-back, direct-fit exhaust kit is designed to install easily, mounting closer to the undercarriage of the vehicle for significantly improved ground clearance. The system features 3-inch main piping that leads to a straight-through muffler before terminating in a single 2.5-inch, high-clearance side exit that further improves the rear departure angle versus the standard tailpipe.

Brake Fluid

Wilwood Disc Brakes, Camarillo, California, presents Hi-Temp 570 Racing Brake Fluid, now available in a newly released DOT 5.1-rated formula. The new, lower-viscosity fluid is specifically formulated to

allow modern ABS, stability control and brake-based limited-slip systems to react faster. The DOT 5.1-rated formula retains the 570-degree dry boiling point and other features of the previous DOT 3 fluid, and continues



to be highly resistant to aeration and foaming for improved pedal feel. It is not for use where silicone DOT 5 fluid is specified.



GM G-Body Billet Hood Hinges

Ringbrothers, Spring Green, Wisconsin, introduces G-Body Hood Hinge Kits. Precision machined from aerospace-grade 6061-T6 billet aluminum, the hood hinges are direct bolt-on upgrades for 1978-'88 GMC G-Body platform cars and require no modifications for installation. They feature a custom gas-charged strut to provide smoother action and are made in the USA with an open-air frame design for strength, durability and a distinguished look.



Hand Cleaner

Permatex, Solon, Ohio, introduces Fast Orange Antibacterial Pumice Hand Cleaner that includes antibacterial agents capable of killing 99% of germs. Designed for professional automotive technicians and DIYers, the cleaner is formulated using premium-grade surfactants and pumice, along with primary ingredients found in antibacterial hand soap to handle both grease and germs. It is available in 7.5- and 15-ounce squeeze bottles.

Master Differential Install Kits

Eaton, Galesburg, Michigan, presents Master Differential Install Kits that simplify the process of upgrading to an Eaton aftermarket differential. Each kit contains premium bearings and all the components needed to



properly install an Eaton differential and/or replace a ring and pinion. The new kits help with the installation of popular Eaton aftermarket differentials including ELocker, Posi, Detroit Truetrac and Detroit Locker for performance applications.

Merge Collectors

Burns Stainless, Costa Mesa, California, presents its line of Merge Collectors, including two-into-one applications. Made in the USA, the collectors are engineered for each application using the proprietary X-Design parametric custom exhaust design computer program. The collectors combine high flow and high velocity to increase and broaden an engine's torque curve all the way to the horsepower peak and beyond. The collectors are TIG-welded and hand-finished inside for proper flow.



Touring Tire

Pirelli Tire North America,

Rome, Georgia, introduces the P7 AS Plus 3 Touring All Season tire for sedans and coupes. Available in 31 sizes from 17 to 20 inches, the tire fits topselling vehicles including the Acura TLX, Ford Fusion, Honda Accord, Subaru Legacy, Toyota Camry, KIA K5 and Cadillac CT6. With a new tread pattern,



compound and construction, the tire is designed to provide better mileage, enhanced snow performance, improved wet/dry handling and a quieter ride.



BMW Exhausts

AWE, Horsham, Pennsylvania, presents all-new, 50-state-legal Cat-Back Exhaust configurations for BMW F8X M3 and M4 applications. The exhaust suite features the valved SwitchPath Exhaust that retains all factory valve behavior, and the Track Edition Exhaust for those seeking maximum aggression and weight reduction. **15**

PRECISIONENGINE

Flathead Build p.30

Engine Products p.36

Flathead 8BA Rebuild, Part 1

Fun with Ford's classic hot rod platform.

Build, text and photos by Mike Mavrigian

EDITOR'S NOTE: This is the first installment in a five-part series documenting the rebuild of a Ford flathead 8BA engine.

he Ford flathead was a popular platform for early rodders, and basically started the hot rod and performance engine movement. Production ran from 1937 through 1953, with one of the most popular versions being the 8BA (1949-'53).

Since I had never done a flathead before, I figured that it was high time to tackle one of these cuties. While other engine platforms have taken off with enthusiasts as the years have rolled by, the flattie has never really gone away.





After quite a bit of searching, we found an 8BA engine core on a northeast Ohio farm, salvaged from the bottom of a collapsed corn silo.

A staunch, diehard group of flathead folks have kept the engine alive and, in fact, it is enjoying a notable resurgence in popularity today. All things considered, it just made sense to build one for educational purposes.

In this project, I've rebuilt an 8BA, with a few aftermarket upgrades to enhance performance and appearance.

In terms of restoration of old components, in this build I've retained the original block, timing cover, rear cam cover plate and oil pan. Everything else is new, sourced from a variety of aftermarket suppliers.

THE START

The first challenge was to locate a rebuildable block. Through word of mouth (I have lots of buddies who know people), I located a pair of almost-complete 8BA engines in nearby Crestline, Ohio, a mere 50 miles or so from my tech facility.

The guy who sold me the engines said that they were both found at the bottom of a demolished corn silo. Don't you just love stories like that? Granted, I took a chance regarding the condition of the blocks, but my hope was that between the two engines, I'd have one block that was at least salvageable.

I picked up the engines on a typical nasty Ohio winter day—sub-zero temps, blustery, snowy, etc., so I wasn't about to take the time to disassemble them and inspect the blocks. I simply bought the engines with my fingers crossed-sometimes you just gotta take a chance!





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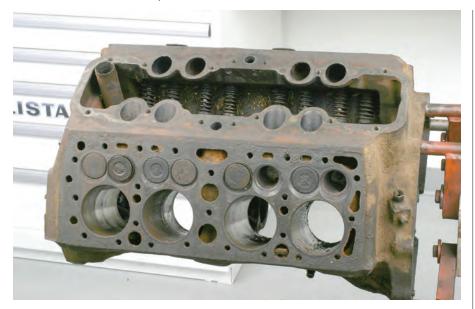
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After a labor-intensive teardown and initial degreasing, the block appeared crack-free and had never been over-bored, providing a good basis for the build. During block prep, bores were finished at 3.3125 inches (original bore size was 3.1875 inches).

During teardown of our block of choice, I managed to break only three bolts (one head bolt, one exhaust manifold bolt and one front cover bolt). That's not bad, considering that I was dealing with a block that was about 60 years old.

Following a pre-soak with light oil, the teardown involved plenty of help in the form of hammers, impact tools and the use of, shall we say, *coarse* language. Nothing came easy.

The original 8BA boasts 239 cubic inches of displacement. It features iron cylinder heads that are cast and machined slabs with no moving parts. The valves, springs and guides are positioned in the block, with valve heads facing upward toward the heads.

Basically, the heads simply serve to contain combustion and to provide a spark plug port for each cylinder. The cylinder heads are secured with 24 bolts each (some versions use studs). The earlier (pre-1949)



Note that the main block saddles feature curved grooves at each side, which register the main caps. However, there's a bit of play, so the caps must be tightened gradually in stages.

engines feature a *pancake*-style distributor, while the 1949-later versions have a full-size shaft-style distributor that angles to the right side.

The oil pump is located at the rear of the block, driven by a gear at the rear of the camshaft (via an intermediate gear). The front of the camshaft features a gear drive for the distributor and a timing gear that engages to the crankshaft's timing gear (no chain).

The block features two water pumps—one for the left side and one for the right side. There are several variants in terms of components (based on car or truck application and specific year), but this brief overview provides enough to cover the basics.

TAKE IT APART

Initial disassembly involved removing the water pumps, generator, intake manifold, oil pan, distributor and timing cover. Removing the pistons and connecting rods was more challenging (fighting decades of rust and dried-up sludge).

Several pistons needed to be persuaded



We opted for Edelbrock aluminum heads.



out of their bores by use of an impact chisel. With the crank removed, the chore of removing the valves, lifters and camshaft was even more daunting.

At this point, the partial short-block was soaked in solvent and then jet-washed to remove excess rust and sludge. Using a special crows-foot pry bar (available from Speedway and other flathead sources), the valve springs were compressed.

While each spring was compressed, a small C-clip was removed from the valve guide, which allowed the valve, guide and spring assembly to be removed from the block. Again, this wasn't easy (everything was stuck).

Once the valve assemblies were removed, the flat tappet lifters were pulled out of their bores—again with a bit of coaxing. The camshaft was stuck and required



The heads feature 65cc chambers.



Due to our piston dome radius, our increased stroke and the 65cc chambers, things got a little tight. We had the piston domes re-contoured at G.L. Heller. Here, a technician measures and plots the chamber shape using a CMM coordinate probe.



Piston dome height was also measured. The combined data was then uploaded to a CNC lathe, where each piston dome was lightly radiused to meet our required clearance.

nudging by removing the rear cover plate and tapping it out using a heavy drift and a hammer.

Luckily, I wasn't worried about saving anything except the block, so damaging the pistons, valves, lifters, cam, etc., wasn't a concern.

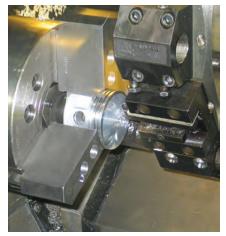
With the block empty, it was jet-washed again and crack-checked using a magnetic particle and a dye penetrant inspection. As it turns out, the bores had never been oversized (great news!).

We did find two small cracks between

two head bolt holes on the decks, but these were easily repaired by Jody at Medina Mountain Motors (Creston, Ohio) by drilling and pinning.

Jody then align-honed the main bores, and bored and honed all eight cylinders to accommodate our plus-0.125-inch Egge Machine Co. pistons (finishing to a bore diameter of 3.3125 inches, providing a 0.0035-inch piston-to-wall clearance).

A plateau brush was then used to finaldress the cylinder walls. Plateau honing *evens out* the microscopic peaks and valleys



Piston domes were quickly recontoured on a CNC lathe.

left by the honing procedure, which helps piston rings to seal much more quickly while allowing sufficient oil retention on the cylinder wall surfaces.

The lifter bores were cleaned by light honing, retaining 0.0015-inch oil clearance. The decks were then lightly cut (removing only about 0.0035 inch) to achieve a flaw-less surface finish.

At this point, I began test-fitting the rotating assembly. I chose a SCAT forged crankshaft with a stroke of 4.125 inches.

In combination with our bore diameter, this resulted in a final displacement of 285-ci (as compared to the original 239-ci). The original engine featured a bore of 3.1875 inches and a stroke of 3.750 inches.

THE CRANKSHAFT

OE SPECS	
OVERALL LENGTH	26.03"
MAIN JOURNAL	2.4990"
ROD JOURNAL	1.9990"
OUR SCAT CRANK	SHAFT
OVERALL LENGTH	26.03"
MAIN JOURNAL	2.502"
ROD JOURNAL	1.9900" (requiring 0.010" rod bearings from Egge)

TEST-FITTING THE CRANKSHAFT

After the block main bores were alignhoned, I installed a set of standard-size King Engine Bearings main bearings (supplied by Egge) in the block saddles and caps.

The caps are installed to the block with the bearing tangs all oriented to the right side of the block. I tightened each main cap's bolts in increments (starting at 25

pound-feet, then 45 pound-feet, then 75 pound-feet and finally 105 pound-feet), checking crank rotation after each step.

Our main bearing clearance measured 0.0025-inch. The reference materials I found indicate that OE clearance was specified at 0.000- to 0.0026-inch. (A zero as minimum!? That's what the goofy OE specs showed!)

With a dial indicator in place, I measured crank thrust (endplay) at 0.0025-inch. According to my reference materials, the OE end play range is 0.002- to 0.006-inch.

Note: the main caps feature radiused tongue and groove registration-a male radius on the caps and female grooves in the block. These registrations are not very precise, as you can slightly wiggle the caps (especially cap Nos. 1 and 2) prior to tightening. I slowly tightened and rechecked crank rotation in gradual steps, to help the caps align. This seemed a bit archaic, but sometimes you gotta do what you gotta do.

Also, when align-honing the block, you can't cut the caps down, due to the male registration tongues. Instead, you must machine the mating surface at the block to reduce the bore diameter prior to align-honing.

Since I'm using a 4.125-inch stroker crank, naturally I checked crank counterweight and rod big end clearance to the block. Surprisingly, the counterweights and the rod big ends cleared everything by a mile (about 0.250-inch was the tightest spot), which was really cool.

However, the left side of the block had a fairly tight clearance of about 0.050-inch to the rod I-beams at the inboard edge of the cylinder bottoms. I marked these locations (all four cylinders on the left bank) and ground a slight chamfer at these locations to achieve about a 0.100-inch clearance.

I also checked rod side clearance at all four rod pin locations, at a consistent 0.020-inch.



The finished dome shape was changed from an original radius of 5.304 inches to a "softer" radius of 6.985 inches. With a 0.057-inch-thick head gasket, we have a piston-to-chamber clearance of 0.057-inch.

CYLINDER HEAD FITTING

Our Edelbrock heads, P/N 1115, feature 65cc chambers. During test-fitting with 0.060-inch copper head gaskets we ran into a clearance issue (not uncommon with aftermarket pistons).

After claying the piston dome and installing a copper head gasket and an Edelbrock head, the piston contacted the head, preventing it from reaching top dead center. I removed the head and began measuring.

CRANK & ROD CLEARAN	CE SPECS & RESULTS
FORD SPECS	
Main bearing clearance	0.000" to 0.003"
Crank endplay	0.002" to 0.006"
Rod bearing clearance	0.0005" to 0.003"
Rod side clearance	0.006" to 0.020"
OUR MEASURED RESULTS	
Main bearing clearance	0.0025"
Crank endplay	0.003"
Rod bearing clearance	0.002"
Rod side clearance	0.020"
8BA BORE/STROKE	
OE BORE	3.1875
OE STROKE	3.750
3.1875 x 3.1875 x 3.750 x 0.7	854 x 8 CYL = 239 CID
OUR BORES	3.3125 (+0.125")
OUR STROKE	4.125
3.3125 x 3.3125 x 4.125 x 0.7	854 x 8 CYL = 284.39 CID
FIRING ORDER	
1-5-4-8-6-3-7-2	
(right bank, front to rear cylinde (distributor rotation: clockwise)	rs 1-2-3-4; left bank, front to rear cylinders 5-6-7-8)
(distributor rotation, clockwise)	
PISTON-TO-WALL CLEARANCE	0.003"
FISTON-TO-WALL CLLANANCE	0.003
PISTON RING GAPS	
OE	Top 0.007" min, 2nd 0.007" min, oil rail 0.015" min
OUR RINGS	Top 0.019", 2nd 0.014", oil rail 0.015"
OUR RINGO	10p 0.013 , 2nd 0.014 , 0n run 0.013
FASTENER TORQUE VALUES	
MAIN BOLTS	105 lb-ft
ROD BOLTS	45 lb-ft (w/ARP moly)
NOD BOLIO	(our rod bolts are ARP 8740 3/6" diameter x
	1.600" shank length)
CYLINDER HEAD BOLTS	60 lb-ft (in three steps)
WATER PUMPS	23-28 lb-ft
INTAKE MANIFOLD BOLTS	12 lb-ft, followed by a final 24 lb-ft
TIMING COVER	18 lb-ft
OIL PAN	12 lb-ft



The original bushing installs to the block.

With a piston positioned precisely at TDC, the center of the piston dome measured 0.304-inch above the block deck. Our head chambers (at center) measured 0.200-inch deep (leaving about a 0.104-inch difference).

Factoring in the 0.060-inch-thick copper head gasket, we would need to relieve the head chamber by about 0.044-inch in order to hit zero clearance. To achieve a desired 0.050-inch piston-to-head clearance, we would need to relieve the chambers by about 0.094-inch.

When discussing this with Armin at Best Gaskets, he suggested using the company's GraphTite gaskets P/N 536 G 1 (LH) and 536 G 2 (RH). The GraphTite gaskets measure about 0.052-inch thick (crushed).

Our choices included either relieving the cylinder head chambers or cutting the pistons. The easy (and less expensive) route was to have the piston domes re-radiused on a CNC lathe.

A visit to G.L. Heller Co. in Whitehouse, Ohio solved the problem in short order. The talented team at Heller plotted the radius of the head chamber bowls and the radius of the piston domes (since the pistons were to be cut anyway, we decided to match the piston radius to the chamber radius).

Using its CMM (computer modeling machine), the head chamber bowls were measured at a radius of 6.974 inches and a center depth of 0.212-inch. The Egge domed pistons featured an original radius of 5.304 inches. After cutting the piston domes on a CNC lathe, the finished piston domes featured a radius of 6.985 inches (the dome height was reduced at the center, tapering out to a zero cut, with the cut stopping about 0.100-inch short of the outer edge.)

During the final test-fitting in our block, this provided a clearance of 0.005-inch without a head gasket. With the 0.052-inch gasket in place, this provided us with a running clearance of 0.057-inch.

This worked out great, and was definitely quicker and less expensive than CNC-programming and cutting the head chambers.

FINAL NOTES

My visit to G.L. Heller (glheller.com) was an absolute treat. This very high-tech machining and fabrication company specializes in prototype and mass production of components for a variety of manufacturing and military customers.

The massive complex is chock-full of computer-controlled milling machines, lathes, water jets, robotic stations and more. This isn't your typical machine shop. These guys deal in very exacting-tolerance machining at the highest levels.

While they don't specialize in automotive engine components, at the very least, whenever I need a set of pistons cut again, this is the only place I'll hit.



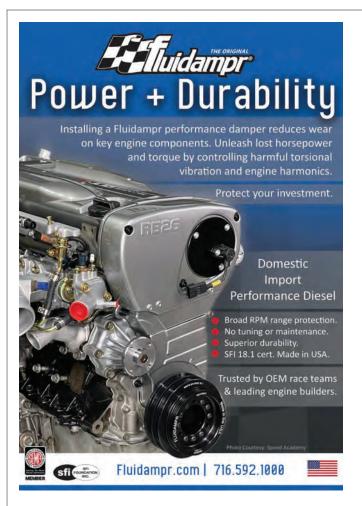
The aluminum bushing liner is installed.

Meanwhile, next time we'll tackle dressing the block exterior and balancing the crankshaft, plus the cam gear, valves, springs and lifters. **15**



MIKE MAVRIGIAN owns and operates Birchwood Automotive in Creston, Ohio, where he builds custom engines and street rods, and performs vehicle restorations. He has written thousands of technical articles, as well as nine books on automotive technology during the past 30 years. Mike can be reached at (330) 435-6347 or

birchwdag@frontier.com. Visit Birchwood's website at birchwoodautomotive.com.







Diesel Rods

Boostline, Mentor, Ohio, part of Race Winning Brands, presents new Diesel Connecting Rods for 2002-'12 Chevy/GM pickups equipped with 6.6L Duramax engines and 1989-2012 Dodge/Ram pickups with 5.9L or 6.7L Cummins engines. Designed to handle serious increases in power and boost, the rods are forged from ultra-strong 4340 steel alloy and feature a patented three-pocket design that provides a 60% improvement in bending strength and a 20% stress reduction compared to conventional H-beam designs.





Lucas Oil Products. Indianapolis, presents Lucas Sure Start Premium Starting Fluid. Specifically formulated to help start stubborn engines and compatible with both diesel and gasoline engines in passenger cars, diesel engines. lawn mowers,

chainsaws, outboard motors and fractional horsepower engines, the 50% ether blend includes an effective lubricant for cold-weather starts.



Camaro/Cadillac Drop-In Fuel Pump Modules

Aeromotive Inc., Lenexa, Kansas, introduces new direct Drop-In Fuel Pump Modules for 2016-'21 Chevrolet Camaro and 2016-'19 Cadillac CTS-V and ATS-V applications. Available with dual or triple pumps, the modules come preassembled for a quick and simple installation. They work in conjunction with the factory plastic fuel tank and utilize the OE tank

venting, Jet Siphon system and fuel level sender. A factory-sized outlet cap with single -10 outlet port maintains fitment with the factory fuel tank and lock ring.

Dodge Chassis Cab Exhaust Manifold

BD Diesel, Abbotsford, British Columbia, presents an Exhaust Manifold for 2013'18 Ram 2500/3500 chassis cab trucks. The BD Diesel Ram 6.7L Cab & Chassis two-piece exhaust manifold is made from thick-walled high silicone ductile iron designed to resist thermal warping. Each manifold is gasket-matched and designed using 3D flow simulations to optimize flow from the engine to the turbocharger.



EFI System

Holley Performance Products,

Bowling Green, Kentucky, presents its Terminator X Stealth 4150 2x4
EFI systems with eight 100 poundper-hour fuel injectors capable of supporting up to 1,500 hp for naturally aspirated combinations or 1,250 hp on forcedinduction applications. The Terminator X ECU is capable of fuel map self-learning and ignition timing control, improving idle stability, drivability and wide-open throttle horsepower. Kits include a **Bosch** LSU 4.9 wideband oxygen sensor, weld-in O2 sensor bung, and TPS/IAC and fuel pressure regulator.

GM Truck Supercharger

ProCharger, Lenexa, Kansas, presents a Supercharger System for 2021 GM truck models. Offering the ability to bolt on up to 50% more power to 5.3L and 6.2L Chevrolet/GMC pickups, the systems deliver big power gains on premium pump gas (45-50%) and are available in various color finishes. Powerband gains match the 10-speed transmissions found in these vehicles.



2022 Ram Tuner

DiabloSport, Sanford, Florida, presents the Pulsar tuning system, now available for 2022 Ram truck 5.7L applications. Offering on-the-fly adjustments and true power gains, the Pulsar is an in-line computer that connects directly to the vehicle

PCM. It has the ability to control the vehicle's

signals to optimize performance gains, throttle response,

MDS controls, mileage and more. Eight performance levels are available through the vehicle's cruise control buttons on the steering wheel, and power levels are displayed where the gear indicator shows on the dash.

Wrangler JK Supercharger System

Magnuson

Superchargers, Ventura, California, presents a Supercharger System for 2012-'18 Jeep Wrangler JK models. The 50-state emissions-legal system comes complete with calibration and handheld



device, and includes a TVS1900 supercharger matched to Jeep's 3.6L V-6 engine to produce more than 400 hp and 365 pound-feet of torque.



Bully Dog, Sanford, Florida, presents the BDX Handheld Performance Tuner, now available with preloaded tunes for Dodge Cummins diesel applications. Designed to deliver power for tackling tough terrain, pulling a heavy payload or maximizing fuel economy on the highway, the BDX includes a sleek design, full-color display and customizable gauges to help track and adjust powertrain performance. Features include cloud-based Wi-Fi tuning updates. The device will not modify or delete vehicle emissions.





Porsche Piston Kits

MAHLE Motorsport, Fletcher, North Carolina, offers a complete line of Porsche-specific Piston Kits, including a new Porsche 911 2.5L Short Stroke application. The pistons are machined from forgings with narrower and shorter skirts to reduce weight and friction and are dual-coated with phosphate and proprietary GRAFAL skirt coating to reduce drag, wear and noise. Piston kits are supplied with performance ring sets to provide more consistent contact with the cylinders, resulting in increased sealing and oil control.



Civic Intercooler System

Skunk2, Norco, California, part of **Group-A Engineering**, presents a new Front-Mount Intercooler System for 2016-'21 Honda Civic models with the L15B7 1.5L turbo engine. The bolt-on solution reduces intake air temperatures to maximize performance, flowing a higher volume of air. The included 2.25-inch aluminum tubing further increases airflow and aids in temperature reduction due to better heat dissipation versus the stock plastic.



Fuel Pressure Regulator

Snow Performance, Wichita Falls, Texas, presents its Compact Billet Fuel Pressure Regulator. The regulator combines a fluorosiliconecoated Nomex diaphragm and all stainless steel internal components including the regulator spring with a CNC-machined billet aluminum body. The regulator quickly responds to a vehicle's ever-changing fuel flow demands and is compatible with any type of fuel including E85 and methanol. 7\$

ESTIJIII CONTROLLING AFTERMARKET ACCESSORIES

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Products p.60



offering safety and utility benefits and a rugged 4x4 appearance, the products are high on the lists of truck, SUV and Jeep owners looking to upfit for their next adventure.

For off-road shops wanting to connect with overlanders, rock crawlers and everyone in between, winches provide an entry point that can lead to a wide variety of complementary sales. From the ropes, hooks and controllers that complete the systems, to winch-mount bumpers, light bars and related add-on accessories that deliver a finishing touch to any project, correctly retailing and installing these items

Whether you display them in the showroom or on a shop vehicle, winches attract plenty of attention. Add in technological advancements that are driving the industry, and suddenly there's a lot more to these simple electric motors than meets the eye.

Manufacturers are happy to get shops up to speed, addressing not only their newest innovations, but sizing and sales tips that will build confidence with your local wheeling community and set you up with an anchor point for increased off-road sales.

TRAIL TECH

New technology is helping the winch

market evolve. Not surprisingly, some of that innovation involves mobile phones.

"Bluetooth-enabled communication devices are now available to connect premium winches to smartphones," says Jane Donnelly, marketing director for TrailFX. "Winch operation is controlled through an app that can also monitor load and motor temperature to ensure safety."

Warn Industries' HUB Wireless Remote is one such mobile device-controlled system, says Andy Lilienthal, strategic communications manager.



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GRAB ON







"We have a custom-developed app that pairs with the HUB that lets users have control of their winch using their phones. This means if you've got your phone, you've got a winch controller," he explains.

Industry advancements include user features as well.

For instance, "new technology is enabling Superwinch to incorporate leading-edge design options like our patented lighted drum and handheld wireless remote at a very affordable price point," notes Steve Stein, sales manager, Westin Automotive Products.

Kathryn Reinhardt, director of retail marketing for 4 Wheel Parts/Transamerican Auto Parts, explains that off-road customers appreciate innovation and advancements.

"The market is always looking for the latest in features, as well as the best in efficiency and speed, all at a reasonable price," she says. "Our new X2O winches feature something different with USB connectivity that allows the customer to charge the remote or other devices that use a USB port right on the winch."

SHOW YOUR STRENGTH

Going undersized can be a mistake when it comes to selecting the right winch for your customer. When push comes to shove, the systems need to have the strength to perform on the trail.

There's some math involved to avoid any problems.

"Our formula is to take the vehicle's GVWR and multiply it by 1.5 to get the minimum pulling capacity," Lilienthal explains. "Putting an 8,000-pound-capacity winch on a full-size truck is likely going to be under capacity for such a heavy vehicle."

Reinhardt phrases it this way:

"Common use of measurement for load rating is to determine the vehicle's weight. Consider the weight of the equipment that will be on the vehicle, plus any modifications that add weight as well. Once the vehicle's weight is determined, add a cushion about 50% of that weight—some suggest 30%-50%, but 50% is safer and there's less of a risk of the winch stalling or slowing down—to get the suggested pull rating for the winch they will need."

Capacity and reliability can extend beyond the winch motor to the rest of the system, including accessories. Stein says one item to keep an eye on is synthetic rope.



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the Trax Rail System maximizes cargo capacity, with the cover open or closed, providing incomparable versatility, and is compatible with T-slot accessories from Yakima®, Thule®, Rhino-Rack®, and more, creating endless possibilities.







"Modern synthetic ropes like the one used on the new Superwinch SX Series offer superior safety and performance, and when used correctly can provide many years of winching duty," he states.

When it comes time to work with enthusiasts new to overlanding or off-roading, it's important to educate them on the uses, features and benefits of their new winch.

"Some customers may be seasoned offroaders, but many may not be," says Donnelly. "Shops should spend some extra time with first-time winch buyers to ensure that they understand how to safely operate their winch in a variety of recovery situations."

Take it a step further, she adds, by ensuring the user also has proper safety accessories, such as a cable damper and gloves when operating a steel-rope winch.

SALES GOALS

As an important convenience and safety item, it may seem as if winches should sell themselves. Still, there are things shops can do to add profit and personality to every transaction.

"There's the ability to offer installation, which will help make some extra cash," notes Warn Industries' Lilienthal. "Additionally, there's a wide variety of winching accessories that can be sold along with the winch. This includes accessory kits, or à la carte items such as shackles (soft or screwpin style), snatch blocks, winching gloves, tree straps, carry bags, winch line dampers and winch rope extensions."

You can also suggest related categories, such as bumpers and lighting, suggests Reinhardt of 4WP/Transamerican.



Hot Winch Products

■ HOT PRODUCTS:

New Smittvbilt X20 Gen3 Winches

■ FEATURES & BENEFITS:

Offered in 10,000- and 12,000pound applications; synthetic line; 7-hp motor; IP68 rating; USB connectivity; improved Delta Hook; new forged gears; spool-ready out of the box.

> 4 Wheel Parts/Transamerican Auto Parts Kathryn Reinhardt Director of Retail Marketing

HOT PRODUCT:

TrailFX XV95 Winch

FEATURES & BENEFITS: A

9,500-pound, steel rope winch; 5.7-hp motor; automatic full-load braking system; three-stage planetary gears; automatic clutch; 11-feet-per-minute line speed; 260-amp draw at load; budget-friendly.

TrailFX
Jane Donnelly
Marketing Director

■ HOT PRODUCT:

VR EVO 10-S Winch

■ FEATURES & BENEFITS: Twoin-one wireless controller that allows for corded and cordless operation; attractive price point; superior warranty coverage.

> Warn Industries Andy Lilienthal Strategic Communications Manager

■ HOT PRODUCT: All-new SX Series Winch by Superwinch

■ FEATURES & BENEFITS: Engineered for power, speed, innovation and performance; available in 10,000- and 12,000-pound capacities with conventional wire or synthetic rope; modern, integrated design; relocatable control box; patented drum light; wireless handheld remote.

Westin Automotive Products Steve Stein Sales Manager



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"Most vehicles are not winch-ready, so if a customer wants a winch, they need a way to mount it," she says. "This allows shops to upsell into a bumper and possibly lighting."

Excitement for the winch market can be generated through showroom displays, notes Stein of Westin.

"Superwinch now offers a compact and attractive display rack that takes up a minimum amount of space while allowing your customers to see this exciting new product up close."

And there will also be opportunities to build long-lasting connections with



Shops should spend extra time with first-time winch buyers to ensure that they understand how to safely operate their winch in a variety of recovery situations. (Photo courtesy TrailFX)

passionate enthusiasts, adds Donnelly of TrailFX.

"Shops that enter the winch market can expect to develop relationships with the offroad and overlanding communities in their area, which will inevitably lead to off-road accessory sales and the potential to expand into adjacent categories such as racking systems, rooftop tents and electric bicycles, which are rapidly gaining popularity." **15**



ypertech secured a spot in the Ford Motor Co. booth at the 2021 SEMA Show for its customized 2021 Ford F-150 Lariat Sport Hybrid Super Crew FX4 pickup. The bright-blue beauty attracted plenty of attention and was well-equipped with plenty of accessories—including one that made its driver extremely happy.

Professional fisherman John Garrett will be using the truck for the 2022 Bassmaster Open Tournament season. He penned an article for Bassmaster documenting the truck's unveiling and his SEMA experience. In it, he expressed his happiness in discovering the F-150 includes a front-mounted winch.

Garrett picks up the story:

"You may remember last year when a Bethel (University) teammate got his truck stuck in the Texas mud and then I got stuck in the same mud trying to help him. (Finally, Chris Jones had to pull both of our trucks out of the Texas mud and mire)," he writes. "My new

truck now features Warn Industries front and rear bumpers and an awesome VR EVO 12-S winch that make easy work of any similar future situations."

The F-150 is outfitted with a variety of convenience and utility accessories. Garrett says it is "all about fishing, fuel economy and classy Ford styling... This vehicle is an outdoorsman's dream ride for hunting or fishing adventures in any weather."

And if it gets stuck, it shouldn't stay that way for long.



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FIND YOUR MAY RACK

There's a device or an app for that.

dopted by campers and overlanders who enjoy life off the beaten path, the saying, "Not all who wander are lost" originated in a poem, *All That Glitters is Not Gold*, from J.R.R. Tolkien, author of *The Lord of the Rings*.

Increasingly, however, there's a need for off-road enthusiasts to know where they are and where they're going.

As overlanding has grown, so has the need to stay within boundaries. Trespassing on private land or regulated public areas is inexcusable, and can negatively affect the entire overlanding community.

Off-limits areas can include state and national parks, private reserves and government-restricted land. So, how do you steer your 4x4 customers clear of these issues when they're eager to go out and blaze a trail?

Navigation is the answer, available through a variety of devices and applications. Some are tools mounted on a vehicle with mapping software that can be seen on a desktop, laptop or mobile device. Others are applications for tablets, smartphones or existing in-dash receivers.

What's the most essential part of any

off-road GPS app? Offline capability when there's no service. Offline maps for Apple or Android should quell any concerns, and ensure a more enjoyable off-highway experience.

Story & Photos by Jason R. Sakurai

GEAR UP TO GO

At the 2022 Consumer Electronics Show, Garmin unveiled three new Tread series devices with enhanced all-terrain navigation and worldwide communications capabilities for overlanders and powersports enthusiasts.

The 10-inch Tread XL Overland and 8-inch Tread Overland Editions, along



premium Fabtech products or visit www.fabtechmotorsports.com









FIND YOUR WAY BACK







Garmin's 10-inch Tread XL Overland Edition is well-suited for overlanding and expeditions. (Photo courtesy Garmin) with the 8-inch Tread SxS Edition, are made for overlanding, off-road expeditions and adventurous jaunts. Touchscreens, turnby-turn navigation, inReach global satellite communications and group tracking options provide greater range and connectivity.

"We're excited to offer enthusiasts these additions to our Tread lineup. They now have the freedom to explore and ease of mind thanks to inReach communication, so they can be in touch wherever their adventure takes them," says Dan Bartel, Garmin vice president of global consumer sales. "Plus, the new trail-routing and group-ride features help to stay connected in more remote areas."

Tread Overland Editions offer turn-byturn unpaved road and trail navigation using Adventure Roads and Trails map content from OpenStreetMap and the U.S. Forest Service's motor vehicle use maps.

If you're unfamiliar with inReach's global satellite communication technology, it provides two-way text messaging, location sharing and interactive SOS. Some areas prohibit satellite communication use, however, so it's important to know where your customers are planning on using their devices.

Tread's Group Ride Mobile tracks friends on a compatible device or smartphone. Subscription-free BirdsEye Satellite Imagery maps, U.S. public and private landowner information, topography with 3D maps, points of interest and public campgrounds information are among its attributes.

Maps, vehicle profiles and route preferences on a Tread device can be used with the app to plan trips on a smartphone. Garmin's PowerSwitch digital switch box provides 12V accessory control, and the Garmin GPS dog tracker can locate a wayward pet.

For side-by-side owners, the Tread SxS Edition incorporates all the same navigational features and is built to military-grade drop test standards to withstand the most challenging terrain. Tread works with other devices including Group Ride Radio and its push-to-talk microphone function.

The Tread XL Overland Edition was a CES 2022 Innovation Awards honoree.

VIDEO ASSISTANCE

Magellan offers the TRX7 CS Pro Trail and Street GPS Navigator setup with an 8MP camera that automatically records when approaching trails.

The TRX7 CS Pro records while tracking,



FIND YOUR WAY BACK



saving waypoints and notes. Later, with the vehicle stopped, more detailed waypoints with audio recordings, coordinates and locations can be input, and viewing the track will show what's ahead.

The TRX7 CS Pro features approximately 160,000 OHV routes through forest and public lands, plus street navigation to get to the trail. Routes can be searched on the unit or at trxtrailhead.com, a database accessible by desktop, tablet or smartphone.

Searchable by location, track, difficulty and user rankings, trails can be viewed ahead of time or for future excursions. With observations, rankings and the latest information, adventures are safer and more enjoyable.

Instant video playback with an intuitive interface simplifies trail following and track recording. It identifies land features on the route and has a high-res 3D terrain map and a 2D topographic view with U.S. and Canadian contour lines.

With a Social Post button, tweets from the trail post instantly if a phone is used as a hotspot or when Wi-Fi is connected. Trail updates and photos can also be shared on Twitter and Instagram.

Meanwhile, tracks shared on trxtrail-head.com help provide a more enjoyable off-highway experience. 4WD use, trail conditions and obstacles can be entered while saving, or added before publishing a track. When uploaded to a TRX account



Magellan's TRX7 CS Pro Dual Mount Trail and Street Navigator comes with access to more than 160,000 trails. (Photo courtesy Magellan)

while connected to Wi-Fi and posted to the community database, others can use the information to search tracks, view observations and check routes.

Additional highlights include off-course notification and Backtrack to guide the user to a trailhead, campsite or chosen starting point.

Downloading the TRX app for Apple or Android provides access when users are away from their devices. A RAM Dual Mount attaches the TRX7 CS Pro Trail and Street GPS Navigator to the windshield with a suction cup or tubing.

APPLICATION FIXATION

Announced at the 2021 SEMA Show, onX Offroad's navigation app is now in-dash compatible with Android Auto and Apple CarPlay. Some 550,000 miles of trails are accessible by onX members through a vehicle's infotainment system with its native layout and touchscreen.

The app's enthusiast point of view can be seen in the upgrades. Features include the ability to find trails within 100 miles of a user's location with a single tap, or view wildfire locations and boundaries.

The system shows trails and recreational areas across public and private lands. Tracks, lines, waypoints, campgrounds, scenic areas and gas stations can be viewed, making the trail an epic adventure.

"While onX Offroad's mobile app answers the question 'where can I go?' we wanted to enhance the driver experience. Now they can see what's ahead from the trail, using technology already in their dashboard," says Rory Edwards, onX Offroad GM.

Smartphone compatibility combines waypoint, trail or location selection and turnby-turn navigation to get there. It recognizes paved roads and navigable dirt trails, with directions to the trailhead or campsite.

Another onX Offroad feature debuting in early 2022 is Route Builder, which lets users link one adventure to another, integrating trails and routes for hours-long or multi-day journeys. Android Auto and Apple CarPlay enable turn-by-turn navi-





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- *Winch and lights are not included



















FIND YOUR WAY BACK







gation, and users can share their routes with friends.

"Clear, concise trail direction is a major pain point, going back to trying to read a map while moving," Edwards notes. "Pairing Route Builder with in-dash displays will route users from trail to trail, even over pavement, for a safer, more enjoyable time exploring. Second-guessing your co-pilot, switching apps, double-checking your location and going only where there's cell service will be behind us." The onX Offroad offerings are available in three configurations. Basic users have free satellite, topo, and base map apps, plus custom waypoints, localized weather and synching to the cloud. Premium membership adds unlimited offline maps and public land boundaries, 550,000-plus miles of roads and trails, trail duration, obstacle photos, difficulty ratings, descriptions, photo waypoints and 3D maps. In addition to Premium benefits, Elite membership provides private land ownership information.

THE OUTSIDE EXPERIENCE

About a year ago, Gaia GPS, an app that can be downloaded to smart devices, became part of Boulder, Colorado's Outside Inc., an outdoor journalism leader. There's a free basic Gaia GPS app that allows users to plan new routes, record tracks in the field or use the worldwide Gaia Topo map.

With a Gaia GPS Premium paid membership, the map catalog, National Geographic Trails Illustrated, high-res satellite imagery, slope angle shading and USGS maps are included. Maps can be layered to find camping sites and trails, and avoid burn zones. They can also be downloaded for use away from cell service.

Outside+ bundles *Outside*, *Backpacker* and *SKI* magazines with 30 other titles and gives access to OutsideTV, online courses, event passes, and print books and other publications.

Gaia GPS now connects with both Android Auto and Apple CarPlay, bringing the app's trail maps directly to a vehicle's navigation screen. Motor Vehicle Use Maps, satellite imagery, National Geographic Trails Illustrated and more can be pulled up on the dash.

Also, waypoints and turn-by-turn directions can be viewed with any saved route on dirt roads or pavement anywhere, with no cell service needed.

Free CarPlay or Android Auto connectivity is available to anyone using the Gaia GPS app. However, a Gaia GPS Premium membership is required to access the entire map catalog and to download maps for offline navigation.

Overlanding treks have never been easier, thanks to the innovative devices and apps that are now available. Take the time to learn about each of them, so that you can discuss their features and benefits with your customers.

They'll be more informed and betterequipped to wander without getting lost. **75**



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

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



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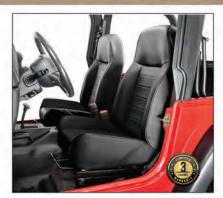
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ou can't sell a salesperson!"

Even though we've all heard someone say that, if it were true then there would only be one layer to the sales process—manufacturers selling to

customers. There would be no middlemen.

Every day in every industry, salespeople are selling other salespeople on why to go with a certain product or service. However, ask a person on the street what they picture when they think of a *salesman* and they'll

most likely describe—yes, you guessed it—our friends at the car dealerships.

As a restyler, it's important for you to sell your products and services to these dealership sales professionals. If you're enthusiastic and honest, and deliver what you promise, the process can be fun and rewarding.



I have met, known and am friends with many car salespeople, and I am here to tell you a little secret: as much as they like to sell things, they like to buy things, too!

Two things I appreciate about car salespeople is that they know a good thing when they see it and they appreciate a hardworking salesperson. In fact, selling cars can sometimes be a thankless job when you think about the hours and schedules dealer salespeople keep, the knowledge they must have on the products they offer, and the stigma—and many times outright distrust—they need to overcome when talking to a potential customer.

Many people think they are being lied to when being sold a car when, in fact, it's the salespeople who hear the most untruths, whether it's about credit scores, likes and



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- PROTECTS ROCKER PANELS AND/OR AGAINST DOOR DINGS
- FITS 5FT BED













dislikes or even why the person chooses to buy the vehicle or doesn't.

Car salespeople put up with a lot more than the local jeweler or contractor. Don't get me wrong—there are still a few of those *badger* salespeople out there in the car world, but they are disappearing.

So, how do you as a restyler *sell* the people who need to be at the top of their game just to make a living? You go to their sales meetings and sell yourself.

Show Some Value

First and foremost, they must know you, and that means multiple visits introducing and reintroducing yourself to dealership personnel. Get to know the sales team, sales manager, receptionist, parts manager, service manager and even the guys on the lot. The more people you know at the dealership, the better off you'll be.

Then, you must at some point show why you deserve a few minutes to speak at their next sales meeting. Maybe you are just trying to get your foot in the door, or perhaps you are offering a new product line and you want to make sure everyone at the dealership is aware of it. Or your company could be introducing a new service that you

would like to pitch.

When we added window tint and paint protection film here at Auto Additions, we needed to have meetings with all of our dealerships to let them know about the products—their availability, their ben-

efits and their profit-producing potential. Dealership meetings were the first step to getting those new products off the ground.

Another example is when we released our new Auto Accessory Configurator software that helped our dealership customers look up, sell and order our accessories. Demonstrations at sales meetings showed the dealership personnel the benefits of using our new tool.

Whatever the reason for your meeting, don't overthink it. You can come up with almost anything to talk about for 10-15 minutes.

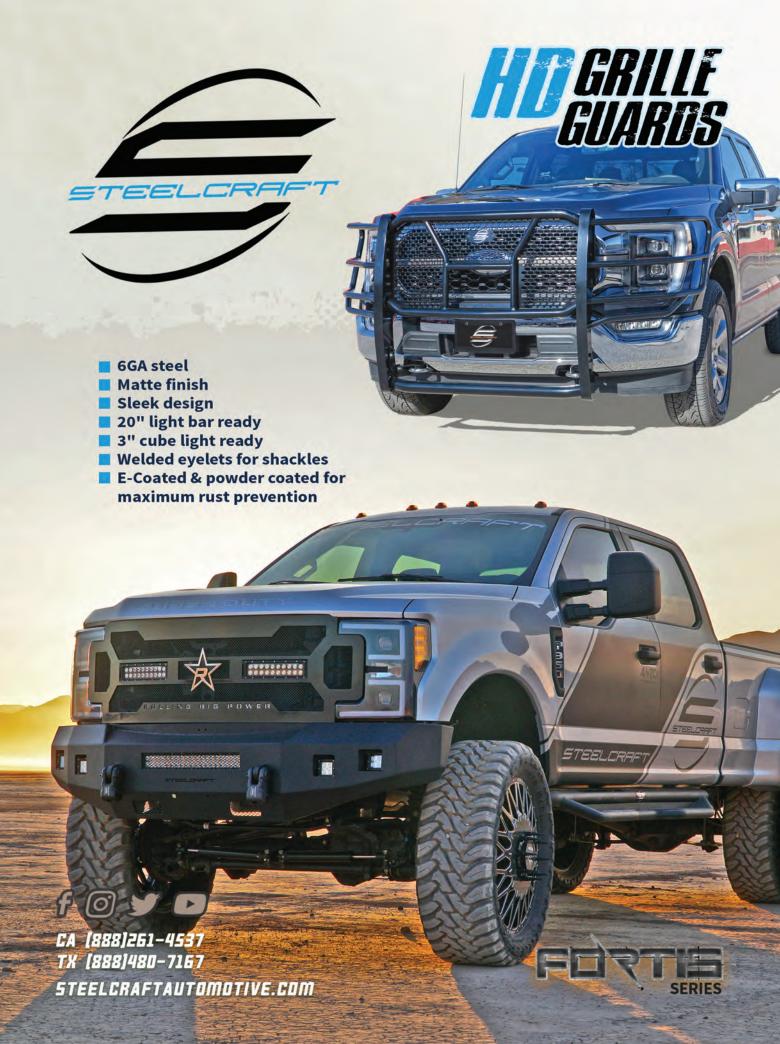
Remember that the sales managers who run these meetings and have agendas to fill are usually excited to talk to their staff about something new. I am rarely ever told no when asking for time at a meeting. In fact, most dealers like to put restyler partners on a rotation where you have a quarterly or monthly slot to come in and talk to their staff and fill some time.

Timely Reviews

Once you've built the relationships, an easy reason for visiting sales meetings is to review top products right before their selling seasons, such as remote starts and heated seats in the winter, and sunroofs and window tint in the summer.

Products change not only with the seasons but with new model releases as well, so you should never have problems finding fresh things to highlight. Currently, we







are meeting with our Ford dealers discussing Bronco and F-150 products, and Jeep dealers to showcase our offerings for Wranglers and Gladiators.

Getting Better

Another reason to have a meeting is to make sure the sales staff is properly trained on how to offer your products.

Dealership managers are always looking for ways to help their sales staff improve, and appreciate a detailed approach on how to take a lower-model vehicle and add one or two main accessories from a higher-end model a customer likes but can't afford.

It's also important to explain any differences from the factory parts. Sometimes there are advantages to aftermarket accessories and the sales staff needs to know what they are, such as warranties, features, etc. Again, all of this is done in a sales meeting.

Let's Eat!

Now that you have a meeting scheduled, plan your attack—and start with food! There is no better way to grab the attention of a group of individuals than by bringing a gift, and food usually does the trick.

If it's breakfast, don't just grab donuts. Get some warm breakfast sandwiches or nice pastries with all the different cream cheeses. If you go cheap, you are sending the wrong message, whether you mean to or not.

Don't forget the drinks, plates, napkins and forks. A little extra money and effort will go a long way. Arrive early and set everything out—that way, once the meeting starts you are ready to go.

Presentations should be kept to around 10-15 minutes unless the questions keep coming. There's no need to bore them with stories or a ton of facts—simply give the information and show how it can benefit them.

Most of the time, people won't remember exactly what you said at a meeting, but they will remember you being there and what your company does. Then, when a question or need arises, it will trigger them to call you—the person that came with food and talked to them!

Timing is Everything

Try to attend meetings when the entire sales force is together—sometimes this is on Saturday mornings. My advice is to avoid the end of the month when dealerships are at their busiest.

Once your presentation starts, begin by reintroducing yourself and your background. Throw in some personal things about yourself or your family. Then it's time to get real.

These people are professionals and they can smell a fake from a mile away. So, you need to be honest and open when it comes to what you know—and, more importantly, what you don't know about a product.

Whatever your dealerships sell, you likely have a product or service that can

help. But you must take that next step. Find a model or trim level of a model they carry, and discuss your product using their example.

Don't go into a Lexus dealership talking about heated seats when every Lexus comes standard with them. Know your makes and models and which products are selling, and then simply talk about them honestly.

Final Steps

When pitching a new product, anticipate questions the sales team might have. If it's a service you're discussing, explain why you have started this new path and how you believe it would benefit them.

Don't necessarily tell them what will or will not work. Let them come to that conclusion on their own.

Remember, you don't know everything about their way of doing business, so don't set yourself up to fail when a couple of them start disagreeing with you on a point. Just be general and let them figure out the best way to help you succeed.

Ultimately, you want them to trust that you, as a professional, can help them in their quest to sell more cars and please more customers. Remind them of the benefits of doing business with you and the reasons your company stands out above the others.

One word of caution is to not bad-mouth or degrade a competitor. It will always backfire. It never makes for a lasting relationship if you are a *negative* seller instead of a *positive* partner.

Finally, finish your sales meeting by thanking them ahead of time for their business and offering any personal help you can.

Mean everything you say and hopefully, in less than 15 minutes, you will have sold a roomful of salespeople... I mean customers! **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.

HELP FOR MANUFACTURERS & REPS

I want to take some time to speak directly to the manufacturers and reps out there who need to set up their own meetings to sell products and services to restyling shops. These last two years have really changed the way we all do business.

If you want to present your latest accessories to local shops, start with a brief call, email, text or visit asking to set up a meeting. These days, it's just as easy, if not preferred, to make the meeting a virtual video chat.

Regardless of if it's virtual or inperson, first locate the contact person (not always the owner) who will set up the meeting. Ask about who would benefit from attending—separate meetings may be needed with the shop's outside reps who work with dealerships, the inside reps who sell to retail customers, and/or the installers and technicians.

Knowing what you want to accomplish at the meeting(s) will help the scheduler get the proper people to attend. Discussing pricing and marketing opportunities is different from introducing a new installation process.

Once you're in the meeting, stick to your points and don't make it boring. Highlight your key points and don't feel like you need to cover everything. Give the staff enough to get going and invite them to follow up once they've had a chance to consider what you've introduced.

At the end of the meeting, allow for questions and suggestions and also

review your key points to help them take away the main ideas. Plan to follow up monthly with those who attended until you can meet again.

Working only with the shop owner is not always the best approach. Every shop runs differently, including how involved the owner is in day-to-day operations. When possible, work with everyone at the company to grow your success.

Lastly, it never hurts to butter-up the staff with something as simple as food. Today with DoorDash and Uber Eats you can have lunch delivered—even if you're meeting virtually and aren't there to enjoy it yourself!

-Josh Poulson



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RESTYLING **PRODUCTS**

Suburban Interior Styling

TMI Products, Corona, California, presents interior styling products for 1967-'72 Chevrolet Suburban models. Available products include Seat Covers, Molded Door Panels including a Passenger-Side Third Door Panel, two Carpet Kits, Side Panels for the cargo area and a Rear Tailgate Cover for the split tailgate and rear window configuration.



Toyota Upper Control Arms

Nolathane, Ontario, California, a Zeder USA company, presents Performance Upper Control Arm Kits for Toyota Prado 120/150 chassis (2003-up 4Runner/FJ/Lexus GX) applications. With advanced Giiro bushings



that increase articulation and free-pivoting motion, the rugged kits incorporate upgraded ball joints and the correct additional caster and camber for proper tire wear. The additional clearance between the spring and arm at full droop adds 1 inch of down travel. The kits support 1 to 3 inches of lift and provide between 2.5 and 3.5 degrees of caster correction.

Commercial Vehicle Headlight Bulbs

Lumileds, Farmington Hills, Michigan, presents **Philips** MasterDuty headlight bulbs, a forward lighting solution for commercial vehicles. Built to deliver long-lasting lighting performance on Class 2-8 commercial vehicles, the lamps are designed to provide protection against mechanical shock and easily



handle the extreme stress and vibration of rough terrain and damaged roadways. The Philips MasterDuty headlight range covers H1MDC1, H7MDC1, H11MDC1, 9003MDC1, 9005MDC1, 9006MDC1 and 9008MDC1 forward lighting applications.

Wrangler Fender Flares

Quadratec, West Chester, Pennsylvania, presents its new Quadratec Xtreme Fender Flares for Jeep Wrangler JL and Gladiator models. Designed to increase vertical tire clearance by nearly 3 inches over OE Sport flares and approximately 0.75-inch over factory Rubicon flares, Xtreme Fender Flares feature clever styling touches that deliver a subtle-yetnoticeable custom look. Manufactured in the



U.S. of durable, 2mm-thick TPE plastic, the flares are UV resistant and install with no drilling or modifications required.



Truck Bed Rack

Overland Vehicle Systems, Santa Fe Springs, California, presents the Discovery Rack open truck bed rack. The large-capacity rack is purposebuilt for the overland community, based on customer requests.



LED Wheel Ring Lights

Metra Electronics, Holly Hill, Florida, introduces three new sets of LED Wheel Lights from Heise **LED Lighting Systems**. Available in 14-, 15.5- and 17-inch sizes for RGB, RGBW and RGB chasing light options, the wheel rings have sturdy metal frames that are constructed from anodized aluminum and lined on two sides with IP68-rated LEDs to produce a bright glow. The light ring sets include stainless steel hardware, harnesses and waterresistant connectors. They mount to the OE disc brake shield using thread-locking adhesive.



Bronco Throttle Optimizer

Hypertech, Bartlett, Tennessee, offers its REACT Throttle
Optimizer system, now available for 2021-newer Ford Bronco applications. The device provides on-the-fly adjustments to throttle response, allowing drivers to dialin the sensitivity and intensity of throttle input. Three versions are available—Off-Road, Performance and Towing. An easy plug-and-play installation delivers quick and noticeable differences in throttle response.

Sierra/Silverado Load Support

Hellwig Suspension Products,

Visalia, California, introduces two new Helper Spring Kits for 2020-'22 Chevrolet Silverado and GMC Sierra 3500 HD pickups. The progressive rate helper springs improve safety, stability and comfort while



towing and hauling heavy loads by maintaining a level ride height. The Load Pro-25 Helper Spring Kit is a three-leaf helper spring pack with a level load capacity of up to 2,500 pounds. The Load Pro-35 Helper Spring Kit is a four-leaf helper spring pack with a level load capacity of up to 3,500 pounds.

Bronco Styling Products

Westin Automotive Products, San Dimas, California, presents its newest Styling Components for 2021-'22 Ford Bronco models. Designed to enhance the Bronco's appearance and functionality, the offerings include the Pro-Mod Front Bumper, HDX Drop Nerf



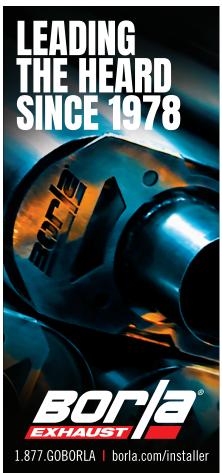
Step Bars, HDX Stainless Drop Nerf Step Bars, Pro Traxx 4 Nerf Step Bars, Pro Traxx 5 Nerf Step Bars, SG6 LED Running Boards, SG6 Running Boards, Sure-Grip Running Boards, Molded Running Boards and Grate Steps Running Boards. The products install easily and improve vehicle access.













Clear Light Shields

KC Lights, Williams, Arizona, presents the Pro6 Clear Shield for its line of Pro6 Gravity LED lights. Offering extra protection in extreme conditions such as mud, sand, snow and more, the clear, durable polycarbonate light shields maintain maximum light output. The shields securely clip onto Pro6 LED lights.



CUV Wheels

ICON Alloys, Riverside, California, introduces its 17inch Journey wheels, designed for CUV applications. Featuring a modern nine-spoke design, sharp lines, a vented rock ring and optimized dimensions, the new wheel is available in satin black and gloss gold finishes. It has been engineered to maximize caliper clearance, with backspace and wheel offset dimensions that reduce scrub radius, improving allaround handling and ride quality. 75

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ENGINE PRODUCTS

'Lemons' Show Hits the Big Time

he era of "everyone gets a trophy" is being taken to new heights in the car show world.

Building on its goal of celebrating all things drivable, Hagerty Inc. has announced a licensing agreement to produce Concours d'Lemons motoring festivals, designed to "celebrate the oddball, mundane and unexceptional of the automotive world."

View it as a tongue-in-cheek cousin of the automotive lifestyle brand's recently acquired premier automotive events, including The Amelia Concours d'Elegance, Concours d'Elegance of America and the Greenwich Concours d'Elegance.

Created in 2009 as a send up of high-end concours events, Concours d'Lemons fea-

tures vehicles that would never find their way onto the manicured lawns of Amelia Island or Pebble Beach on their own.

Judges, including celebrities from the automotive world, award thrift storesourced trophies to cars divided into classes such as Rust Belt American Junk, Needlessly Complex Italian and Most Dangerous. The festivals culminate in the presentation of the Worst of Show trophy.

Spectators and participants appreciate the relaxed atmosphere, unique cars and the event's humorous and often irreverent take on the car show world, organizers say. Over the years Concours d'Lemons has grown nationwide, with popular gatherings taking place during Monterey Car Week and The Amelia Concours d'Elegance.

Long-time Concours d'Lemons organizer Alan Galbraith will join the Hagerty team to help lead the events into the future.

"It's almost impossible not to smile when you see a once-forgotten misfit of the automotive world celebrated in the way that only Lemons can do," says McKeel Hagerty, CEO of Hagerty. "We've been a long-time sponsor of Lemons, so it's a thrill to welcome Alan to our team. Concours d'Lemons ties the car community together while creating on-ramps for new enthusiasts."

Hagerty's first Concours d'Lemons as producer was set to take place March 5 during the all-new Cars & Community presented by Griot's Garage celebration, part of The Amelia at The Ritz-Carlton, Amelia Island.

"The Concours d'Lemons gets bigger and dumber every year, and putting the show on the golf course is really ridiculous," predicts Galbraith, the self-proclaimed *head gasket* of the Concours d'Lemons. "You'll have Pintos and Pacers rusting away next to Ferraris and Lamborghinis. I can't wait."

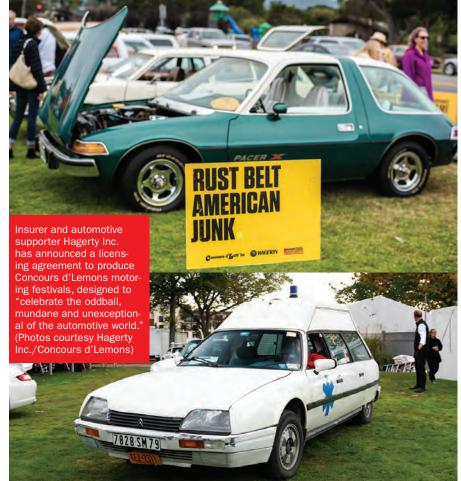
If you have a sense of humor about yourself and your car, this is the event for you, he adds.

"Lemons reminds everyone not to take themselves or their car—even a horrible car—too seriously."

Future events are scheduled for June, August and September. For the complete schedule and coverage of past events, visit concoursdlemons.com. **15**

EDITOR'S NOTE: This article originally appeared online at theshopmag.com. Visit today and sign up for the free eNewsletter.









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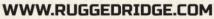
















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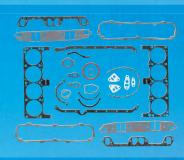
























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