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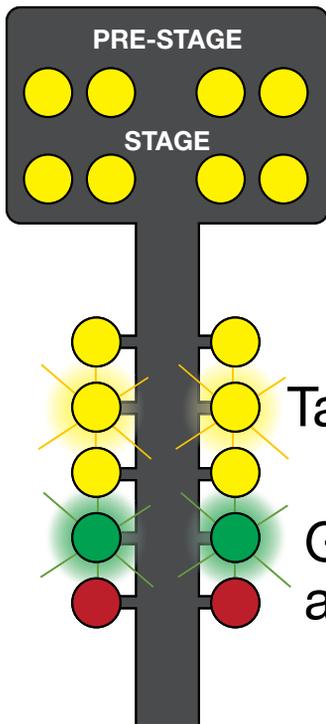
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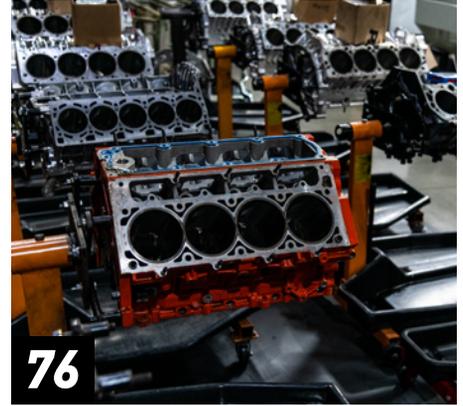
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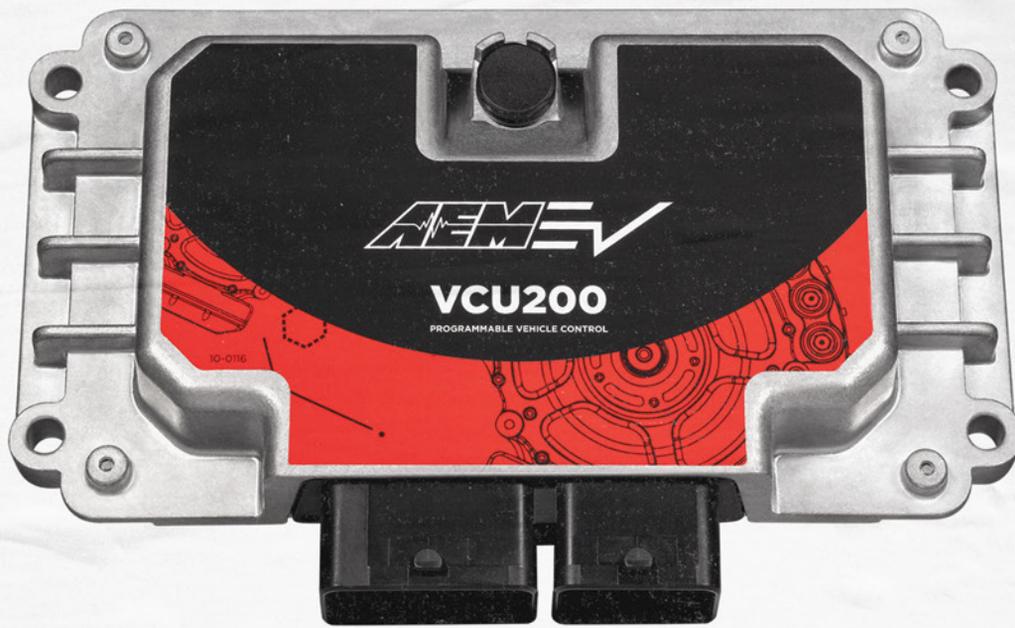


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FROM THE PRESIDENT

In last month's column I talked about many of the challenges facing the racing industry, but I did not mention the threat of government overreach. This is the driving force behind a multi-year campaign to get the Recognizing the Protection of Motorsports (RPM) Act passed by Congress.

As we go to press, the US Environmental Protection Agency (EPA) continues to levy multimillion-dollar fines on companies in our industry; and, for the first time, we have learned of criminal charges imposed on a manufacturer of race equipment. This constant, unjustified threat has put several companies out of business, cost us an incredible amount of time and money in legal fees, and prevented many race industry businesses from designing, producing, and/or selling race parts. It represents a slow death to our industry unless we do something about it.

So, this month I want to outline our plan, as well as share with you some results.

We'll start by discussing PRI's Washington, DC-based Government Affairs office anchored by David Goch, Daniel Ingber, Eric Snyder, and Christian Robinson. They are backed by several other firms and specialty lawyers who are brought in on a case-by-case basis. These folks lobby lawmakers on your behalf while also fielding calls from industry members who are under threat by regulatory agencies like the EPA or the California Air Resources Board.

Our short-term goal is to get the RPM Act passed. Without it, the racing industry is helpless. While this effort commenced in 2016, major strides have been made since. Of course, we lose this momentum with each new, incoming Congress, so the clock is constantly ticking. Currently, the bill has about 150 co-sponsors; it is also one of the most bipartisan bills now in Congress.

Our lobbying efforts include individual meetings with lawmakers and staff, calling attention to our supportive lawmakers on social media, leveraging our media company, placing billboards at local race tracks, sponsoring race events, and taking

members of Congress to your businesses and tracks. The most important part...is you. You have sent more than 1.5 million letters to Congress demanding passage of the RPM Act. And lawmakers, knowing midterm elections are in the fall, must listen.

PRI has also spent a tremendous amount of time telling your story. I point to the PRI Road Tour, PRI Magazine, and the PRI website as indicators of the effort we've put forth. But, we must also market this industry outside of the industry. Everyday folks must hear about the fun/crazy/exciting things you do so they can at least consider getting involved with racing—as a casual fan, a hardcore fan, or even a racer themselves.

Our long-term goal is to ensure we "have a seat at the table." To do this, we need a strong voice so that our industry always has representation in Washington. Candidly, we are in competition with all of the other issues that surround lawmakers, be it gun rights, abortion, immigration reform, etc. To make sure that racing punches above its weight in DC, we need to speak with a unified voice. Enter PRI Membership. Strengthening this movement means more members (read: voters) that can better grab the attention of politicians. Membership is so important to the future of our industry that our Board of Directors is now requiring that everyone attending the PRI Trade Show be a registered/paying member of PRI.

The second part of our long-term plan is great communications. PRI will do our best to let you know what is happening behind the scenes in DC, especially when it affects you. And we'll alert you when it's time to act.

In May, we celebrated the Grand Opening of PRI's Membership headquarters in Speedway, Indiana. What an amazing step forward for our industry. Now, we have a home for all of these activities. It is where our Membership staff will be located, but it is also a meeting place for industry leaders, big thinkers, and influential racers who want to make a difference.

Key to a thriving advocacy group is fundraising. Last year, we formed the



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Performance Racing PAC, a political action committee dedicated to protecting you and your racing industry business. All proceeds donated to the Performance Racing PAC go to lawmakers who support the racing industry. Having a thriving (read: well-funded) PAC ensures that power brokers in DC know our industry means business.

At a grassroots level, PRI just launched the "Vote Racing" campaign. This is a voter registration and get-out-the-vote effort aimed at racers, the industry, and fans. And, for the first time ever, SEMA and PRI are getting the word out about candidates in the midterms who support racing. That list is available at SaveOurRaceCars.com. In November, let's Vote Racing!

HOW DO YOU GET INVOLVED?

Supporting PRI Membership is a great start. If you want to join the front lines, we'd like to work with you to have a lawmaker visit your business. We are in critical need of companies willing to host their member of Congress, with a special focus on North Carolina, Arizona, West Virginia, Kentucky, Indiana, Delaware, New Jersey, Montana, Ohio, and Florida. Contact Eric Snyder (ESnyder@SEMA.org) for details.

We look forward to helping you continue your racing business with one common voice to ensure a prosperous future. **PRI**



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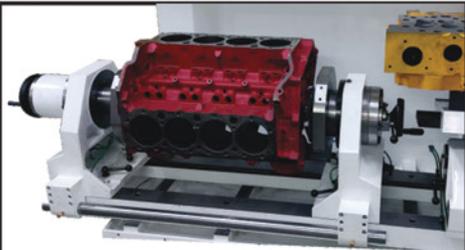
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FROM THE EDITOR

Couple of thoughts ahead of this month's Small Car Nationals at Slinger Super Speedway in Slinger, Wisconsin:

1) I THINK THERE'S A LOT MORE TO Donk racing than meets the eye. Beyond their blingy exterior and somewhat disorienting geometry, these custom drag cars perched atop 26-inch wheels—and the folks that champion them—have carved out a viable niche across large swaths of the US. Led by charismatic frontman Sage “Donkmaster” Thomas, the movement is certainly media-friendly: Millions have tuned into his show on MotorTrend, and viewed his (and others’) videos on Facebook, Instagram, and YouTube. Indeed, one gets the sense that we’re still in the early stages of what could be a deep run for the Donkmaster and his National Donk Racing Association. “My long-term goal is to show the world what big-wheel cars can do,” proclaimed Thomas, the subject of this month’s Industry Insights column beginning on page 26. “I want to go racing in Japan and Dubai and Australia, and just travel the globe with it.” Closer to home, some familiar names have already taken up with the big-wheel phenomenon. Thomas cited Moser Engineering and FTI Performance as steadfast partners. “And now Mark Menscer of Menscer Motorsports has helped us a lot on moving the shock program forward,” he added. “It’s something to see!” We enjoyed visiting with Thomas for this piece that showcases his big personality, big ambitions, and big plans for the future of big-wheel racing.

2) WHILE EVERY MOTORSPORTS complex faces unique challenges based on location, demographics, etc., I do think our Special Report this month, “Community Relations,” reveals some secret-sauce strategies that, when tailored appropriately, can help keep race tracks in their neighbors’ good graces. For the piece, which begins on page 38, author Steve Statham spoke with operators whose aims extend far



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beyond hosting a great event on race day. At Long Pond, Pennsylvania-based Pocono Raceway, for example, staff is encouraged to “find various groups in the region and join and see how they can give back,” Ben May told us. “That’s been a big deal for us, making sure that we’re approachable, that we’re not just seen as this group that brings in a ton of people once a year and then disappears.” Of the nearly half-dozen tracks sourced in our article, in fact, all reported significant involvement with their local business communities, nonprofits, and charitable organizations. That approach runs deep for the team at Evergreen Speedway, about 45 minutes north of Seattle. “[When] it comes to schools, churches, kids, animals, we always find a way to say yes,” Doug Hobbs explained. “When you help a lot and people know you are doing it for the right reasons, they’ll be a lot more accommodating when you need something to help you.” The accommodation Hobbs references is something Alaska Raceway Park’s Michelle Lackey Maynor has experienced firsthand, and in various capacities. Whether they’re defending the track against social media trolls or helping crowdfund a capital improvement project, racers and fans throughout the 49th state have rallied around her motorsports facility, time and again, as if it was their own: “If you start thinking about it,” she said, “[it’s] kind of overwhelming.” **PRI**

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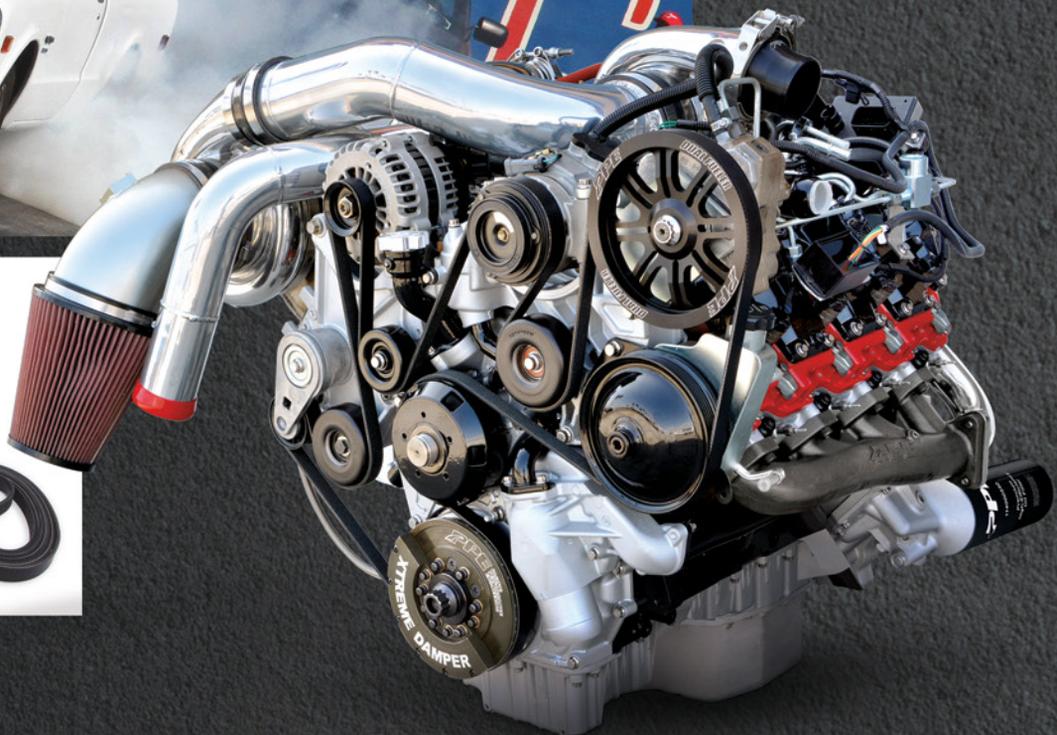
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LEAD POSITION

Home sweet home! Just a stone's throw from the Indianapolis Motor Speedway, Performance Racing Industry (PRI) officially opened the doors to its brand-new Membership Headquarters in Speedway, Indiana, in late May. Hundreds of motorsports professionals, along with civic leaders and dignitaries, turned out for the historic ribbon-cutting ceremony and celebration marking PRI's permanent settlement in the Racing Capital of the World. Located at 1255 Main St., the 42,500-square-foot facility includes event space, a 25,000-square-foot garage, and office space for motorsports businesses and organizations; it will eventually house a state-of-the-art content creation



and podcast studio, as well as a Members Lounge and other amenities. "For years, the industry has gathered at the PRI Trade Show to conduct business and celebrate all things motorsports," noted PRI President Dr. Jamie Meyer. "For the first time, the racing industry now has a dedicated place where they can connect all year long." Pictured here, from left to right, are, Speedway Town Councilor Gary Raikes, NHRA drag racer & team owner Antron Brown, Speedway Town Councilor Vincent Noblet, SEMA interim CEO Mike Spagnola, Meyer, SEMA Board Chairman James Lawrence, and PRI Executive Assistant Erika Stafford. Full coverage of PRI Membership Headquarters' unveiling begins on page 98. **PRI**



ASK THE EXPERTS

RAISING PRICES

Price increases are a natural component of any business; at times, they may also be necessary in order to keep the company thriving.

By Jim Donnelly

These days, a trend chart tracking prices for just about anything arcs upward. That results in an inevitable need to raise prices. Like breathing, it has to be done. Yet doing it objectively and sensibly will ensure that a business keeps breathing, too. Coping requires discipline grounded in understanding both buyer psychology and sound business practices.

"I worked most SEMA shows the last 20 years teaching business management," explained Tom Shay, a small business expert at Profits Plus in Dardanelle, Arkansas, who has presented seminars at the PRI and SEMA shows. "The advantage in our industry is our love for the sport, which separates us from [the big catalog and chain retailers]. The challenge is, they don't demonstrate the same passion or love for understanding how to run a business. The Captain and Tennille had a song named 'Love Will Keep Us Together.' That's a song. That is not a business plan. I want you to become good at operating your business."

One of the worst steps is delaying a pricing decision—or ignoring one entirely—until a wholesaler calls with the bad news. As Shay teaches his students, determining prices is a constant, ongoing responsibility for every retail manager. Wholesalers will inevitably boost them at some point. Shay strongly suggests retailers stop apologizing and instead, sell customers on a whole-of-shopping experience that benefits everyone.



"You should be looking at raising your prices every day," Shay said. "This is not a charity. I'm under the belief that you open a business because it's what you like to do, and hopefully you're going to make money at it. It's my job to teach you how to make that money. I don't buy for less so I can sell for less. I buy for less so I can make more money. The other view doesn't make sense."

As an example, Shay told the story of a simple but essential component, like a performance starter motor. Lots of places sell them; some, as is the case with volume retailers, for cheaper prices.

"BECAUSE OF COVID-19, A CUSTOMER NOW HAS LOST THEIR BURNING DESIRE FOR A LOW PRICE. THEIR QUESTION NOW IS, 'DO YOU HAVE IT?'"

Our source at St. Louis Race Gear noted the danger in not taking a price increase when wholesalers raise theirs. "What are you going to do [then] when the next increase comes two weeks later? Now you're two behind. You have massive sticker shock. So institute your pricing on a specific product as it comes in."

What to do? As Shay explained, don't panic. If you physically stock the item, you're already ahead. Then start thinking about what else the buyer might need to install it.

"Instead of selling the starter against a starter, tell them, when you buy a starter from me, here's what it comes with," is Shay's strategy. "How about new bolts for mounting the starter, which I have? And what about a tube of thread locker? And shouldn't you have some dielectric grease on hand when reconnecting the starter?"

He, and others, note that at the make-or-break moment when a customer decides to buy, having what he or she needs—right now, immediately—almost always outweighs price as a consideration.

Frank Palazzo founded St. Louis Race Gear in St. Louis, Missouri, because he couldn't find a local store to sell him the helmet he needed to wring out his Viper on track days. Since then, he's also acquired US Race Gear in Cincinnati, Ohio.

"I have every market segment in racing because everybody around here knows that I have stuff in stock to try on," Palazzo said. "People who come in want to know what your item costs today, not yesterday. The danger in not taking a price increase when it occurs is, what are you going to do when the next increase comes two weeks later? Now you're two behind. You have massive sticker shock. So institute your pricing on a specific product as it comes in. That's why we have multiple product lines."



Like Palazzo, Brandon Maxwell is a small, locally focused retailer. His store, 45 Race Shop in Milan, Tennessee, has a base of about 1,500 customers in a rural area between Memphis and Nashville. The price shock hit him immediately with components that make heavy use of plastics and aluminum alloys. Racing fuels and tires have also jumped. In Maxwell's view, tires are the least likely market segment to eventually drop their prices, regardless of what happens in the world.

"We've been doing this 25 years and never seen a price reduction in tires," he explained. "Eighty percent of our customer base is made up of people we've been doing business with for years. We just share pricing information with them as they come in. We hang on to our prices as long as we can until we have to change. You get that one guy who comes in, says, 'I can't believe it, I can buy it online for less.' We quit fighting that battle a long time ago. If they've got it in their hand and it's in my store, they're usually more humble."

Shay echoed this, agreeing that having a component in inventory is more important to most shoppers than simply the price tag. "It's really, what can I get for this item? If it's \$72.43, I can probably sell it for \$79.99. Is somebody going to walk away from me? I don't think so. Because of COVID-19, a customer now has lost their burning desire

Tennessee-based retailer Brandon Maxwell told us he shares pricing information with customers as they come in. As for the occasional customer who insists they can buy online for less, "we quit fighting that battle a long time ago," he explained. "If they've got it in their hand and it's in my store, they're usually more humble."

for a low price. Their question now is, 'Do you have it?' I'm tired of hearing people say, 'I do business with you because you're local and convenient.' I don't want your sympathy. I want you to buy from me because I've got a damn good staff and I've got the things that you want at a fair price. Not the cheapest, but fair. That's where I want my business to be." **PRI**

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45 Race Shop
45raceshop.com

Profits Plus
profitsplus.org

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STOP DOING THAT...DO THIS INSTEAD

WIRING FANS

Incorrect technique can result in any number of problems, from burning wires to catastrophic component failure. Here's how to avoid some of the most common miscues.

By Drew Hardin

What can go wrong if a race car's fan isn't correctly wired? Beyond the obvious problem of the fan not working, "it can burn up wires, blow fuses and breakers, and short-circuit the motor on the fan," said Cam Brandt of Derale Performance, Los Angeles, California. Brandt, and Brent Chuck of SPAL Automotive USA in Ankeny, Iowa, spoke with us recently about the common mistakes that can happen when customers wire their race car fans incorrectly, and how to fix them.

GOING TO GROUND

"People worry about the positive wire, but they don't care as much about the ground wire," said Chuck. "They don't consider that it needs to be a continuous loop all the way back to the battery. So it's common for people to ground the fan at the radiator support or the engine block. Which is not necessarily a bad thing, but they need to make sure whatever is grounding the engine block back to the battery is sufficient to handle the current draw of the fan as well. They have to think about the whole loop, from the positive terminal back to the negative terminal."

An improper ground "can cause the fan to not run at full speed, or it can burn out relays or whatever electronics are operating it," said Brandt. "The most common faulty ground we see is when people use a self-tapping screw into any sheet metal that's not really cleaned or prepared. It increases the resistance and builds a lot of heat,



which causes numerous problems." A better approach, he said, is "grounding to the battery directly if possible, or having a welded stud on the chassis frame or whatever they might be working with. When it's welded and properly cleaned and prepared, it's a more durable ground that will have a better connection."

BATTERY RELOCATION

"Amperage drop is a problem," Brandt said, when a racer relocates the car's battery, putting distance between the fan and its power source. "The best solution is a larger gauge wire" from the battery, he noted. "That's preferable to pulling power from an existing large wire. People tend to go off of a starter solenoid or alternator wire. The problem with that is it's unconditioned voltage. It's spiking, dropping, dependent on the load of the engine. It's not providing consistent voltage, which could cause a spike that could damage

Pictured here, a customer had used a self-tapping screw to try and ground the relay to the same mounting tab that comes off the top of it, explained our source at Derale Performance. "The resistance from that bad ground caused a heat build-up, which made it all melt," he added.

the fan's electronics."

There is no rule of thumb to determine the proper wire gauge in this situation, Brandt said, because of the variables among race car applications.

"Amp draw determines wire size," he said. "With a 10-amp fan they could get away with a 14-gauge wire at 15 feet coming from the battery. But for a 25- to 30-amp fan or bigger, they're going to need a much larger wire size, depending on the distance. Bigger is generally better."

Another variable is the size of the car in question, Brandt said. "Look at a 1967 Chevelle compared to a Miata. The length overall is entirely different, even if it's in the trunk for both." There are many resources available online to help determine the correct wire size based on amps and length. If the answer can't be found there, Brandt and Chuck recommend calling the fan's manufacturer and discussing the specific application to determine proper wire size.

One particular problem Chuck sees with battery relocation is when "people run an unprotected wire the whole length of the vehicle under the car. They don't necessarily think about what could happen if the

It's important to account for car size when determining the appropriate wire gauge. Fortunately, there are ample resources online—not to mention the fan's manufacturer—that can assist in those decisions. Photo courtesy of SPAL Automotive USA.





According to our source at SPAL Automotive USA, when working with connectors it's important to "avoid dielectric grease or anything like that inside the connection because of the fan's heavy current load." This, he told us, can cause corrosion or arcing at the terminals, among other problems; it can also "cause the grease to wick up and down the wires."

wire chafes or if there's a ground short on that wire." His recommendation is to use a battery relocation kit that "runs a jumper cable or a large wire through a fuse all the way to the front of the car. Then it would go to a junction block or something they could tie other stuff to."

MAKING CONNECTIONS

"Connections are the key," Brandt said. "Crimp, solder, whatever their method is, connections are crucial in high-amperage applications like an electric fan. It is very important to verify that the connection is secure. We've had plenty of guys who call and swear up and down they know how to solder, and as soon as they pull on the wire, it separates."

"Any time you have a connection that's bad, it creates an arc," Brandt explained. "As the amperage gets higher, it gets hot and arcs within that connection. Even if it's just the slightest little arc, it eventually creates more heat and then melts. Take a spade connector. If the parts aren't tight—

"THEY NEED TO MAKE SURE WHATEVER IS GROUNDING THE ENGINE BLOCK BACK TO THE BATTERY IS SUFFICIENT TO HANDLE THE CURRENT DRAW OF THE FAN."

if they're a cheap, loose connector—that's enough in a higher amperage situation to create an arc, which can create serious heat and could ultimately cause a failure.

"There are lots of different crimp connectors out there," Brandt added. "You don't need to spend \$1,000 on a crimp, and you certainly don't want to get the cheapest junk out there either. Just use quality crimp connections and wire, and you will have a dependable cooling source race after race."

"We tell people the best thing you can do with connectors is avoid dielectric grease or anything like that inside the connection because of the fan's heavy current load," Chuck said. "It can cause corrosion, it can cause arcing at the terminals, and it can cause the grease to wick up and down the wires. We've seen that in quite a few cases. As a fan motor runs, it creates a small vacuum inside the motor, and that vacuum can suck water or grease or whatever you have from the connector through wires all the way into the motor. Just use a good, clean, tight connection."

Ultimately, Chuck said, "if you have any doubt, contact us. We can provide a lot more information if you tell us what fan you have. We're available and open, trying to help everybody we can with what they're working on." **PRI**

SOURCES

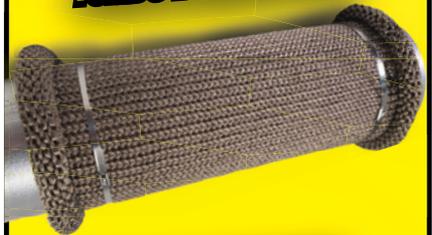
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MAKE THE CASE

BUMP STOPS VS. BUMP SPRINGS

Although these suspension components perform similar tasks, the two designs use different approaches to accomplish those goals. That results in unique advantages in some situations and compromises in some others. Our experts weigh in on the applications where each solution is most effective, and why.

By Bradley Iger



BUMP STOPS ADVOCATE: Jason Enders, RE Suspension

The general purpose of a bump stop really depends on the application it's being used in. There are situations where they offer advantages over a bump spring, but there are also situations where a bump spring might be a better option. We sell both for that reason.

In circle track racing, bump stops are generally used to control the dynamic attitude of the car. We want to get the car down to where we want it to ride, and we want to stay there in a pretty small window of suspension travel. The use of bump stops in these cars really all stems from ride height rules, and those rules typically specify heights that are much higher than are ideal. So the goal is to get the car as soft

as possible and as close to the ground as we can. Bump stops keep the suspension operating in a small window of travel so we can have better control of variables like the camber curve, the caster curve, and the load on the wheels.

Bump stops also see a lot of use in road racing formats, but the purpose is a bit different. You generally don't see ride height rules in that type of racing, and if there are ride height rules, they're usually close to where you want it to be anyway. In this type of application, bump stops are typically used to mitigate the problems that could be caused by an anomaly on the track surface. For example, if you want to run 500-pound springs in the race car, but there's this one dip or bump in the track that would require 600-pound springs to prevent the suspension from over-traveling, you can use a bump stop to do that. That way you're not setting up the race car to deal with this one anomaly on the track.

One advantage that bump stops have over bump springs is that bump stops tend to be more forgiving on rougher tracks. If your setup is off a little bit or you change your driving line, polyurethane bump stops tend to be less harsh and less likely to cause instability or change your grip levels. These are inherently progressive—the further you get into the bump stop, the more rate it gains. That progressive character allows for a larger margin of error than a bump spring typically does.

Polyurethane and polyurethane foam bump stops also have a certain amount of hysteresis built into them, and that means the stop behaves different in compression than it does in extension. If I've got a bump stop that builds 100 pounds of rate at a quarter-

inch of compression, it can have 50 pounds of force in extension if I design it that way. Springs essentially have no hysteresis—it's going to apply more or less the same amount of force in extension as it does in compression. But with bump stop packages, we can intentionally dial in more hysteresis. So, for example, you might use 500 pounds of force coming into the corner, but as you get back into the gas, you don't have the same amount of force trying to push back on the suspension. People thought hysteresis was bad for decades, but as we started playing around with it, we've discovered that it's a very useful tuning tool for asphalt cars in particular. It really helps with sway bar timing and sway bar wrap.

Bump stops are much cheaper than bump springs, and they offer an advantage in packaging as well. Depending on the application and what we're trying to do, I can build force out of a bump stop that's a half-inch tall, whereas most of the bump springs that are available today are at least four times that height. In the road racing world, some open wheel cars with inboard suspension setups simply don't have the room required to run a bump spring.

There are some other considerations to make. Bump springs generally last longer, and bump stops don't do well in extreme heat, so you need to pay attention to that if you're going to use them. The height also changes over time as they settle. As they get shorter, it changes your engagement point, so that means the car has to travel that much further to get the load that you're expecting from it. But as with springs, if you keep an eye on the height of the bump stops you're using as they take a set, you should be good to go.



BUMP SPRINGS ADVOCATE:

David Cardey,
Eibach

“IF YOU’RE RUNNING A SOFTER PRIMARY SPRING THAT ALLOWS THE CAR TO SIT ON THAT BUMP SPRING, THE PRELOAD THAT IT CREATES IS BUILDING GRIP BECAUSE OF THE OPPOSING FORCE THAT IT CREATES.”

Like a bump stop, a bump spring is primarily used to prevent the suspension from over-traveling, and it’s popular in setups where the primary spring might not have enough rate to completely hold the car up in a dynamic position. In an ideal setup, it’s going to provide a smooth transition from the primary spring to the bump spring so it’s not an abrupt change. I think that’s one of the main advantages of using two springs rather than a spring and a bump stop: A bump stop typically doesn’t have the travel or the variety of rate options needed to make that transition smooth while still stopping the car from over-traveling.

Bump springs have some advantages in road racing as well. If you’re running a softer primary spring that allows the car to sit on that bump spring, the preload that it creates is building grip because of the opposing force that it creates. Bump springs also are more consistent. As bump stops get hot, they tend to lose rate, and once you’ve heat cycled them enough times, they get brittle and start to come apart. The guys in the

World of Outlaws who are still using bump stops are typically changing them out every night, whereas I tell everyone who uses our bump springs to change them yearly.

Bump springs aren’t as limited on rate options, either. You might have a few different rates to choose from with a bump stop, but with a bump spring we have about 20 different rates in the same size spring that range from 50 to 5,000 pounds. You’re not going to get that in a bump stop.

Of course, to get the most out of a combination like this, you’re going to need someone who has experience with a load rate machine. I wouldn’t recommend just trying something out on race day and hoping for the best. There are a lot of variables involved, so it’s probably going to take a little bit of experimentation to find an ideal setup between the main spring and the bump spring. Testing equipment will help you figure out where you’re at, document it, and determine how different adjustments are going to affect the car. **PRI**

EDITORS' CHOICE

Hundreds of new product announcements cross the desks of PRI editors each month. Following are our top picks for July.

LS AND GEN III HEMI OIL PUMP PRIMER TOOLS

PROFORM

proformparts.com

There's no easy or inexpensive way to prime the oil system on LS and Gen III Hemi engines. One way is a costly pressurized tank that is hooked up to a feed line close to the filter, which can create a mess.

Now there's a patent-pending oil-primer tool from PROFORM of Warren, Michigan, that makes this job much easier and cleaner if using an aftermarket oil-pump drive gear.

"This is actually one of the few products we didn't come up with in-house," said Ryan Salata. "The inventor approached us, due to our manufacturing and distribution capabilities, as well as the name recognition of a PROFORM tool."

Constructed from hardened anodized aluminum, the tool allows the oil system to be primed with the timing cover in place. Before the oil-pump drive is installed, the tool is slipped over the crankshaft like a deep-well socket and snugs up to the splines of the oil pump.

A drill with a 3/8-inch adapter is used to turn the oil pump and prime the system for about 30 to 45 seconds. The engine is manually turned over a quarter turn before repeating the process, and this procedure continues until the crankshaft has turned a full cycle.

These tools will not work with the OEM oil-pump setup because the drive gear doesn't come off the factory crankshaft. They work only with engines modified with an aftermarket removable drive gear. —Mike Magda



MOTORIZED ENGINE STAND

LONGHORN FAB SHOP

longhornfabshop.com

Frequently rotating an engine during assembly or teardown can certainly build fatigue in a person, possibly leading to a mistake. There are also engine builders who have a tough time turning engines on a traditional stand due to age or disability. Wouldn't it be easier just to step on a foot pedal and have a motor do the work?

The team at Longhorn Fab Shop in Brookville, Ohio, thought so and designed a heavy-duty, motorized engine stand that is reversible and hands-free. It will support powerplants up to big-rig diesel engines and it is versatile with its mounting method.



"We started from the beginning and redesigned the whole concept of how we rotate engines," said Manfred Schreyer, "much of which is side mounted to allow an engine to be bolted to the stand by only taking off one motor mount."

Longhorn offers a variety of custom attachments to meet most applications.

"Another benefit is easily inspecting the engine from multiple angles to check for

any nonconformities," added Schreyer. "This reduces overall cost and time, while increasing profits and productivity."

The stand can be floor-mounted or is available in a roll-around model. It comes with a 1-horsepower motor, and the shaft turns 1–6 rpm. —Mike Magda

SMALL BLOCK CHEVY SUPERCHARGER SYSTEM

VORTECH SUPERCHARGERS

vortechsuperchargers.com

Vortech's latest-generation supercharger system for small block Chevy engines features tighter packaging for easier fitment under the hood of many classic cars.

"With this latest revision we wanted not only a more compact and smaller footprint version of the SBC kit, but this new kit also gives customers versatility to run both A/C and power steering," said Brian Cox of the Oxnard, California-based manufacturer.

The kit includes a V-3 Si-trim compressor that can support up to nearly 800 horsepower. It's driven by a 10-rib belt-drive assembly, and the mounting brackets are constructed from billet aluminum or steel. Other features include discharge tube and Vortech Maxflow race bypass tube.



"Since most of the typical SBC engine builds would fall into the 450- to 750-horsepower range, we see these supercharged small-blocks geared toward the True Street (NMCA), and the Street Race Small Block Power Adder (Hot Rod Drag Week) classes," said Cox. "And, of course, bracket racing that most tracks offer."

Suggested engine displacement ranges from 283–383 cubic inches. The kit includes the air-inlet assembly with Roto-molded ducting and a 3.5- x 7-inch cone air filter, carburetor hat and base, belt tensioner, crank pulley, silicone sleeves, reducers, stainless-steel clamps and all necessary hardware. —Mike Magda

GEN III HEMI CRATE ENGINE

DSR PERFORMANCE

dsrperformance.com

A 1,000-plus-horsepower Gen III Hemi crate engine that runs on 93-octane pump gas (9.8:1 compression ratio) is available from DSR Performance, the aftermarket division of Don Schumacher Racing (DSR) in Brownsburg, Indiana. The first production run will be limited to 20 engines with plans to release more units in the future.

The engine displaces 426 cubic inches (7 liters) and is rated at 1,150 horsepower at 6,500 rpm with peak torque of 974 lbs.-ft. at 5,200 rpm. Other features include a Gen 5 Whipple 3.0-liter supercharger, high-nickel cast-iron block and modified production Hellcat cylinder heads.

Code-named the DSR 1150, this crate engine is the result of a collaboration

between DSR Performance and AJ Berge, owner of HemiTuner Performance in Bay Shore, New York, and a crew chief on the DSR Drag Pak cars that run in the Constant Aviation NHRA Factory Stock Showdown and NMCA Factory Super Cars class. Berge leveraged some of the technology and tricks learned in developing the shootout cars.

"We run the shootout motors at 10,000

rpm plus," said Berge. "It's all about how the piston interacts with the head and the cam profile works with the displacement. What we've learned working with Whipple on the Shootout motors has trickled over into these superchargers that we're using."

The DSR 1150 retails for \$37,950. Each engine is hand assembled and dyno'd.

—Mike Magda



SQUARE WAVE TIG 200 WELDER

LINCOLN ELECTRIC

lincolnelectric.com

Racers on the go will appreciate the portability of the Square Wave TIG 200 welder from Lincoln Electric in Cleveland, Ohio. Designed to provide smooth and stable AC TIG welding on aluminum and DC TIG on steel and chromoly, the TIG 200 also offers a user interface that makes setup easy.

When welding aluminum, users can easily adjust the AC frequency, and AC balance can be adjusted to provide additional cleaning on dirty metal or maximize penetration on thick materials. Users also have the option of stick welding for outdoor work.

"The DC-TIG arc is extremely focused and smooth. This offers great control for manipulating in and out of tight 3D joints that are comprised of thin-wall metals," said Joseph Keipert. "Then for aluminum applications, the square-wave output provides an arc that achieves effortless puddle-control, filler metal deposition and penetration."

The TIG 200 works with standard 120V or 230V outlets, and it weighs only 46 pounds.



"Lincoln Electric maintains countless communication channels with racing teams, fabrication shops, and contract welding companies," added Keipert. "These customers voiced the need for a 120/230V machine that is ultra-portable while also being able to provide 200 amps of AC/DC TIG welding output. This posed a challenge because many AC TIG welding machines historically are bulky or limited to 180 amps." —Mike Magda

ATHESIL RTV SILICONE SEALANT

SCE GASKETS

scegaskets.com

Racers and the OEMs have long used silicone sealants to seal the intake manifold along the front and rear rails of the lifter valley on a V8. So it's no surprise that high-performance versions of silicone sealant are available to help ensure a long-lasting seal on race engines.

The Athesil RTV silicone sealant from SCE Gaskets in Mount Pleasant, Tennessee, is thermally stable from -40 degrees to 430 degrees F and has performed at 572 degrees F peak. It will not damage Lambda sensors and resists oils, fuels, and coolants for superior shape retention and adhesion to surfaces.

"This sealant is the latest chemical technology, meeting all EU standards," said Aaron Hunter. "It's safe to use in most applications on the motor when sensors are involved. Racers now have one silicone they can rely on and keep in their tool box instead of having to carry around an inventory of different



chemicals with an application chart to go along with it."

Athesil can be used for formed-in-place gasketing (FIPG) and is useful in marine, motorcycle, and heavy-duty off-road applications. It comes in 2.7-ounce tubes in either a single pack or a 12-piece pack. Each tube includes an applicator tip and squeeze key.

—Mike Magda

ML1000 MINIATURE PRESSURE TRANSMITTER

PMC ENGINEERING

pmc1.com

Accurate feedback from a race vehicle is key to setting it up for optimum performance, and precise sensors are necessary to generate that information.

PMC Engineering of Danbury, Connecticut, has recently released its ML1000, a digitally compensated miniature pressure transmitter that has a variety of uses in a race car.

"It can be used for gearbox oil pressure, as a MAP sensor, or for brake pressures," said Robert Knowles. "The product is designed with very high-proof pressure (overload) to maximize reliability. The small size enables installation where space is restricted."

The ML1000 provides a 4-20 mA, two-wire output, and offers static accuracies of 0.1%FS, including linearity, hysteresis, repeatability, zero and span setting errors.



This sensor also uses piezoresistive silicon technology and is suitable for static and dynamic pressure measurements with a frequency response of 1ms.

"Stainless steel construction and operation at high temperatures and vibration levels enhance reliability," added Knowles. "Very high accuracy provides precision measurements where necessary."

The ML1000 is just two inches long with a diameter of .83-inch. It has an operating range of -40 to 250 degrees F and weighs 1.6 ounces. PMC offers numerous options, depending on the requirements. It's available with either a six-pin bayonet or four-pin M12x1 connector.

—Mike Magda

NEWLY APPOINTED

MALISSA PENNINGTON

This Kansas City-area native grew up in a motorsports family, suggesting her current role with the National Sprint Car Hall of Fame & Museum may have been predestined.

By Dan Schechner

Growing up in a racing family, it probably stood to reason Malissa Pennington would one day find herself on duty at one of motorsports' most celebrated and revered venues. After all, the Missouri native was surrounded by competitors—her dad raced street stocks, her brother ran quarter midgets, an uncle raced go-karts—from the start. Pennington raced bikes herself as a youth; in 2013 she was BMX state champion for her age group.

"I was always around and helping out at tracks like Topeka," she recalled of those earlier days, "working in the concession stand and places like that. Those are some of my first memories of getting excited about race cars. I had to be no more than 8 years old at the time."

Fast-forward to the present day, and the recently named special events coordinator at the National Sprint Car Hall of Fame and Museum in Knoxville, Iowa, has a good-sized to-do list, chief among them educating race enthusiasts and potential fans on the world of sprint cars.

"For someone new to sprint cars, it can be overwhelming to try and understand it all," she noted. "In the very near future...new educational displays will travel around with me to different events. [These] pieces will be centered around what to know, where to look, and who to follow."

Keep reading to discover what Pennington and the National Sprint Car Hall of Fame & Museum team have in store for the near- and long-

term, as well as the one thing she absolutely can't live without.

PRI: Why are you excited to take on this new position? Why is it a great fit for you?

Pennington: As a race fan—especially a dirt race fan—getting to be right in the middle of it all...I get excited just waking up in the morning. Part of my job includes traveling around with our raffle sprint car. We go from Knoxville, Iowa, to Minnesota, California, Pennsylvania, and many more places. But it's exciting even when I am not traveling because [this position] is based on education. Researching auction items, planning golf tournaments, helping with whatever projects I can; it incorporates other aspects like scheduling, organizing, design, and creativity. Every day I go to work I learn something new. Not to mention, the fact that I get to travel and see new places, new tracks, and new people makes this opportunity especially fulfilling. Working in racing means I don't have a "job" in the traditional sense—it means I get to do what I love each and every day.

PRI: Clarify your racing family background for us and explain how it'll serve you in this new role.

Pennington: My dad's family would race anything they could: cars, bikes, each other. They all got the itch to race, and it's never left. When I was introduced to the family I was introduced to racing. My brother raced quarter midgets, I raced bikes. Eventually my brother and I got older, and life happened. So we



MALISSA PENNINGTON

TITLE:
Special Events Coordinator

ORGANIZATION:
National Sprint Car Hall of Fame & Museum

HOMETOWN:
Liberty, Missouri

FAST FACT:
Malissa Pennington collects vintage Pyrex—from 1915 all the way up to the 1980s. She has eight pieces and a few sets. "One that's near and dear to my heart is a set of bowls with a rare pattern," she told us. "I found them in an antique mall in Branson, Missouri."

went from racing to the stands... although we still love it. Every time my dad's side of the family meets, we must discuss what's new in the racing world. Who won the NASCAR race? Where is Terry McCarl and how are Austin and Carson (McCarl) doing? I know the feeling of walking into your favorite track and smelling the dirt, hearing the engines roar, and feeling your skin bristle with excitement. I use that excitement and channel it into my work.

PRI: Give us one or two of your long-term goals.

Pennington: One is to find new ways to introduce the National Sprint Car Hall of Fame & Museum to new people. Another is to improve and elevate sales for our raffle sprint car. We print off 15,000 raffle tickets each year and I would like to find more engaging ways to help sell those tickets. In this world of online participation, it's really important for me to be able to provide an engaging and exciting experience in person. I've met countless people out on the road who have never seen or even heard of sprint cars before, and I don't want to be the person that says, "Oh, just go online and enter and read all about it," and have that be their first experience with a sprint car. My job needs to speak to all generations.

PRI: From your perspective, what are some of the biggest challenges your organization faces right now and how will you overcome them?

Pennington: A big one is with our raffle sprint car. With COVID-19 putting a pretty sizable pause on

“WORKING IN RACING MEANS I DON’T HAVE A ‘JOB’ IN THE TRADITIONAL SENSE—IT MEANS I GET TO DO WHAT I LOVE EACH AND EVERY DAY.”

our way of life, everybody—not just us—has run into issues obtaining parts. Through the amazing work of those who did my job before me, we are sitting pretty good with our current car, except for a select few parts. If not much changes in the next year, this will affect how we obtain parts for our next car. Because we are a nonprofit, the parts on the car are donated, so you can imagine, with an already sizable parts shortage, how hard it can be for companies to participate. I should mention, though, that all of the organizations and parties we work with on this project are incredible, and everything they do for us is beyond appreciated. But the answer to overcoming it is time and patience. With supply chain issues likely to continue, we expect to start next year’s project earlier knowing that parts may not arrive until later in the year.

PRI: Who has been the biggest influence in either your professional or personal life, and why?

Pennington: It would have to be my mom. She’s taught me so much about just being a woman, and especially being a woman in a male-dominated field. Whenever I felt discouraged about something she would always tell me, “You can do whatever you set your mind to.” That has stuck with me throughout my life. My parents had the opportunity to choose their kids through the power of adoption, and I am beyond blessed to have the family I do and the support system I have.

PRI: Excluding your cellphone/tablet/computer, what’s one thing you can’t live without?

Pennington: I can honestly say I cannot live without coffee. I am a cup-every-morning type of coffee drinker. Sometimes one in the afternoon, but every morning I have to get my caffeine. I like my coffee with hazelnut creamer and a dash of cinnamon. **PRI**

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INDUSTRY INSIGHTS

SAGE “DONKMASTER” THOMAS

Drag racing on the quarter-mile in 8 seconds is impressive, but try doing it on 26-inch wheels. That’s what the National Donk Racing Association is about, and its lead ambassador is taking the country by storm, one Donk at a time.

By Jeff Zurschmeide

We’ve all seen Donks out on the road, but how much do you really know about these particularly unusual custom cars? If you’ve seen or heard of them, you know they have big wheels, 22 inches or greater in diameter. But what else? It turns out there’s a lot that goes into these striking customs, and there’s a racing series for them, too.

The man behind the racing series is Sage “Donkmaster” Thomas. Born in Georgia and raised in South Carolina, Thomas was exposed to the growing Donk scene as a teenager and never looked back. Thomas built his first Donk at age 16 and went straight into racing. He founded his shop, In & Out Customs of North Charleston, South Carolina, to advance the development of Donk performance. He has also starred in a successful series of YouTube videos documenting his work. Today, he’s the foremost ambassador for the Donk style and Donk racing in America, delivering his trademark “gap sauce” to enthusiastic fans everywhere.

Thomas recently took some time to expound on the Donk phenomenon, introducing us to the National Donk Racing Association and illustrating how racing support businesses can best help Donk owners when they need parts or service.

“WE HAVE CARS OUT THERE ALL OVER THE UNITED STATES THAT ARE RUNNING MID- TO BOTTOM-8s WITH 26-INCH WHEELS ON RIGHT NOW.”



PRI: What makes a Donk? Is it just the big wheels or is there more to it? Tell me like I don't know anything, because I don't.

Thomas: Okay, a Donk is 1971 through 1976 Caprice or Impala. It has to be a Chevrolet Caprice or Impala, and the only years are from 1971 through 1976. It could be a convertible, a two-door, or a four-door. It doesn't matter what style it is, but just those years.

PRI: Where does the name Donk come from?

Thomas: The name came from everybody acting a Donkey in the cars. So like when you get a Donk and it's fresh and clean and you go out and party and hang out, you turn the music on, you just have a good time. You act a Donkey in it. That's just a street slang. It's what they use, and it stuck with the name of the vehicle.

PRI: Where did this style start? Is there a particular region or a city, and when did people start making those cars into Donks?

Thomas: It started in South Florida. They started doing the Donks, I want to say it was the early '90s. At first, they used to have 17-inch wire wheels on them. But as the trend started to change over the years, they started putting the bigger wheels on the car, because the car is so big, and you can put a large wheel on it without too many modifications.

PRI: How did you personally get started with Donks and then with Donk racing?

Thomas: I started getting into those because my father lived in Florida in the early 1990s, and I used to go down there in the summer to visit him. I started seeing all those cars when I was 9, 10, 12 years old. Then I started working at a car wash in Orangeburg, South Carolina, and all the big street boys would come through the car wash with the Donks. So I saw them when I was from 9 to about 15 years old. Once I got to about 15 years old, I started knowing what they were, and how much attention they got, and how the girls like them.

I always wanted a Donk because when them fellas pulled up and they had the golden jewelry on, they looked real good, you know what I mean? The females came and they always wanted to ride in the Donk.

PRI: The usual impression of Donks is that they are street cruisers, not racing cars. Were they always about racing, or did that come along later?

Thomas: They were always about showing out. There was a DVD called East Coast Ryders, which was owned by a fellow named Vido No Shake. I talk to Vido on a regular basis. He's the original historian of all the Donk stuff. He came out with some DVDs and VHS tapes in the early 2000s where



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they were showcasing all the stuff they did in South Florida with the Donks. They would leave the big wheels on the front, the 22s and 24s on the front, but they would put slicks on the back.

I came from a background of drag racing also, but whenever I break my Donk out, I'm fresh and clean. I don't want to get on the ground and change tires on the back. So I thought, well, if we can race it with the wheels on it, then I can make that a thing. That way, everybody would be racing with the wheels on it. Like we leave the club on Friday or Saturday night, we go down the street with the wheels on, everybody looking clean and then we race it with the big wheels on the car without having to change it. We called it "fast and flashy racing" with the big wheels on.

PRI: Now you have this National Donk Racing Association. It's drag racing, but do you have different classes for different years or different engines? How does NDRA work?

Thomas: As of now we have seven classes. We have a lightweight, a middleweight, and a heavyweight class for Donks, and that's only '71 through '76, Chevrolet Impala body style. And then we have another lightweight, middleweight, and heavyweight for G-bodies. That would be Monte Carlos, Cutlasses, Regals, any kind of G-body from '78 to '88, including the El Caminos.

"Anybody who loves drag racing" will love Donk racing, said Sage "Donkmaster" Thomas. "It's a challenge to get a car that weighs 5,000 pounds and makes 2,000 horsepower to go down the track on 26-inch wheels. It's very exciting to watch."

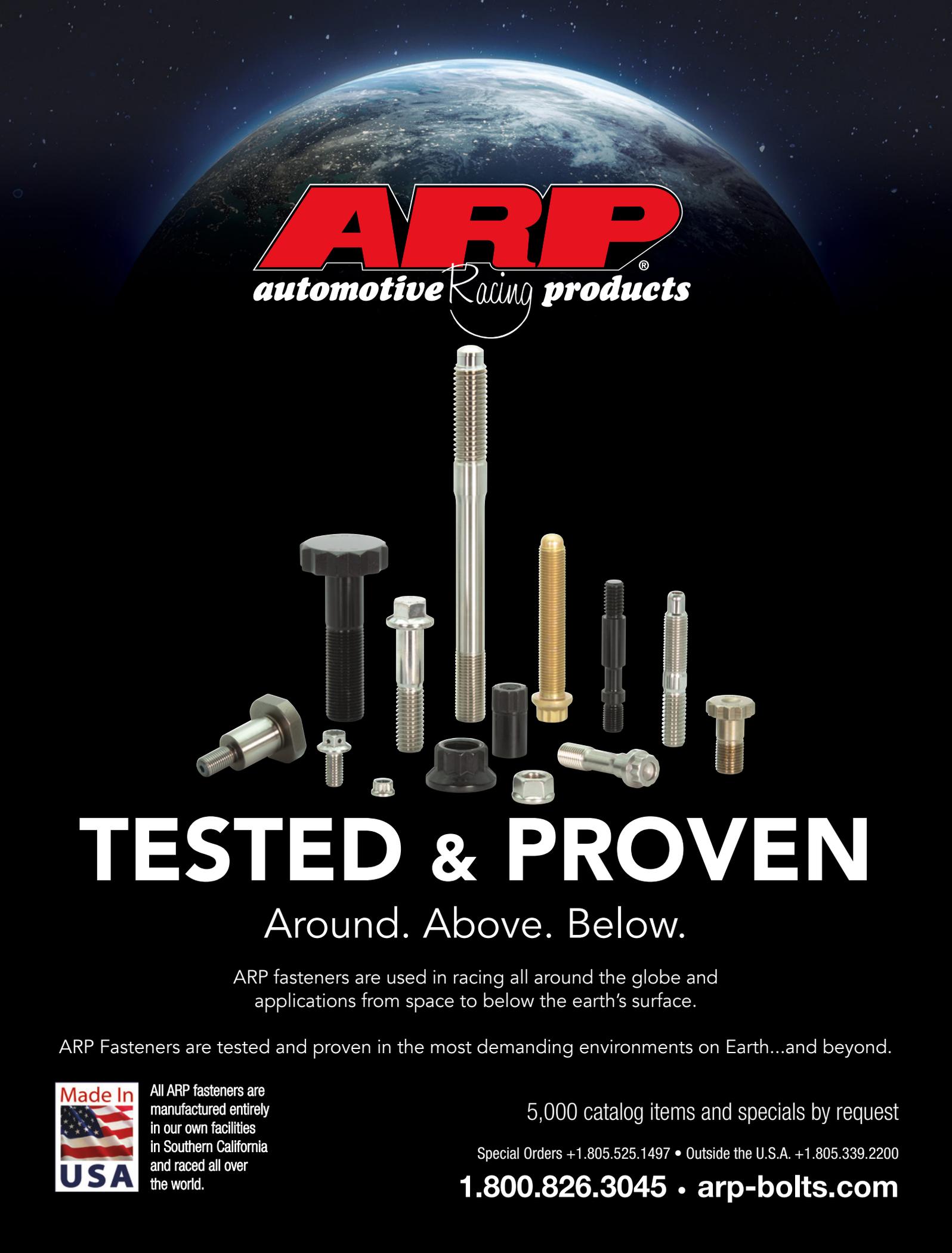
Then we have one class called the open class, and that is any kind of truck or car on 22-inch wheels or bigger. So if you've got a Suburban on 24s, or if you've got a Pinto on 22s, or a Mustang, they all race in that class.

PRI: What's the definition for lightweight, middleweight, and heavyweight?

Thomas: There are certain restrictions. A lightweight is an all-motor class. It doesn't matter if it's big block or small block. Then in middleweight you can have one power adder, so you can have a turbo or supercharger or nitrous. You have to have a full interior and you have to do a street cruise where it looks like a regular street car. Heavyweight is all-out, whatever, you can gut it and use any suspension, any motor. The only limitation is you have to have 26-inch wheels in all the Donk classes.

PRI: What are these cars doing in terms of ETs?

Thomas: Right now, some of these cars are running the quarter-mile in the eight-second range as a heavyweight car. We have cars



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out there all over the United States that are running mid- to bottom-8s with 26-inch wheels on right now.

PRI: I've seen videos of big-wheeled cars, and with the physics of those big wheels, they can snap the axle half shaft. How do you deal with that? Do you have special-made axles?

Thomas: We have been working closely with Moser Engineering. He started recommending that we put the 40-spline axles in there. We went from a 35- to a 40-spline in full spool. Then we also mandate 5/8-inch wheel studs and 1350 U-joints to participate in NDRA. The safety side of it is very important because we are going really fast with a lot of weight. Over the years, I have been working closely with Moser Engineering and also with Greg (Samuel) at FTI Performance for transmissions. They build and test a lot of the converters and transmissions for these high-horsepower,

“MY LONG-TERM GOAL IS TO SHOW THE WORLD WHAT BIG-WHEEL CARS CAN DO.”

big-wheel cars. And now Mark Menscer of Menscer Motorsports has helped us a lot on moving the shock program forward. It's something to see!

PRI: If I go to an NDRA event, who am I going to find there? Who's competing? Are they Donk enthusiasts, or are we starting to get professionals in there now?

Thomas: Oh yeah, we have a lot of different professionals, like Alex Laughlin, who's a Top Fuel driver, pro driver for the NHRA. We taught him a lot. He wanted to come to a couple events. Clay Millican actually came to a couple events. We had talked to him about that also. We have been talking with Antron Brown and Lyle Barnett, who are also participating in NHRA. They're talking about building a car. So yeah, we have some of the



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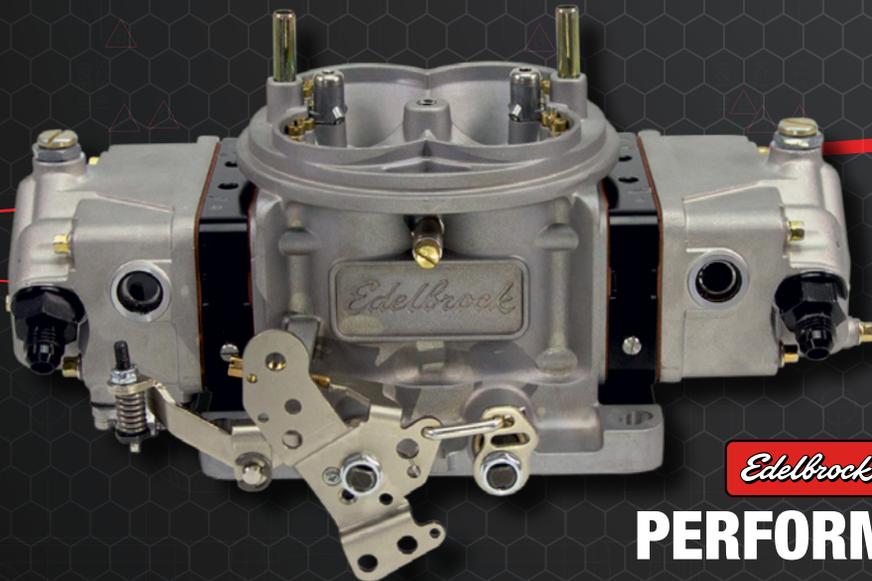
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big names in NHRA, plus a lot of the local guys who run Outlaw 10.5 and drag radial classes as well.

PRI: So in terms of the rules and the way it runs and everything else, it's pretty similar to what we would find at an NHRA event?

Thomas: Yeah, we do a points basis, so it is on points and it's on a class. Just like you said, if we have eight cars in the heavyweight class field, we're doing a \$10,000 payout for the class. Then you can win for the round and actual points. Every time you win, it is based off the same thing as the NHRA point scale.

PRI: In terms of fans, who's your target market? Are you looking for people who are

already Donk enthusiasts, or are you looking to reach out and show the cars to a broader audience?

Thomas: We're looking to show it to everybody all over the world! Right now, the market is the 18 to 49 demographic. Right now, a lot of the race tracks we go to, we might have about 5,000 to 8,000 people come to each show. It's starting to grow a lot because of my television show on MotorTrend, that's doing three or four million views every episode. So fans are starting to figure out that we're having events because they see it on TV for the first time, but then they're trying to find it. The schedule is on my website at ndrausa.com, and then it's all over the social media under @1_donkmaster on Instagram and Donkmaster on Facebook. Anybody who loves drag racing will love this because it's a challenge to get a car that weighs 5,000 pounds and makes 2,000 horsepower to go down the track on 26-inch wheels. It's very exciting to watch.

PRI: Is social media how you do outreach to young people? One of the things we always

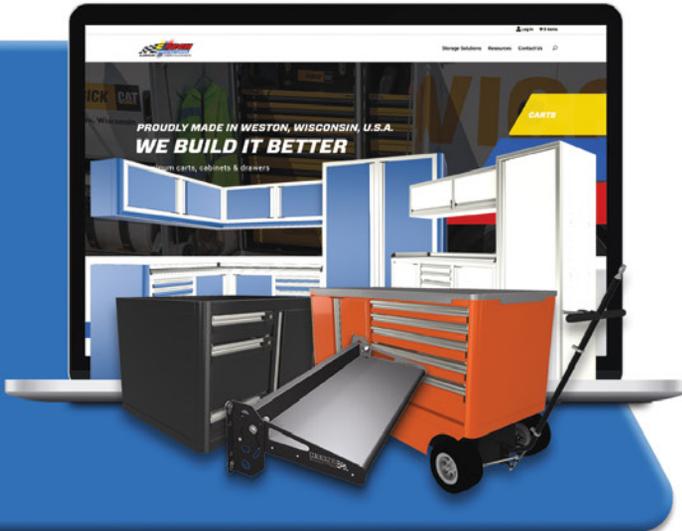
Sage Thomas, at right, promotes National Donk Racing Association (NDRA) events through his video show on MotorTrend+, which gets 3-4 million views per episode.





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Safety is a priority at the NDRA, according to Sage Thomas. It has been working with companies, including Moser Engineering, FTI Performance, and Menscer Motorsports, to ensure that driveline, transmission and suspension components are up to the loads generated by a Donk's big wheels.

talk about at PRI is how to get the young people involved.

Thomas: Yeah. So matter of fact, this past weekend I was in Gulfport, Mississippi, and I had a group of 15-year-old boys pull up to a race we had there for the first time. They pulled up in a limousine they had for one kid's birthday. They wanted to check out the big-wheel racing to see what we had. For outreach, I have a lot of friends in the YouTube space, so we normally collaborate and partner up to get the word out to everybody. Right now, we have the 18 to 49 and it is getting younger. So we are down into the teens, the high school students, and they want to see it because like I said, it's something exciting to see. We're getting fans off of TikTok, and I'm also making a lot of different, funny videos, so they get entertained.

PRI: Our audience at PRI is racing businesses. When somebody comes in who's a Donk racer and they're looking for parts, or they're looking for modifications, what do those racing businesses need to know in order to meet their needs?

Thomas: It's very new, but I have the list of the main shops who have been building cars. On ndrausa.com we have certain shops now certified to build these kinds of vehicles. So I'm going to add some more shops to the list this year. There are shops that have been doing this for the last 10



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years, and the work speaks for itself. We're going to keep adding to that and keep the people in the loop on who is good to work on it, because it's not the same concept to build a 2,500-pound race car as a 5,500-pound race car. That's two different things. It's like somebody who knows how to build muscle trucks, but they don't know how to build a '69 Camaro that runs four seconds in the 1/8th mile. It's totally different.

PRI: A business owner can go to ndrausa.com and get in contact with you to see about getting certified to be on your website?

Thomas: Yep. That way we'll keep everybody up on who has the knowledge to safely build a high-horsepower, big-wheel race car.

PRI: We already talked a bit about some of the purpose-built products you're using. Is there anything else that Donks need?

Thomas: There's also engine diapers, transmission blankets. We use fire suppression systems inside the heavyweight vehicles. Then we use the race harnesses. We're big on safety because drag racing is a dangerous sport. We want to try to beef up all that stuff, making sure the cars have roll cages if they're going a certain speed. They also need parachutes on the heavyweight cars. Safety is what we like to push.

PRI: What are your short-term and long-term plans for NDRA? Where do you see this all headed in five years' time?

Thomas: Right now, we have three events

this year. We have Maryland on July 9th, we have Reynolds, Georgia, on August 13th, then we have Darlington drag race on September 10th. This is the second year of the NDRA, and I just want to showcase to everybody that you can race big-wheel cars. They can line up. They can all be in classes, and we can show everybody we can race. That's my short-term goal for this year.

My long-term goal is to show the world what big-wheel cars can do. I want to go racing in Japan and Dubai and Australia, and just travel the globe with it. Hopefully, we'll be on TV, just like NHRA. Just like NHRA has FOX on television. I can see a NDRA event on a major network. I'd like to see major sponsors and be selling out race tracks, a couple hundred thousand people at a time. I think the NDRA should be on the same level as that.

PRI: Is there anything you would want to say to the audience of racing professionals?

Thomas: Visit the website, ndrausa.com, and the other website is inandoutcustoms.com. And I guess you can put this quote in there: "If your dreams don't scare you, they're not big enough." **PRI**

Sage Thomas' website lists shops experienced in building Donks into drag racers. "It's not the same concept to build a 2,500-pound race car as a 5,500-pound race car."



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COMMUNITY RELATIONS

Being a good neighbor helps promote harmony with the local community, but according to these track executives, undeniable benefits exist for operators willing to invest the time in outreach.

By Steve Statham

Running a race track is not for the faint of heart. It may look like fun and games with the grandstands full, cars roaring around the track, and the concession stand line reaching to the paddock. But track operators have to walk a fine line in giving fans what they want, racers what they expect, and keeping the local community happy.

That last part, community relations, may be the biggest ongoing challenge. Race tracks are noisy and draw traffic, and thus are easy targets for activists of all stripes. Even if the complainers are a distinct minority, they often have outsize influence among the local political class and on social media.

"We're kind of a nuisance business. Somebody told me that term once, and I kind of liked it," said Michelle Lackey Maynor of Alaska Raceway Park, Palmer, Alaska. "We have a lot of fun and we do racing and we really enjoy it, but not everybody enjoys the noise, so I try to make sure that we're key players in the growth of our area, as well as try to keep up that goodwill part of things."

Even well-established racing facilities can't rest on their laurels, as urban sprawl has pushed new neighborhoods out toward tracks located in formerly remote locales. "The track is 68 years old this year," said Doug Hobbs of Evergreen Speedway, Monroe, Washington. "When they first built the speedway, there wasn't a house near this race track. And now, as communities have grown, the houses are within sight of the race track, coming down the hill."

"I guess more than anything, noise is the problem facing many tracks across America," he continued. "You try to let the homeowners' association know about your bigger events, let them know the challenges of traffic you're going to bring to the area. I think it's all about communication. We try to over-communicate with the county officials and city officials about what to expect. Last year when we brought in well more than a standing-room-only crowd for Nitro Circus, we started hours in advance with the city to start traffic control, trying to avoid some of those issues. When you're trying to funnel an extra 10,000 cars on a two-lane street, it gets congested."

"Motorsports has an uphill battle compared to stick-and-ball sports when it comes to the community," said AJ Moore of Lake Erie Speedway, North East, Pennsylvania. "A lot of people, they'll lean more toward baseball, football, basketball, hockey, because they know it. With motorsports, you have to come out, you've got to taste it, see if you like it. We do a lot of thrill shows to just get them in the door. I think that is a battle because [the stick-and-ball sports are] just what everybody knows. Which in turn makes us possibly have to do a little bit more in advertising just to be top-of-mind."





Alaska Raceway Park's Michelle Lackey Maynor, at left, provides Speedy Bears to children at Patient Housing at Alaska Native Medical Center.



Among Pocono Raceway's many outreach initiatives is an annual Kids Day, where local and regional non-profits are invited to set up displays, distribute race tickets, and more. "A friend of mine told me a long time ago that what we're doing here at the race track, besides being in the fun-and-games business, we do add to the quality of life for folks," our contact explained, "and we feel like this is a part of it for the kids and community."

JOINING UP

One key step to making community relations run smoother is to join the various local organizations that network with other businesses and coordinate promotional and charitable events. The representatives from the tracks we spoke with were all active participants in multiple organizations.

"We work really closely with our Chamber of Commerce in the northeast and also our Erie Sports Commission and VisitErie," Moore said. "The Sports Commission has helped us tremendously throughout the years in trying to get different events to come into the area. Tracks should be working with these non-profits. Anybody who is not trying to talk to the Chamber of Commerce or look for the Sports Commission is missing something. The Sports Commissions, they really help with the hotel rooms and stuff like that to try to keep the costs down for people coming in."

Ben May of Pocono Raceway in Long Pond, Pennsylvania, is on the board of directors of the Pocono Mountains Visitors Bureau as well as the Pocono Mountains United Way. "We like to encourage our staff, if they have the time and are available, to find various groups in the region and join and see how they can give back," May said. "That's been a big deal for us, making sure

"WE LIKE TO ENCOURAGE OUR STAFF, IF THEY HAVE THE TIME AND ARE AVAILABLE, TO FIND VARIOUS GROUPS IN THE REGION AND JOIN AND SEE HOW THEY CAN GIVE BACK."

that we're approachable, that we're not just seen as this group that brings in a ton of people once a year and then disappears. While we have NASCAR specifically one weekend a year, we're engaged year-round."

Membership in these organizations can lead to wider connections in the community. "One thing that I have always done, is that when it comes to schools, churches, kids, animals, we always find a way to say yes," Hobbs said. "We work with everything from battered women's shelters to gospel missions to helping out schools continuously. We are always giving. We take a lot of pride in that, and we get very few complaints. I think part of that is just because we're so tied in with the Chamber of Commerce, we're tied in with the lodging tax, we're tied in with tourism promotion. I helped out the state in 2020 and 2021. We created a group that got race tracks open in 2020 under COVID-19, at least to competitors only. I helped spearhead that group. When you help a lot and people know you are doing it for the right reasons,

they'll be a lot more accommodating when you need something to help you. We don't do it for the wrong reasons, we just do it because we think it's the right thing to do."

Opening up the track to other groups in the community is one significant way racing facilities build relationships. "We're pretty active in the community," Maynor said. "I'm on the community council, I volunteer there as the treasurer and help out with various things like a clean-up project we've got coming up in a couple of weeks. I'm also a member of one of the local Rotary Clubs. Getting involved in the community has been really helpful for us. We help out with stuff at the elementary school, various fundraisers and such. We have a lot of space at the track so we're pretty open to using it for whatever community events might come up."

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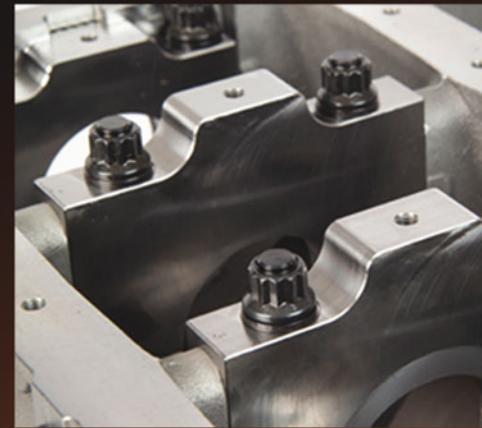
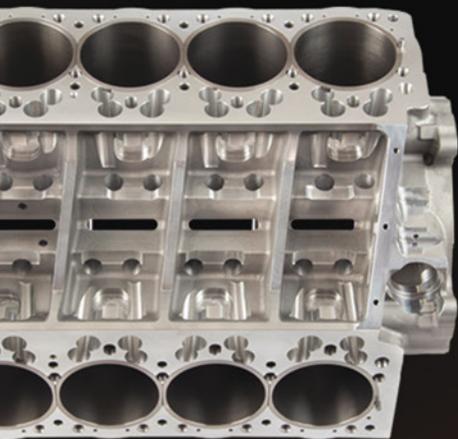
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In April, Lake Erie Speedway hosted a Walk For Autism event organized by the Autism Society of Northwestern Pennsylvania. "We had the option to bring it out to the track and it was great," said our source at the speedway. "We had about 1,900 people and raised close to \$100,000. It was huge."

Raceway is very active in local organizations. "Sonoma Raceway is an active member in its local communities by partnering with several key groups and organizations in the Sonoma Valley, North Bay, and on a national level including the North Bay Leadership Council, Sonoma Valley Chamber of Commerce, Sonoma Vintner's and Grower's Alliance, and Green Sports Alliance among others," said Jill Gregory. "These memberships allow Sonoma Raceway to connect with diverse and robust businesses that are all connected to the same community. This gives us more opportunities to enhance and grow our business through the connections and resources these groups provide."

HELPING HANDS

There is no one-size-fits-all solution to maintaining good community relations. Resourceful race track promoters find creative ways to engage with their neighbors.

"We have a litany of things here that we work through, and I think the top one is that we're proud to be a part of this community," said Pocono Raceway's May. "We've been in this community for 50 years and we are a family-owned business, which makes it a little more meaningful for us. Outside of your normal sponsorship stuff, Doc and Rose

"MOTORSPORTS HAS AN UPHILL BATTLE COMPARED TO STICK-AND-BALL SPORTS WHEN IT COMES TO COMMUNITY."

Mattioli, co-founders of Pocono Speedway, in their later years ended up sponsoring a good bit of our local health system. We have a medical emergency center and things like that. But you're not looking at things that are direct dollar related. We just really enjoy being part of the community. Probably the number-one thing we do here is offer our Kids Free ticket program. Every kid 12 and under is welcome at Pocono for free, and we'll do that for any race, including our Cup Series race. We've been doing that for three or four years now, and it has been massive for us. It's just a small way we can give back to the community and help grow the sport.

"Secondly, we have an annual Kids Day," May continued. "This will be our 14th or 15th year for our annual Kids Day, and this year it will be Saturday, July 23, which is our Truck Series race, Cup Series practice

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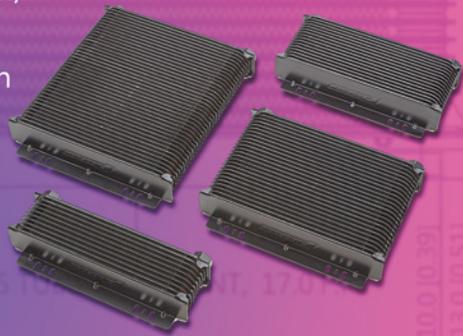
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and qualifying, as well as the Xfinity Series race. We do it a little bit differently than just giving away free tickets. We invite all of our local and regional non-profit friends to come to the race track, set up a display, and then they're allowed to use as many tickets as they'd like for their campers or their community, or their partners or friends. We'll have 20 to 30 displays out and do tens of thousands of tickets for the kids and community groups. They come out to experience NASCAR, and if they're going through a rough time, maybe it's an easy day for them to just unwind a little bit and let their mind focus on something that's more fun and engaging and less serious.

“A friend of mine told me a long time ago that what we're doing here at the race track, besides being in the fun-and-games business, we do add to the quality of life for folks, and we feel like this is a part of it for the kids and community,” May added.

Few people in the motorsports industry have fond memories from the COVID-19 pandemic, but it did provide opportunities



Also an active farm with thousands of sheep on hand, Sonoma Raceway recently initiated an Adopt-A-Sheep program to help generate funds for Speedway Children's Charities. "Each adoption package includes a Sonoma Raceway plush sheep, reusable tote bag, official adoption certificate, and personalized photo of the sheep of your choice," noted our track contact. "It has proven quite popular already."

for tracks to step up and serve their local hometowns. "Giving back to the community, and tying into non-profits, charities, and food banks, is one of our mainstays here, and we're very proud of it," Evergreen Speedway's Hobbs said. "A couple of fun things we did last year: With COVID, high schools couldn't graduate. A lot of them didn't get to have a graduation ceremony in 2020. So we did a couple of drive-through graduations in 2020, and then last year where everything was locked down in schools, we hosted four area high school graduations in the grandstands. We socially distanced, and we were happy to accommodate schools with classes up to 2,500 people. Normally they'd pay a lot of money for that, but we donate our facilities for those types of things, we don't charge for them.

"Starting from Memorial Day weekend on is when we start doing more of our bigger charity events, just because of weather," Hobbs added. "Memorial weekend we help fund and provide trophies for a local Relay

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Pocono Raceway's core values are "tied directly into the community," noted a track representative. Pictured here is Pocono Mountain East High School's Class of 2020 graduation ceremony, which was held at the raceway in June of that year.

For Life event that's held in a neighboring city. June 18th is our Big Brothers-Big Sisters charity car show, and the last two times we've raised over \$100,000 a day for that event. June 25th is our Galloway Shootout, which is our first big NASCAR track event on our calendar, and this year we'll be working with Randy Couture and the Xtreme Couture GI Foundation. Randy will be our grand marshal. We're hosting well over 300 veterans on bikes, with catered dinner and then we're going to be raising charity for that event."

When we spoke with Moore at Lake Erie Speedway in April, the track had just hosted a Walk For Autism event organized by the Autism Society of Northwestern Pennsylvania. "Our one owner, Dan Prischak, is very big into the Autism Society," Moore said. "We had the option to bring it out to the track and it was great. We had about 1,900 people and raised close to \$100,000. It was huge. It was nice to see that many people

out here at the end of April. We really don't start going full-force until the end of May because the weather is spotty. It worked well having that option to get it out to the track and bring different people to the track who have probably never been here, just so they can see it."

For Sonoma Raceway, having the corporate resources for charitable outreach helps, but the focus is still local. "First and foremost is our outreach through Speedway Children's Charities (SCC). This is our non-profit arm that raises and distributes money each year to children in need in Sonoma County," Gregory said. "We have distributed more than \$7 million locally since SCC was chartered in Sonoma in the 1990s. Some other things we have done include opening our campground to anyone who was affected by the wildfires a couple of years ago, opening our facility for charity runs, and participating in many civic events in and around Sonoma County."

“WHEN YOU HELP A LOT AND PEOPLE KNOW YOU ARE DOING IT FOR THE RIGHT REASONS, THEY’LL BE A LOT MORE ACCOMMODATING WHEN YOU NEED SOMETHING TO HELP YOU.”

Each track’s unique circumstances allow for some creativity on the charity side. In what’s likely the only one of its type in the nation, Sonoma Raceway initiated an Adopt-A-Sheep charity program in April. “Many people aren’t aware that Sonoma Raceway is an active farm, and a part of that includes being home to thousands of sheep,” Gregory said. “In looking at new ways to generate funds for Speedway Children’s Charities, we came up with the idea to allow people to adopt a sheep. Each adoption package includes a Sonoma Raceway plush sheep, reusable tote bag, official adoption certificate, and personalized photo of the sheep of your choice. A Sonoma Raceway sheep hat is included with the premier package. It has proven quite popular already.”

RESULTS SPEAK

The representatives from the tracks we spoke with have embraced charitable causes as part of being a good neighbor, and because it’s the right thing to do, not simply for gain. But there are undeniable benefits for a track that invests time in community outreach.

“What I have found is there are a few pretty vocal people in our community that don’t like us. And by a few, I mean less than a handful,” said Alaska Raceway Park’s Maynor. “But they have the time and the energy to complain about things. What I have seen recently is when they go on social media and talk about stuff, I don’t engage because that doesn’t help anything. But it’s amazing to see the number of

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“GIVING BACK TO THE COMMUNITY, AND TYING INTO NON-PROFITS, CHARITIES, AND FOOD BANKS, IS ONE OF OUR MAINSTAYS HERE, AND WE’RE VERY PROUD OF IT.”

people in the community who stand up for us when we need it to happen. We’re providing a place for the kids to race that’s safe, and it’s not street racing. Because of the various other things we do in the community, people step up on our behalf when there are social media arguments.”

Those local fans have also opened their wallets for Alaska Raceway Park. The track initiated a crowdfunding campaign named Club 1320 to raise money for capital improvements that has been met with great success. “Our track is a little bit unique in the fact that ‘we’re it’ for this state. And so our community extends beyond where the track physically is,” Maynor said. “We touch racers all across the entire state, which is a pretty big space. Club 1320 has been, for me, very humbling to see the outpouring of support from the racers and the fans and different community members that have participated in that because they want to see us succeed. Having that large community of people of all different user groups that are kicking in to help make our race track bigger and safer and more efficient, if you start thinking about it, gets kind of overwhelming.”

Being an integral part of the community also provides conventional sponsorship opportunities. “Last year we had a great example,” May said. “Our relationship with our Destination Marketing Organization, the Pocono Mountains Visitors Bureau, used our race as a platform to showcase the region. So we had an Explore the Pocono Mountains 350, which was one of our Cup races last year. I think that’s a really good example of

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how that happens.”

Evergreen Speedway's many charitable initiatives that reach beyond the motorsports community have built on their racing programs to attract additional sponsorship. "Right now, today, we're adding another 200 feet of construction for 12x24-foot billboards. We actually exceeded the 40 sponsored billboards we had out there," Hobbs said. "It's worked very well, and I think this has partly to do with—and we might be the only one with this—we have a network TV show on our local CBS affiliate on Sunday nights called Evergreen Speedway Home Track Heroes, which airs for two hours. Tying in our livestream with FloSports and then our weekly podcasts, our marketing partners get a lot of exposure, and we have seen our sponsorship growing immensely from 2019 to 2021 and 2022."

Charitable works and community outreach may not always lead to additional sponsorship or resources, but for these tracks, the appeal of improving their own communities goes beyond dollars and cents.

"It goes back to our core values, and that is tied directly into the community," May said. "One core value here is, 'Do the right thing.' We think this area is beautiful, and it is beautiful. Our Pocono Green and solar farm, and waste diversion and recycling and everything we're doing here, are just what we can do to help make sure the Poconos is still here in another 50 or 100 or 200 years from now, and it's still beautiful." **PRI**

SOURCES

Alaska Raceway Park
raceak.com

Evergreen Speedway
evergreenspeedway.com

Lake Erie Speedway
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Photo courtesy of Firepunk Diesel

By David Bellm

COMPETITORS ARE LAYING DOWN TIMES ON PAR WITH THEIR GASOLINE-POWERED COUNTERPARTS. WE UNCOVER MORE THAN A DOZEN REASONS WHY.

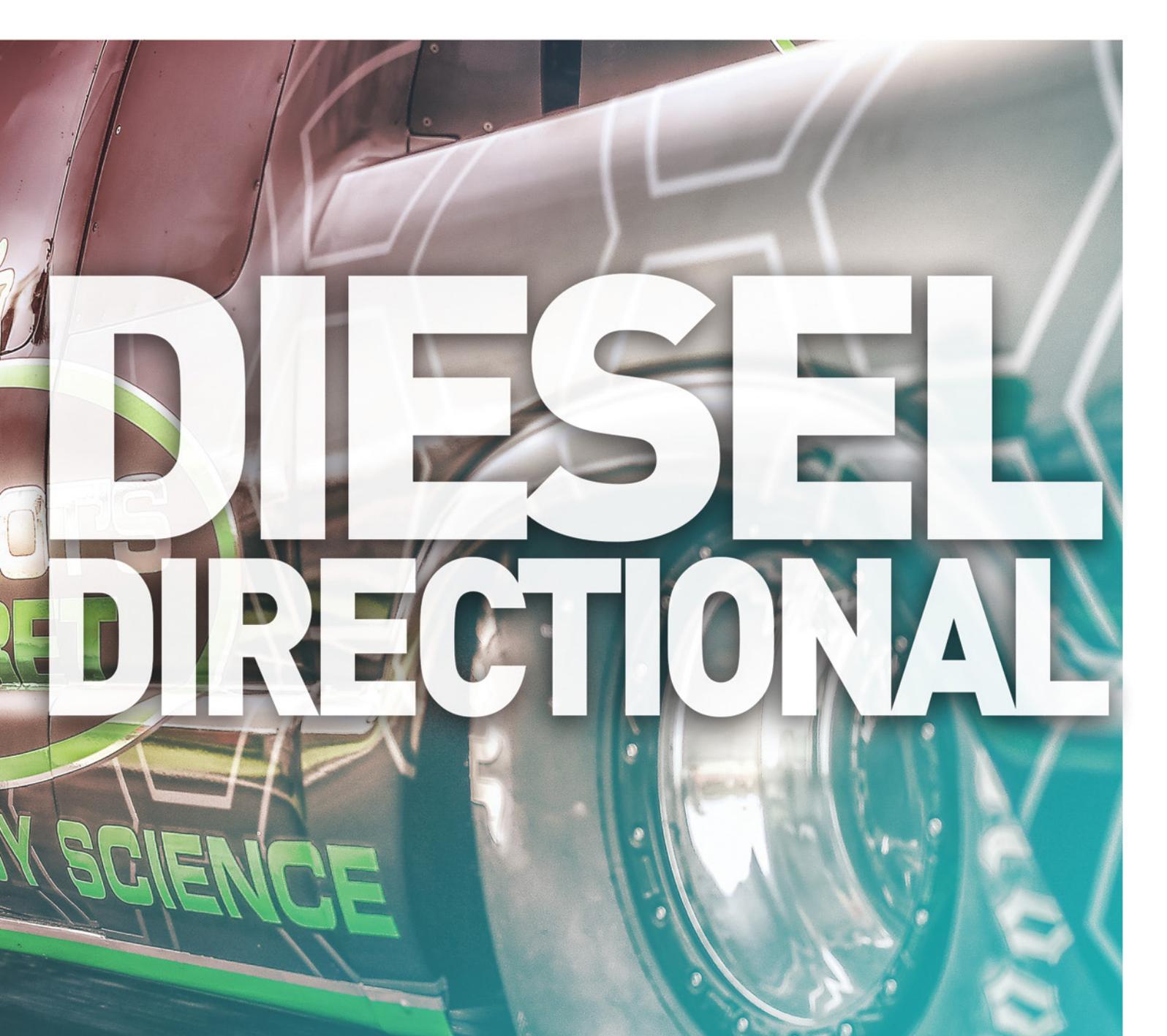
Once widely regarded as a quirky niche segment of motorsports, diesels now have the performance to sit shoulder-to-shoulder with more established forms of racing.

“Ten or 20 years ago, diesel racing was a novelty,” observed Jared Alderson of Kill Devil Diesel, Poplar Branch, North Carolina. “It was almost more of an exhibition, like, ‘All right, here comes the smoke show, then we’ll get back to real racing.’”

Fast forward to the present, and the snickering has stopped. Diesel racers are laying down ETs within striking range of the quickest gas cars. That’s brought newfound respect to the category, fueling an increase in mainstream attention for diesel as yet another option for going fast and competing.

As impressive as the performance is among today’s top-tier diesel racers, it’s worth noting that these racers are accomplishing these things with a tiny fraction of the aftermarket support that the gas-engine community has enjoyed for decades. The stunning performance of modern diesel race cars has required determination, ingenuity, and creativity—not to mention, of course, lots of money.

To find out where this vibrant, relatively young performance segment is headed, we talked with leading experts in diesel performance. They gave us truckloads of insight into the technology, culture, and business of diesel racing. From that, we picked the 15 most significant trends shaping diesel motorsports in the near future.



DIESEL DIRECTIONAL

MID-3-SECOND DIESELS

While the gas drag-racing community pursues gains in hundredths of a second or smaller, diesel racers are shattering records by whole tenths of a second. For example, Firepunk Diesel's Cummins-powered Chevrolet S-10 Pro Mod steadily marched its way down the four-second eighth-mile range in a short period. Then, in 2021, it set a new record with a blistering 3.99 pass—the first diesel to break the four-second mark. This trend is sure to continue, according to our sources.

"Some of Firepunk's future plans I can't publicly release quite yet," said Kyle Fischer of Lubrication Specialties, Mt. Gilead, Ohio. "But there's no reason why they can't get into the 3.7s and 3.6s, where all the fastest gas cars in the world are. And it's coming soon."

"It's like Top Fuel drag racing," said Dan Scheid of Scheid Diesel, Terre Haute, Indiana. "You'd think they would have reached a peak by now, but they haven't. I believe it's the same thing in the diesel market. I don't think there's going to be a limiting factor on horsepower for diesels. I had this conversation back in 1974, and it's still going."

PURPOSE-BUILT CHASSIS

Perhaps one of the most startling facts about the recent increases in diesel racing performance is that, so far, it's been done with relatively little attention given to chassis development. Most racers in diesel's top ranks are using modified stock frames or castoff gas-car chassis. This is likely to change soon.

"Going lighter is definitely the trend," observed Alderson. "You can race a 7,000- or 8,000-pound truck. Guys do it. It's very popular. But it's really hard on parts."

"The record-setting Firepunk S-10 we sponsor uses an old super stock chassis from about 22 years ago," added Fischer. "That stuff has been kind of an afterthought because we were just trying to catch the gas guys in power and speed. Now that we're there, some very unique chassis are being built for these platforms."

"The biggest difference between a gas chassis and one for diesel is the weight bias," continued Fischer. "Even with a full billet aluminum block, diesel blocks are so large that the weight is just unlike what



“As more people race diesels, that creates a bigger market for aftermarket manufacturers,” observed one industry source. “At that point, it makes sense for them to start developing parts, and the whole thing just gets bigger.” Photo courtesy of Lubrication Specialties.

anyone's used to seeing in a regular Pro Mod chassis. Now, some of the best chassis builders in America are getting requests for diesel platforms. It's like starting from scratch for them. I have been told they have to completely redo what they have done in the past.”

GREATER PRECISION IN TUNING

Diesel performance is still largely uncharted territory; it simply doesn't have as many proven standards and baseline methods as gas engines. But as the segment gets more established, it's getting more sophisticated about tuning, according to our sources.

“We're pushing more of our customers to look at air-fuel ratios,” said Alderson. “Traditionally that hasn't really been a big topic of conversation in the diesel community, which is funny, because that's such a key component with gas racers. But now diesel racers are getting the engine calibration under much better control, so components live better. It's been absolutely a critical evolution and continues to be looking forward.”

LESS TURBO, MORE NITROUS

Diesels produce such massive amounts of torque that it can actually be counterproductive in drag racing. Now racers are seeking ways to reduce and control that torque more

“TEN OR 20 YEARS AGO, DIESEL RACING WAS A NOVELTY.”

effectively. One way to do so is to use one instead of two turbos, and then add plenty of nitrous to make up the difference. This combination is quickly becoming a standard approach for diesel drag racers.

“A 2,000-horsepower diesel engine is typically making close to 3,000 lbs./ft. of torque,” explained Alderson. “And we don't necessarily want that much. So a lot of guys have gone away from big compound turbos that make 200 pounds of boost. Instead, they're going back to a medium or large single turbo with a bunch of nitrous. The nitrous is a lot more manageable. With a nitrous controller and a timer, you can really control the power band a lot easier than you can with just boost.”

STRONGER COMPONENTS

As horsepower climbs, so does the component carnage, just like in the gas-engine world. Contributing to the damage are ever-increasing rpm's being run by diesel racers, which is another means of reducing the over-abundance of torque produced by these engines.

“One of the most common ways to control

torque in a diesel is just to increase the rpm band of the engine,” said Alderson. “But then that inherently stresses components. The rotating assemblies on diesels are so heavy that it becomes a factor. And then, there's the valvetrain. People think of these as 3,000–4,000 rpm engines. But as guys spin 6,000 rpm going down the track, the factory valvetrain becomes largely insufficient.

“At the same time, diesels have a lot of cylinder pressure,” continued Alderson. “Some of the competition diesels approach what Top Fuel dragsters see for cylinder pressure. So when exhaust valves open, they have to overcome many thousands of psi of cylinder pressure. With that environment, we find that the factory rockers just aren't adequate. So we're working with Jesel to develop an exclusive line of rocker arms and valvetrain components.”

“You're starting to see billet blocks and things like that being offered for diesels,” added Ivan Snyder of Fluidampr, Springville, New York. “That trend will probably continue, especially as diesel becomes a bigger market for manufacturers, and it makes sense to come out with products for it.”

SUPERCHARGERS INSTEAD OF TURBOS

Several engine builders are experimenting with various types of superchargers instead of turbos on diesel engines. Although much development remains before such a setup would be a viable choice for a competition engine, the setup could prove highly effective in monster truck competition, where massive torque is beneficial, but immediate throttle response is essential. Even in drag racing, such a system has potential advantages.

“A lot of diesel guys are struggling with throttle response,” said Alderson. “They've gone away from compound turbos, and

they end up with a giant single turbo in a competition setting—they have to use nitrous to get the turbo spooled up. If they have to lift and get out of the throttle pedal going down the track, they lose boost, and it sniffs the turbo out. But from a throttle-response standpoint, blowers are awesome. You don't have any of those problems."

EMISSION CONTROL

Many people still associate diesel racing with vast clouds of black smoke, which was the norm not all that long ago. Now, more efficient tuning, extensive use of nitrous, and an increased emphasis on environmental responsibility are cleaning things up. Many in the industry say that doing so is necessary to preserve the future of diesel motorsports.

"Ten or 15 years ago, the diesel performance industry got themselves in trouble with guys asking for smoke tunes," recalled Alderson. "They used a tuning calibration specifically to blast out black

Older trucks are gaining more attention from the diesel racing community. "We're seeing a lot of very heavy investment, both from a restoration and a modification perspective on the pre-emission stuff," said one source. Photo courtesy of Ultimate Callout Series.

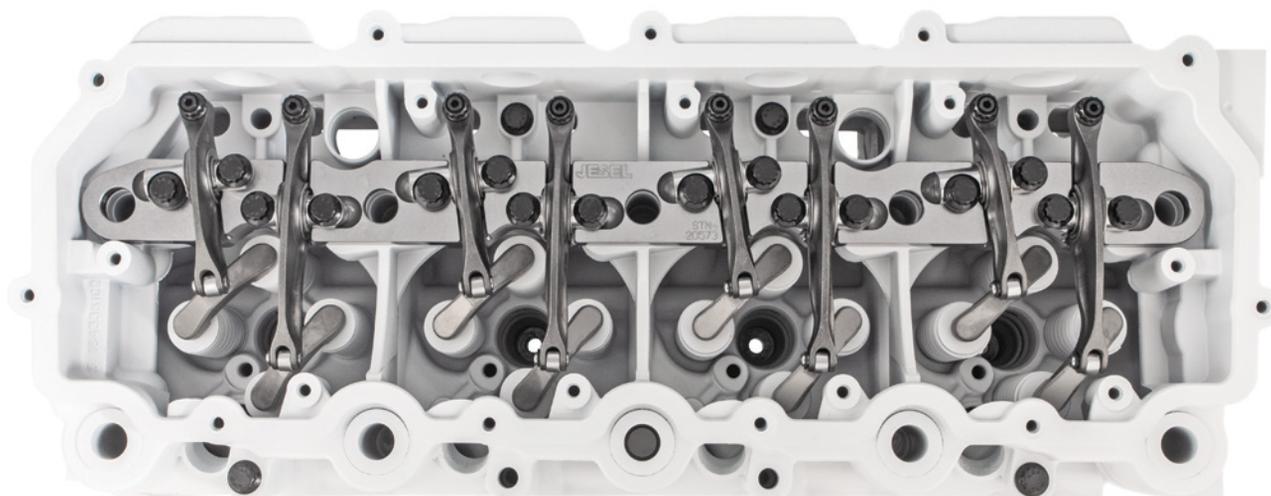


smoke when they roll onto the throttle. But that doesn't put the diesel industry in a good light.

"Ryan Milliken is a good example of doing it right," continued Alderson. "His Cummins-powered Nova can compete heads-up with gas-engine cars, but it runs very clean. There might be just a teeny puff at the starting line, and then it's clean as a whistle the rest of the way down the track."

FACTORY POWER WARS

While mainstream performance enthusiasts have been going gaga for years over the factory muscle-car power wars, there's also been a parallel fight among OEMs for the most powerful diesel crown. All of the Big Three's diesels are now rated at 1,000 lbs./ft. of torque or very close to it. And the fight is only going to get more intense, say experts. That gives competitors a lot of



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“Diesel has quietly been having its own private horsepower war,” explained Jake Hopkins of FASS Diesel Fuel Systems, Marthasville, Missouri. “We’ve seen manufacturers leapfrog each other year after year with bigger torque numbers, bigger horsepower numbers, bigger towing capacity, bigger everything. We don’t see that slowing down anytime soon.”

YOUNG RACERS

As the diesel performance segment gains mainstream visibility, it’s attracting plenty of younger fans. That’s always a good sign for the future of an up-and-coming market.

“Our TikTok account, which is categorically a young audience, has exploded in the last year,” said Hopkins. “It’s our biggest platform by almost 50%. We’re seeing a lot of really young kids, 16–17 years old, getting very, very interested in diesel. They’re asking a lot of questions, going to events, and really

getting into it. That’s a huge opportunity for companies in the diesel space to start talking to these kids. They might not be customers yet, but two or three years from now, they’ll get their hands on old beat-up trucks, and that’s going to be a big opportunity.”

OLD TRUCKS

As interest in diesel racing grows, older trucks are getting more attention. This is partly because of the usual car-enthusiast desire for something nostalgic and different. But it’s also a matter of supply and demand. Diesel trucks have only recently become an option for performance enthusiasts, so there’s plenty of relatively inexpensive raw material lying around waiting to put on the track.

“We’re seeing a lot of very heavy investment, both from a restoration and a modification perspective on the pre-emission stuff—the older trucks,” observed Hopkins.

“THERE’S NO REASON WHY THEY CAN’T GET INTO THE 3.7s AND 3.6s, WHERE ALL THE FASTEST GAS CARS IN THE WORLD ARE. AND IT’S COMING SOON.”

“It’s been cool to see that because up until a few years ago, a lot of those trucks were almost treated as disposable.”

COMMON-RAIL CONVERSIONS

To make older diesel trucks into viable performance machines, there’s been more interest in upgrading dated fuel-system designs to modern common-rail injection, allowing greater power, lower exhaust emissions, and more precise control over fuel delivery.

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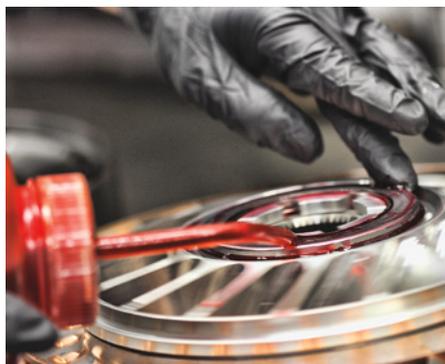
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“Early computer control for diesels—late 1990s, early 2000s—was a little bit primitive,” said Alderson. “So we’re seeing more and more customers experimenting with retrofitting the more desired common-rail fuel system to earlier engines to have better fuel-system control. Right now, they typically utilize a MoTeC ECU to do it, or some combination of factory ECUs. One of our goals is to work with S&S Diesel Motorsport to bring common rail to earlier engine platforms.”

HEADS-UP GAS AND DIESEL RACING

Up to this point, diesel drag racers have primarily competed in their own dedicated events, with diesels lining up only against other diesels. Now that their performance is approaching that of gas cars, we’re seeing more diesels going head-to-head with gas cars, particularly in radial-tire events. Our sources say this trend is likely to grow.



Because there are few off-the-shelf parts available for diesel racers at the sport’s highest levels, the one-off parts they need can be “ridiculously expensive,” said an industry representative. That will likely continue until more companies enter the market and can absorb some of the developmental costs. Photo courtesy of SunCoast Performance.

“Ryan Milliken was the first diesel racer to run a radial event,” recalled Fischer. “He had a green diesel-powered Chevy Nova a couple of years ago, and he broke the Internet when he knocked off a gas car with it. Now he has a beautiful diesel 1969 Nova, and he isn’t even running it in diesel events. He’s only running gas events all year long. And I know of another diesel car being built specifically to run a certain class in the gas world.”

MORE AFTERMARKET INVOLVEMENT

Although big-name aftermarket manufacturers don’t appear to be rushing into the diesel market just yet, there will undoubtedly be more companies developing parts as the market grows more financially viable. This will further accelerate the performance improvements of diesel racers and make it easier for average enthusiasts to jump into the sport.

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More diesel drag racers are going head-to-head against gas cars, particularly at radial-tire events. Ryan Milliken, for example, now only competes against gas cars with his Cummins-powered 1969 Nova. Photo courtesy of Lubrication Specialties.

“As more people race diesels, that creates a bigger market for manufacturers,” said Snyder. “At that point, it makes sense for them to start developing parts, and the whole thing just gets bigger.”

MORE EXPENSE

There are relatively few off-the-shelf parts available for no-holds-barred diesel performance. While this fosters a robust spirit of innovation, creativity, and individuality,

it also brings a steep price tag. This is true at the segment’s upper ranks, which are far more mechanically demanding and experimental in their approach. Unfortunately, these high costs will probably continue until more manufacturers jump into the diesel market and absorb some of the development burden.

“With the top racing diesels, everything on the vehicle is a prototype, a one-off,” explained Fischer. “So it’s ridiculously expensive. But it takes pioneers like Firepunk Diesel, who are willing to put in the money, the time, and the effort to advance the industry for the good of all.”

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EVEN MORE COLLABORATION

As diesel racers reach unprecedented performance levels, they’re seeing the rewards of their tight-knit, collaborative community. Although they originally banded together in the camaraderie of belonging to an outcast, ‘black-sheep’ form of motorsports, now diesel racers are beginning to move into the mainstream largely because of these joint efforts.

“Compared to the gas world, the diesel community is very tight,” said Fischer. “I think a lot of that’s because diesel racers have been kind of pooh-poohed by the rest of the motorsports community for so long, sort of like, ‘Oh, isn’t that cute. These guys are racing the trucks they pulled their race cars with.’ I think that may have bonded us quite a bit over the years as a community. It really helped us work together for the overall good of the sport. And that’s advanced the technology by leaps and bounds these past few years.” **PRI**

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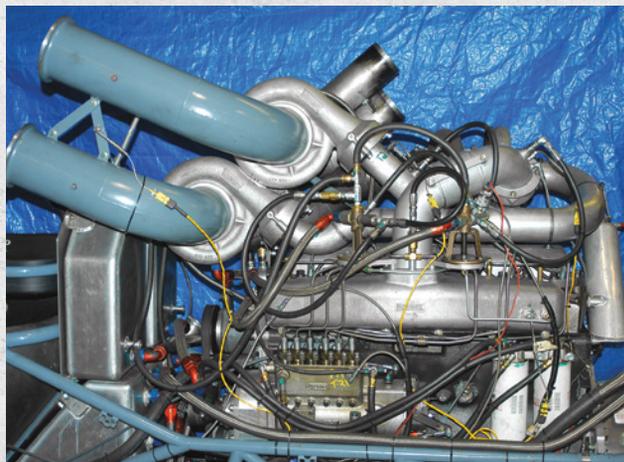
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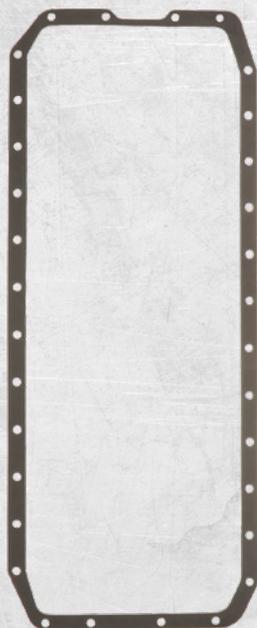
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Photo by Ryan Roossinck Photos

LOAD WARRIORS

LIKE MANY OTHER SEGMENTS OF MOTORSPORTS, DIESEL PULLING HAS SEEN SIGNIFICANT INCREASES IN HORSEPOWER AND THE INTEGRATION OF MORE SOPHISTICATED TECHNOLOGY IN RECENT YEARS. WHILE THE HARDWARE PARALLELS DRAG RACING AND OTHER POPULAR DISCIPLINES IN SOME RESPECTS, MANY ASPECTS OF COMPETITIVE PULLING ARE WHOLLY UNIQUE TO THE SPORT.

By Bradley Iger

Tube frames, billet engine blocks, and wild multi-turbo setups might sound like the checklist for a radial tire drag car or a hardcore time attack setup, but it's also becoming an increasingly common sight in the world of competitive diesel truck and tractor pulling. It's a segment of motorsports that's not as widely publicized as some of the more traditional racing disciplines, but that doesn't mean that these teams are treading water.

"Over the last five years or so, people have started to notice that there's a big opportunity here," said Van Haisley of Haisley Machine, Fairmount, Indiana. "They're realizing that they need to start supporting this type of racing and making parts for these teams. Early on, if you wanted something, you basically had to make it yourself. Now the pullers of today can pick up the phone and get what they need—provided they can deal with the current supply chain issues."

Although some of the components used in competitive diesel pulling have commonality with other types of racing, others are highly specific to this segment. To get a better understanding of the current state of affairs in the diesel pulling world, we spoke with racers and builders involved in the top tiers of competition to find out what sort of support they need and where they're getting it.

ROB RUSSELL 2021 NTPA GRAND NATIONAL PRO STOCK CHAMPION

"There are basically no parts on a Pro Stock tractor that you can just buy at your local store," Russell stated.

"Just about every part on that tractor is an aftermarket billet piece. Horsepower is a big factor. Back in 2011, we were at about 3,000 horsepower, and we're right at 5,000 horsepower today."

He said the influx of specialized data acquisition systems has helped push competition to another level in Pro Stock pulling. "We do a lot of tuning by data logging, and the technology in our sport is changing constantly. Every year there's something new. And every time we find another 300 hp, we also find a new weak point that has to be addressed."

As the technology continues to evolve, the tractors are also hooking up better, and that has translated to more abuse on the drivetrain. "Companies like Pro Puller are making tires that are allowing these tractors to put the power down so much more effectively, but that's also when we start seeing new failures. So we're making changes, like going from three-gear planetaries to billet four-gear planetaries, switching from 1 3/4-inch shaft size on the ring and pinion to 2-inch shafts, and we're using wider gearing in the transmission to keep everything together."

Russell's Pro Stock puller is motivated by a 680-cubic-inch mill that's based on a 619-cubic-inch John Deere architecture. Sourced from Riverside Engines in Tiffin, Ohio, this powerplant starts with a stock block but otherwise shares very little with its production counterpart. Pro Stock rules dictate that displacement is limited to 680 cubic inches, the stock crank must fit in the block, and the cylinder head has to bolt into the stock location.



"Every year the power goes up, and every time that happens, we find the next weak point in the combination," said Rob Russell, who competes in the NTPA's Pro Stock class (and is seen here winning Session Two at the Lions Super Pull of the South in Chapel Hill, Tennessee). Currently his tractor's engine is based on John Deere architecture, but he plans to upgrade to a billet block next year. Photo courtesy of Tracy Waters and NTPA.

"We use a billet crankshaft with a 5 3/4-inch stroke with a stock 5 1/8-inch bore," he explained. "Riverside uses heavier sleeves and a billet piston made in-house, and the rods that are produced in-house are four-bolt cap. We run a compression ring called a C-ring to seal the cylinder head to the block, and we've made that head 6 inches longer than stock—3 inches forward and back, and we run tie-down bolts on the cylinder head into a steel cover to help hold that head in place."

He also noted that he has plans to move to a billet block next year. Produced by Chaos Fabrication in Washington, Pennsylvania, the new block will be 300 pounds heavier than the stock block due in part to its lack of water jackets, which will bolster the block's strength in turn. Russell's drivetrain combination includes a centrifugal clutch from Crower in San Diego, California, with a Baldwin, Wisconsin-based Profab Machine throwout bearing that's hooked to a reverser from SCS Gearbox. "A reverser is a good option if you have a rearend ratio that you like," he said. "The problem is that it's not like asphalt—we can't change our ring and pinion very quickly. So I have four different ratios I can use in the transmission depending on the track conditions."

Russell's tube chassis is sourced from Engler Machine and Tool in Princeton, Indiana. "There's a half-dozen different chassis builders, and most everyone runs a tube chassis now with a truck rearend," he said. "Back when these tractors were making around 2,800 hp, you kind of needed the chassis to flex a little. But it seems like now, with the horsepower we're making and the tires that have been developed—the stiffer it is, the better."

His upgrades for the 2022 season include a bigger fuel pump and a larger single turbo setup, along with new Mitas tires, but he's quick to point out that testing new combinations is an art in and of itself. "Coming off of a successful season, it's tough because we don't want to screw things up. But we can't sit still either—it's too competitive. Dyno testing is useful, but this is why a data logger is so important in our sport. I run a TS Performance data acquisition system, and Corsa has a new system that allows you to put sensors on your driveline that will measure torque and horsepower. Every year the power keeps going up, and every time that happens, we find the next weak point in the combination."

VAN HAISLEY HAISLEY MACHINE; SUPER STOCK DIESEL COMPETITOR

Along with engine building and machining services that he and his wife Patty offer through Haisley Machine, Van campaigns the "Rock Hard Ram" Dodge 2500 4x4 truck in Super Stock Diesel class competition. "The only difference between the engines we run and a high-performance drag race engine is our lack of spark plugs," he quipped. "We're running 150 pounds of boost with a three-turbo setup."

His latest engine combination consists of a Cummins-based 391-cubic-inch billet aluminum block with no water provisions and a cast-iron head that, with the help of a robust amount of boost, develops in excess of 3,300 hp. "My atmospheric chargers are 110 mm, and the manifold charger is 115 mm," he explained. "It's a two-stage system, so we have two chargers blowing into the manifold charger. All of the charge air runs through a big Bell intercooler on a belt-driven pump—that air will be about 650 degrees leaving the turbochargers, and I rarely exceed 100 degrees with the air entering the engine."

He said that while power is easier to come by these days, sanctioning bodies' tire rules have placed a greater emphasis on technique. "With the pickups in our sport we've got all this power available, but they've got us in a box when it comes to tires. They can only be so big in circumference, and the tread patch can only be so wide. It has made the sport very entertaining because the guy behind the wheel has to be able to control all of that horsepower and torque to get these things down the track."

Like Russell, Haisley uses a reverser with a single forward gear rather than a traditional transmission. His is sourced from Profab Machine, which also supplies the transfer case. "It's just like a sprint car—you have about 20 sets of quick-change gears that allow us to swap the ratio right there in the transfer case," he said. "Profab and SCS Gearbox are the two big players in this sport when it comes to reversers."

The rearend used in his Dodge 2500 is a tandem SQHD unit that was originally designed for a semi-truck. "Each unit is rated for 19,000 pounds, so it would be a 38,000-pound total rearend setup," he said. "These are generally sourced from big truck rebuilders, and SCS Gearbox makes the spools and axles we use."

Van Haisley of Haisley Machine believes power is relatively easy to make these days, but restrictive tire rules in the Super Stock Diesel class challenge the driver to put that power to the track. In addition to offering engine building and machining services, he competes in the NTPA in his "Rock Hard Ram" 2500 4x4 pickup. Photo courtesy of Tracy Waters and NTPA.



We fabricate our own sheetmetal housings for them to reduce weight."

The truck's new drawn over mandrel (DOM) chassis for the 2022 season comes from Barker Machine and Fabrication in Whitehouse, Ohio. "It's basically an upper rail, a lower rail, and a lot of webbing in between," he said. "We bent and broke a lot of frames over the years, so we've implemented different angles and reinforcement strategies to get that strength. The way the hitches are installed on them is another big thing. There are some

manufacturers that are making the chassis out of chromoly now, but I think they're still struggling with them, to be honest."

He told us that due in part to the use of water injection in setups like his, when today's engines fail, they tend to do so catastrophically, and that means that testing and maintenance are more critical than ever.

"We change the oil in them every 1,200 feet; it's 6 1/2 gallons of oil each time. We also put new rings in them about every 50 runs, but the big maintenance items are things like the valvetrain, the oil, and the clutch. The clutch also gets adjusted after every pass down the track—it's one of the most important torque management features that we have."

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TRAVIS SCHLABACH 2021 NTPA GRAND NATIONAL SUPER STOCK DIESEL CHAMPION

"I think the technology behind turbochargers and fuel injection have made the biggest difference in the climb of power levels over the past five or 10 years," Schlabach said. "You put more air in the motor, you need more fuel to support it, and once you have that, you're looking for more air again. It's a vicious cycle."

Schlabach competes in Super Stock with the "Bone Twister," a tractor based on the International Harvester 1066 that sends roughly 5,000 hp to the rear tires thanks to a cast-iron, production-based, 540-cubic-inch inline six-cylinder engine that was designed and built by Hypermax Engineering in Gilberts, Illinois.

"In the past year or two, some people have been working on billet blocks, and solid billet heads are readily available, but my block still has water around the sleeves, and I still have water in my cylinder head," he noted. "The advantage of having water in the block and cylinder head is that we can pre-heat the motor to about 160 degrees with a water heater that goes right in our radiator piping. So an hour before we want to start this thing, I can get the motor

warmed up. If I start the engine with no heat in it, it'll take six to eight cans of ether to get it to the point where it will run correctly. If you already have that heat available, you can get it there with one to two cans. I think that having the water there to help cool the motor down at the end of the run is an advantage, too, especially if there's a sled reset or something like that."

His turbo setup comes from Hypermax as well. "It's a three-charger rig. We take atmospheric air through two top chargers running in parallel, and they blow into a bottom charger that's mounted right on the exhaust manifold. That compressed air then comes out of the bottom charger and goes into the motor." He said his intake manifold boost pressure is typically somewhere in the 300- to 325-pound range, but some competitors are cresting 400 pounds in his class.

The tractor's four-speed transmission is sourced from Profab Machine. It's a cast aluminum center section with billet end caps, and Schlabach said that Profab manufactures its own custom gearsets for it as well. "I've had really good luck using a four-speed—we can pick a gear based on track conditions and what we want to do. And it's incredibly strong, I don't think that we've hit the ceiling for its power handling yet."

The rearend is a Rockwell SQHD with a billet carrier that's sourced from Engler Machine and Tool, and Engler built the tractor's chromoly tube chassis as well. "Tim Engler is a wealth of knowledge in this sport," Schlabach said. "Tim, along with Larry Peterson at Profab, and Jeff and Jerry at Hypermax Engineering, have been instrumental in my success over the years."

The engine in his tractor sits in a cradle that allows it to rock back and forth. "There are three bolts that hold the entire motor assembly in that tractor. As the engine creates torque, it naturally wants to pick up one of the rear tires. By allowing it to pivot a little bit, it helps keep that tire on the ground."

In terms of maintenance, Schlabach checks the clutch after every few passes and is always keeping an eye on the valvetrain. "And, of course, we check our oil screens after every pass to see if we're getting any bearing material or anything like that," he said. "Maybe half-way through the year we'll put a set of rings in it to keep the blow-by to a minimum, and we'll replace pistons once a year. Turbo maintenance is also really important. The thing about a multi-charger rig is that if a compressor wheel goes out at the top, it can cause a domino effect of failures in the setup. If everything's running right you don't have much to worry about, but if you starve it for oil or it gets overheated, you can run into problems."

The production-based, 540-cubic-inch inline six in Travis Schlabach's International Harvester-based tractor sends some 5,000 horsepower to the rear tires. Schlabach's trick for keeping those tires planted: The engine sits in a cradle that allows it to rock back and forth when torque wants to pick up one of the rear tires. "By allowing it to pivot a little bit, it helps keep that tire on the ground," he said. Photo by Ryan Roossinck Photos.

COLIN ROSS CHAOS FABRICATION

Ross was recently involved in a build at Chaos Fabrication dubbed El Niño, a Pro Stock tractor built for the Parish family of Marion, Kentucky. "The engine is based on an International DT466 inline six-cylinder engine," he said. "Pro Stock caps displacement at 680 cubic inches, so 672 cubic inches is as big as we could get away with. We designed the engine in-house and had it cast because we wanted something better, and there just wasn't anything out there. We saw a lot of areas in the blocks that we were using that needed improvement, so we took it upon ourselves to create our own."

The engine in El Niño is paired with a four-speed gearbox from Profab Machine that sends the grunt to the rear tires through a Rockwell rearend. Underpinning the tractor is a chromoly tube frame chassis from Engler





The engine in Colin Ross' "El Niño" Pro Stock tractor is based on an International DT466 inline six, but it was designed at Chaos Fabrication and cast for Ross. "We saw a lot of areas in the blocks we were using that needed improvement, so we took it upon ourselves to create our own." Dyno testing is essential for these pulling teams, Ross said. "Horsepower doesn't guarantee wins, but it sure doesn't hurt to have all that you can get."

Machine and Tool, and Chaos Engineering incorporated a third frame rail into it to further stiffen things.

"One of the things that has helped out the tractors in Pro Stock significantly is stiffer frames," he said. "That was a night-and-day difference for that class. In the past, competitors wanted the chassis to be flexible, but now they want them to be stiff, and I think the horsepower is what changed things. It takes torque to make a chassis flex like that, and that means it is robbing torque from the rear tires."

He also noted that dyno testing has become essential for these teams. "It's been a horsepower chase in recent years. Horsepower doesn't guarantee wins, but it sure doesn't hurt to have all that you can get."

In terms of parts sourcing, Ross said that there are names that tend to come up time and again for certain components, but in other aspects of pulling, it really just comes down to the relationships that suppliers have built with the teams they support. "We do a lot of work with Hypermax Engineering for engine parts, Wimer Fuel and Air does the

turbo setups and the injection pumps on all of our stuff, and Sonny Bryant is at the top of the list for crankshafts."

Looking down the road, Ross said that electronic fuel injection may take on greater importance in diesel pulling, but the jury is still out. "There are some people trying it now, so a lot of folks have their eyes on that at the moment. But I think it's going to take a lot of time and money to make it work." **PRI**

SOURCES

Van Haisley
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BUSINESS PROFILE

STAINLESS DIESEL



This former gasoline-powered racer is filling the need for those in the turbodiesel market and setting blistering times to match.

By Andy Heintzelman

Adapting to the needs of the diesel drag racing market is what turned racer Johnny Gilbert into a business owner. It's 2022 and he's adapting again. There's a demand for stock-appearing turbochargers that Gilbert's Stainless Diesel is supplying.

"We're known more for high horsepower as far as drag racing and sled pulling, but what we're looking to do more of are stock, bolt-on turbos," he said. "We're super excited about it and pushing it aggressively."

That approach isn't new at all for Gilbert and Stainless Diesel. His company in Middlebury, Indiana, specializes in single- and twin-turbo piping kits, billet five-blade turbo upgrade compressor wheels, and personalized BorgWarner turbochargers. The shop services professional customers that make 3,000-plus horsepower but also daily drivers who need just 400 to 600.

For Gilbert, it was an experience at the race track that was pivotal in his development of Stainless Diesel.

FUELED BY DIESEL

As he is with marketing his stock-appearing turbos today, Gilbert was likely "pushing it aggressively" when he broke the rearend in his 1971 big block Chevelle at Osceola Dragway, his home track, about 16 years ago. Officials allowed him to use the 2001 Dodge Ram 2500 diesel he used to tow his car to the event to make a pass and collect points.

"I won the round!" and two more that day, he said, the memory still worthy of exclamation.

The truck was powerful then, but it has evolved into a monster that's won three straight Hot Shot's Secret Pro Street titles in the Outlaw Diesel Super Series (ODSS) and holds a division record pass of 4.82 at 158 mph set at Wagler Motorsports Park in Indiana.

"It still has the original cab, and that's about it," Gilbert said about his truck.

The experience of putting his pickup on the track changed things for Gilbert. "I had the most fun—people were giving me a bunch of crap" about his diesel substitute. "It took me from my racing roots in the gas world to want to race a diesel."

He began looking for diesel racing organizations, while his background helping his truck-driving father repair semi-trucks gave him a leg up on diesel knowledge. The effort soon spun Stainless Diesel from a "side hustle" into a fulltime business.

"I was enamored by the ability to make more horsepower out of a diesel pickup truck" and erase an image of slow and cumbersome, he said.

He soon realized, however, that if you wanted a new performance diesel drag racing part, "you had to make it yourself."

EASY REPLACEMENT

Market demand explains the current push by Stainless Diesel with its stock-appearing, bolt-on turbochargers. Gilbert's team is targeting customers who tow and want cooler exhaust gas temperatures (EGTs) and faster response, but also drag racers or sled pullers who want to move up a class and need more horsepower.

Gilbert admitted that the change is driven in part by more states inspecting street-strip vehicles. "Basically, it's to have a guy be able to play but still have his truck be compliant," he said.

Owners of 1990s and early 2000s trucks are also buying stock-appearing turbos as their old units fail.

The beauty of stock replacement is the ease of installation. "You don't have to upgrade anything," Gilbert said, whereas a new turbo mount could set off a costly chain-reaction of new parts and fabrication.

Stainless Diesel offers stock-appearing turbochargers for all

Ford Powerstroke and Dodge Cummins applications (Stainless Diesel is the original manufacturer of stainless exhaust manifolds for Cummins) and all but the past few years of Chevy Duramax.

About 90% of the stock-appearing turbos use Stainless Diesel's 5 Blade Mafia design developed about 10 years ago when Gilbert was looking for a turbo to work specifically with compound systems. He used noted manufacturers including BorgWarner and Holset in the development.

"We tweaked them a little bit to be more diesel specific and work with our compound (systems), which are like a two-stage air compressor" that provide power at low and high ends, he said.

5 Blade Mafia wheels are light compared to a cast wheel, Gilbert said, and help keep EGTs cool while still producing big horsepower.

As a bonus, they produce a loud jet engine turbo whistle. "Guys like that,"



Johnny Gilbert heads up Stainless Diesel's R&D and development work. When he started the business 16 years ago, he quickly realized that if he wanted performance diesel parts, he would have to make them himself.

Gilbert added.

Brandon Matthews, owner of Greenline Diesel in Jacksonville, North Carolina, a Stainless Diesel dealer, agreed that the 5 Blade Mafia sound is alluring. "It doesn't

sound like anything else out there, he said. "It's just a distinct sound."

At a recent race he recalled hearing a truck from a distance and noted, "Yep, that truck has a 5 Blade on it," Matthews said.

PERFORMANCE AND PASSION

Matthews said he sells Stainless Diesel turbochargers for reasons well beyond the sound. They also produce higher torque, lower EGTs, and faster spool time.

He said Gilbert's crew has put considerable time into testing and development, studying things like compressor wheel design and airflow for the diesel turbo market.

"Stainless was at the forefront of all that," he said.

Like Gilbert, Matthews revels in the success diesel racers—with backing from manufacturers like Stainless Diesel—are having against "the gas guys."

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RACING WITH—AND BEATING?—‘THE GAS GUYS’

Competitors in the Outlaw Diesel Super Series Pro Street division likely celebrated Johnny Gilbert's decision to give his 2001 Dodge Ram 2500 a "timeout" in 2022 after three straight championships.

Those in other high-horsepower drag racing series, meanwhile, will get to know Gilbert and his proclivity for diesel this year.

He turned in his 4,400-pound truck for a carbon-fiber, split-window 1963 Corvette that weighs 2,700 pounds "with me in it," Gilbert said.

Originally built by SRC Motorsports' Wally Stroupe in North Carolina and reconstructed with help from Hammertech Racecars in Indiana, Gilbert's Pro Mod is powered by an all-billet, 6.7-liter inline Cummins diesel with a MoTeC ECM (engine control module). It also has a one-off manifold, fabricated, of course, at Gilbert's Stainless Diesel shop in Middlebury, Indiana, to fit the turbo in the chassis.

With the ECM, it'll have in excess of 3,500 horsepower.

"We want to go race with the gas guys," Gilbert said, not hiding his friendly but competitive demeanor.

There's no restriction on using diesel in series such as NMCA and Outlaw Pro Mod, though he admitted it is very unusual.

He believes there will be marketing value for his business, and he plans to test some new components, too. "I'm pretty excited for that this year," he said.

A gas drag racer in earlier years who now has diesel in his veins, Gilbert's expecting a curious reaction. "We'll be kind of the oddity, the only diesel guys in the pack," he said with a confident laugh. "I'm sure we'll get the gas guys scratching their heads a little bit."

—Andy Heintzelman

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trucks beating cars that really shouldn't be beaten," he said wryly.

Though he has raced a few times, Stainless Diesel customer Derrick Barney isn't worried about winning on the drag strip in his maroon with gold trim 2011 Ram 2500. But don't misunderstand, he digs the chance to make big horsepower with "Big Sexy."

The Chebanse, Illinois, resident recalls first taking his daily driver to Stainless Diesel, having learned of Gilbert's reputation for turbocharging. "You don't know how it's going to go when you meet someone with a well-known name," he said, "but he's just another dude hanging out doing truck stuff."

Barney has updated his turbo five or six times to get his 6.7-liter Cummins to 1,100 horsepower—and he's shooting for 1,400 or higher. "It's just one of those things that gets addicting," he said. "You just keep wanting more and more."

He credits Gilbert for his patience and taking time for any customer, and said his



Stainless Diesel is a family business. Johnny Gilbert's son, John III (leaning into the truck with his dad in the seat), went to school to learn CAD and is also a machinist, turbo assembler, and the race team's tuner.

passion motivates other diesel owners.

Barney has come to understand that passion. "Honestly, I knew very little about diesel when I bought my first truck," he said. "But once I found out you could make them a little bit more powerful, a little bit faster, it

snowballed, and it's more and more fun."

IN-HOUSE ADVANTAGES

Stainless Diesel, which has seven full-time employees, has a number of CNC machines in its 4,800-square-foot shop used to manufacture turbos and components, including piping kits, exhaust manifolds, flanges, and brackets.

It wasn't always that way. Gilbert outsourced a lot, but he grew tired of vendor backups. "I realized that we really needed to bring stuff in-house to have more control over the timeframe...like when you need something done in short order," he said.

The transition began about six years ago and quickly gained momentum.

Though the machine shop owners he had relied on were upset at first, Gilbert made it a backup for them.

In-house control also reduces inventory, which improves cash flow. And, there's

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quality. "We can control the tolerances, and if I want to make a design change, it's quick and easy for us," Gilbert said.

CNC equipment at Stainless Diesel includes a Haas TL1 lathe, a Brothers 1000X with fourth-axis capability, and a five-axis Matsura machining center that could lead to even more production in-house. He said the Brothers' unit is used to machine exhaust manifolds and turbo adapters—the latter in demand by customers who pull a trailer in the winter but switch to larger turbos for the pulling season.

Gilbert noted he's purchased all of his machinery at the PRI Trade Show.

Gilbert and his son, John Gilbert III, mostly use Fusion 360 software for their designs, but are looking into using Mastercam in the near future.

Johnny Gilbert does most of the R&D and product development while his son, who went to school for CAD training, is also a machinist, turbo assembler, and the race

team tuner. Other family members include Johnny's wife, Amy, who does marketing and graphic design and manages the company's website (stainlessdiesel.com); and daughter Brianna, who handles accounting and inventory. Trevor Lortie is lead sales manager/marketing; Stephen O'Neill, turbo assembly, sales and technical support, and part of the race team; and Eric Long is a fabricator and welder. Roy Currier is the crew chief for the race team.

THE DIESEL WORLD

Gilbert's love of diesel drag racing is driven in part by the "commonality of battling the gas guys." But it's not easy.

"Everyone knows you're at somewhat of a disadvantage of technology, speed," weight and more, he said. "In the diesel world, there is so much torque to manage—and torque breaks parts."

This spring Gilbert said he was "very concerned" about inflation and diesel fuel

prices, and he worries it might keep entry-level racers away.

In speaking with customers and vendors, however, the mentality is "keep on moving forward, but pay attention."

Another approach is to equip race and tow vehicles with new products, including the stock-appearing bolt-ons. "Making things more efficient—that's going to help fuel economy for sure," Gilbert said.

Those battles aside, Gilbert is "amazed" at what his company has accomplished in just 16 years. "The connections we've made in this process of starting as a small shop and getting a little bit larger and a little bit larger...and meeting all the people," he said. "I love talking to people from all over the country and helping them with their projects," including "the gas guys."

Gilbert wants to continue to feed off that energy. "It's neat to see the diesel industry grow, in the racing aspect," he said. "I'm pretty excited for the future." **PRI**

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BLOCK STARS

FROM CUSTOM ONE-OFFS TO NEXT-GEN MAKEOVERS, TODAY'S SUPPLIERS ARE STEPPING IN WITH INNOVATIVE SOLUTIONS FOR DEMANDING APPLICATIONS.

By Mike Magda

Using today's accessible design and manufacturing technologies, racers can build just about any engine they want if they have the creative vision and money to do so. Many cylinder-block manufacturers are giving them the starting point they need to fulfill unique ideas.

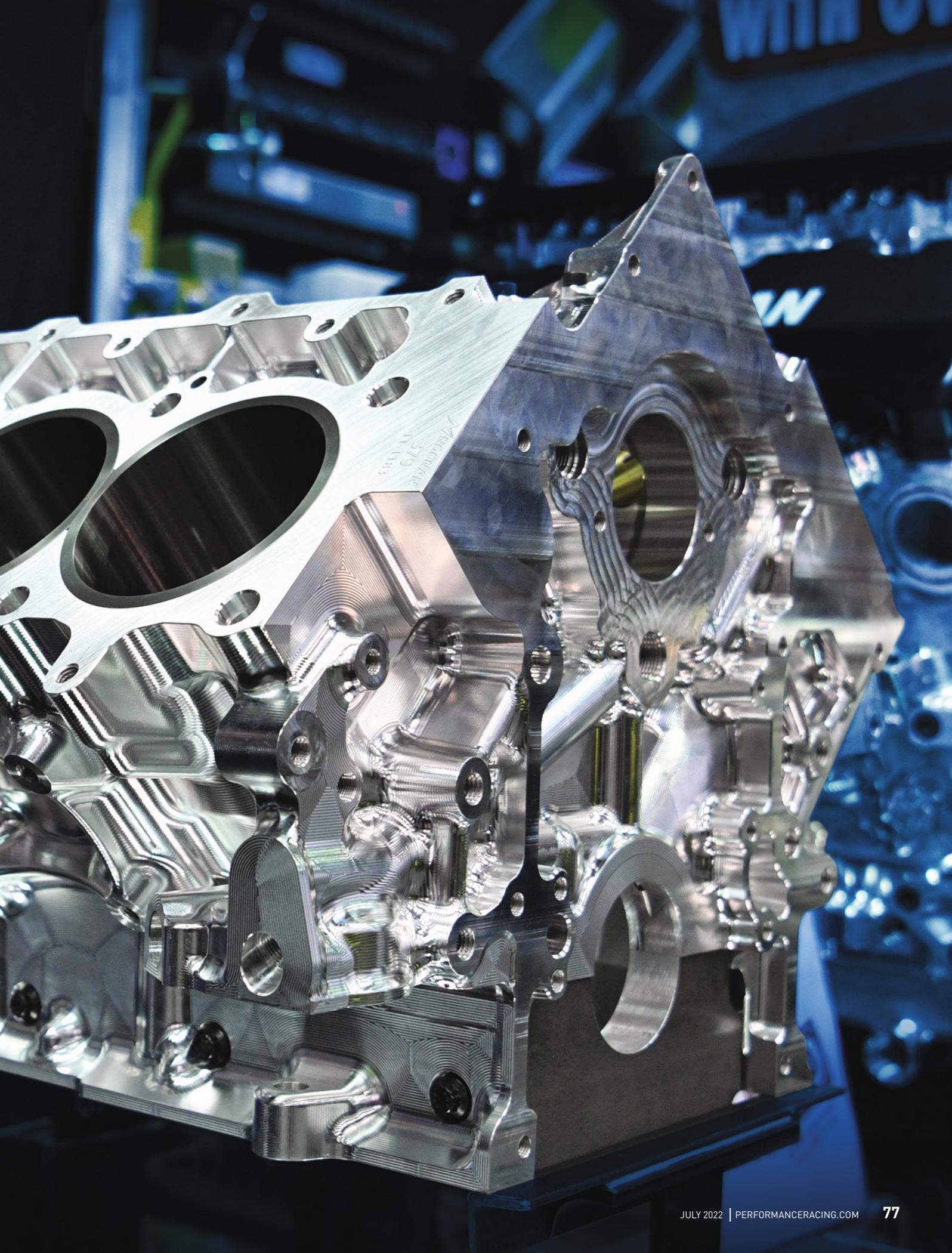
"Every block is custom built," said Mark Fretz of Brodix, Mena, Arkansas. "We give the customer a menu of things we can do, and they just go down that list. We deal with so many different types of racing. We deal with every different type of racer who wants anything different done."

Brodix specializes in cast aluminum cylinder blocks and doesn't offer any billet products. The company does source a raw iron big block Chevrolet block casting and then machines it in-house; however, supply issues are a challenge these days because its foundry also has contract commitments with OEMs that often take priority.

"We build a block geared for sprint cars. We build a block geared for dirt late models. We build a block geared for drag racing," said Fretz. "And then there's the big block stuff that can be geared from street cars to Top Dragsters and Top Sportsman."

Brodix also offers development work. One current project, for an OEM client, could not be discussed, but Fretz could tell us about another finished project for a large airboat. "They have four 632-cubic-inch, big block Chevy engines with props on an airboat to move heavy equipment," said Fretz. "It was an interesting project, doing blocks and heads for them."





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Rules are often the driving force for new cylinder block development. World Products in Louisville, Kentucky, recently released a BBC iron block with a 9.500-inch deck height, which is shorter than the traditional 9.800-inch measurement. It also features

billet-steel main caps and is machined for a 55-mm camshaft.

"It was really designed for truck pulling and Northeast modified singles, where they run big blocks but have 500-cubic-inch max displacement in the rules," said Jack

McInnis. "The shorter deck allows racers to keep the rotating assembly lighter and the center of gravity lower."

Demand for iron blocks remains steady, according to McInnis, who added that keeping up with the orders is the biggest challenge.

ACE UP YOUR SLEEVE

There is no "chicken or the egg" dilemma when discussing cylinder blocks and sleeves. The blocks definitely came first.

"The only time we come out with something new is when the manufacturers come out with something new," said John Catapang of Darton International, Carlsbad, California. "And there hasn't been anything new from the factories. Coming up next for us is the VR30 in the new Nissan 400Z."

The VR30 platform has been around, so cylinder liners may need only a few tweaks to fit the latest iteration in the Z. That leaves Darton time to expand its horizons.

"In order for us to try to stay current, we decided to jump into other markets instead of sticking with pure automotive," said Catapang. "We're looking to work with side-by-side vehicles. The current one that's been just blowing up the market is the Can Am."

Darton, along with Race Engine Development (RED) located just down the road in Oceanside, California, has introduced modular integrated deck (MID) conversion kits for the three-cylinder turbo

Darton International, working with Race Engine Development, has introduced MID conversion kits for the three-cylinder turbo engines in Can Am UTVs. The kits help strengthen the block for 500-700-horsepower applications. Photo courtesy of Race Engine Development.

engine in Can Am vehicles. A MID conversion involves turning a dry-liner engine into a wet-liner configuration.

"The MID is perfect for that block because it's square and thick in a lot of good places," said Catapang. "Putting the MID kit in there is a big difference because it makes that block a lot stronger. I mean these guys are usually trying to push 700-plus horsepower out of a little three-cylinder engine."

"Yeah, we have gotten into the ATVs, UTVs, and watersports," confirmed Steve Demirjian of RED. "It's crazy. You can get 500 to 700 horsepower out of these little motors."

Demirjian said he gets both repair and fresh race builds coming through his shop. "I get some with cracked cylinder walls, and we can get most of them back in service with a MID wet liner," he said, adding that some European car brands are also becoming popular conversions. "I'm getting into more BMW and Mercedes blocks, especially custom work with Darton liners."

Sleeve replacement continues to provide steady work to the manufacturers as the hot market trends that started with COVID-19 carry on.

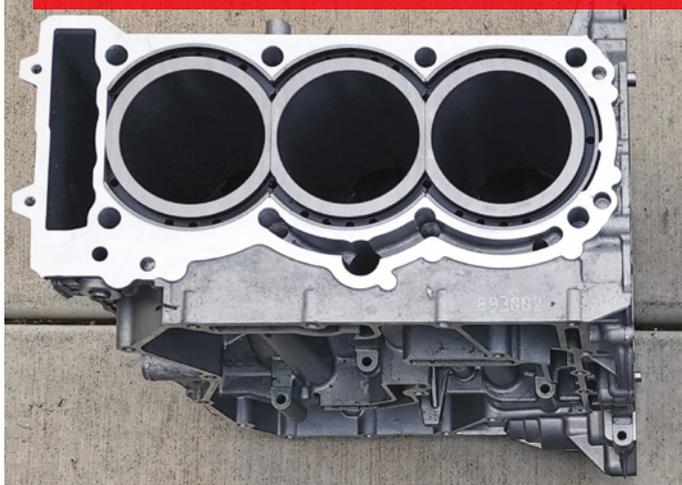
"Honestly, we're just busy," said Jeff Zaugg of Advanced Sleeve, Mentor, Ohio. "We're busy with a lot of ductile-iron product. We just seem to be really busy. But we are also tinkering with heat-treating now."

Supply issues are also forcing the company to machine sleeves out of solid bar stock. "It's just too hard to get ductile tubing. The foundries aren't catering to our needs. We have the machines to do that machining, but it ties them up dramatically. That's why we've fallen behind on some deliveries," said Zaugg, adding that the machined sleeves then have to be heat-treated.

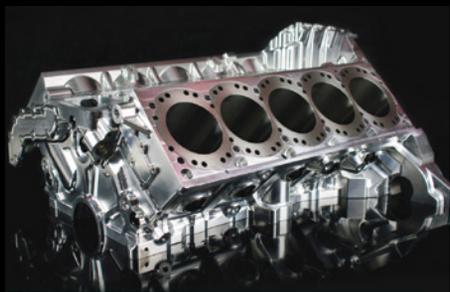
Over at L.A.Sleeve in Santa Fe Springs, California, product is being developed for both domestic and overseas markets. The company has teamed with Bullet Race Engineering in Australia to provide sleeves for its billet blocks.

"The majority of blocks they're making are being shipped to the US, especially the Toyota 2JZ and Honda K24," said Dave Metchkoff. "They've become very popular here for both drag racing and drifting."

There were some early failures with the blocks that Metchkoff said were traced to tolerance and clearance issues. "But by putting our two minds together, they've really created a nice



"You know, a lot of that is due to foundry issues, but there's definitely a very strong demand for iron blocks," he said, noting that the company still doesn't have a true LS block but offers a hybrid small block Chevy that accepts LS cylinder heads and induction gear.



L.A. Sleeve is developing cylinder liners for domestic and overseas markets. Shown here is an aluminum Lamborghini block with L.A. Sleeve liners installed.

product," he added.

Another current collaboration is with Fast Forward in Richey, Florida, a company that has found a tight niche in race-prepping factory Ford Coyote blocks. "Yeah, it's not an aftermarket or billet block," explained Metchkoff. "But he's taken that motor and perfected it with our sleeves. I've been there, and he showed me his processes. They are so meticulous about perfecting little things. He's producing a block that from the crank up is straighter and rounder than from the factory. Also, Lingenfelter is sleeving their LS7 blocks with our sleeves and doing much the same thing as Fast Forward."

Finally, in a sign of the times, L.A.Sleeve is expanding its installation services. "The majority of our business is producing sleeves. But we install sleeves here for a number of guys because machine shops are shrinking throughout the US," concluded Metchkoff. —Mike Magda

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"We've had teams, both drag racers and circle track racers, using them along with street-car people. The fact that you can run a LS top-end and still drop it into like a 1969 Camaro chassis without having to change the crossmember, motor mounts, and cooling simplifies everything," said McInnis.

Finally, McInnis said adjustments have been made on the manufacturing side to help racers with extreme cylinder pressure applications. "Whether it's boost or nitrous, we did make quite a few revisions. Actually, we've bumped the alloy for all of our

blocks up to a Schedule 40 iron, which is considerably stronger than some aftermarket products that are Schedule 30 or some OEM stuff that is 20, or in that range," he said. "We started with the Ford block, and now they're all poured with that alloy. We thickened the main webs in the Ford block in addition to using the stronger material. We've also added material in the cam tunnel. We have a guy in Australia running 57 pounds of boost on that block."

Advancements in cylinder heads has prompted block manufacturers to offer more



World Products offers a BBC block with a 9.5-inch deck height. "The shorter deck allows racers to keep the rotating assembly lighter and the center of gravity lower," said our company source.

options in the way of bore spacing, the number of fasteners, and lifter locations.

“Our R&D and product teams are always researching new applications to build engine-block solutions,” said Mike Panetta of Dart Machinery, Warren, Michigan. “We currently have two blocks in development that we can’t divulge the platforms due to confidential nature. But we can assure you that these will be game-changers for the performance market.”

One recent partnership had Dart develop a block-and-head combination to be used by Pro Line Racing in Ball Ground, Georgia, for a new race package. “The block and cylinder heads utilize the Dart X lifter layout,” explained Panetta. “This was done to make large improvements in valvetrain stability with the conventional big block Chevy head layout. By using the X lifter pattern, it allowed us to design a one-piece rocker bar assembly. This design has shown incredible performance over the past year during our testing.”

By offering a wide variety of options that have been developed through years of working with race teams, Dart can turn a conventional block into a special-order block. These options include oversized lifter bores, custom lifter locations, different cam tunnel diameters, main and head stud upgrades along with full prep machining services. When power demands even more strength, Dart offers billet programs.

“In extreme boost applications, many customers move up into a solid or water billet block design,” said Panetta. “The billet block design is a much stronger option over an iron or cast aluminum engine block. With a billet block, we can improve crucial areas of stress caused by high boost levels, allowing us to build a stronger block for those applications.”

On the topic of rules, Panetta said that sanctioning body officials are kept apprised of Dart’s development work that may test any boundaries. “Our primary markets are drag racing and circle track, and we offer a large list of different blocks that fit many of the rules in either segment of racing,” he explained. “As we develop new blocks, we involve the sanctioning bodies to make sure we design these blocks around the rules that will allow them to be legal.”



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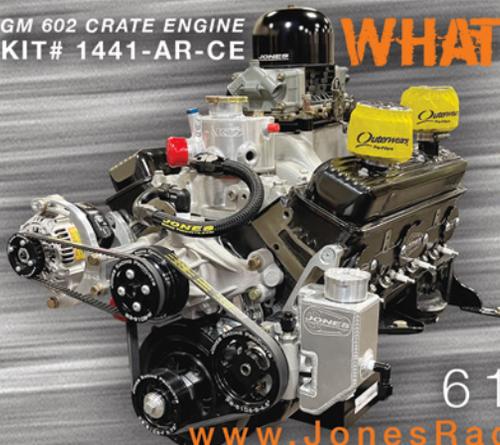
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Phil Veldheer Racing has been using HARD BLOK since 1986. He has grown to an eight car race team. Phil says, "We've had great success with HARD BLOK and will continue to use and recommend HARD BLOK."

Over at Edelbrock, based in Olive Branch, Mississippi, its Racing Head Service (RHS) brand manufactures an aluminum LS block. Edelbrock currently has no plans to introduce any new blocks in 2022, but it will continue serving the street, race, and marine markets where the block is popular—even in high-boost engines.

"The RHS LS engine block was designed to withstand today's extreme boost applications by utilizing premium A357-T6 aluminum with six-bolt steel main caps designed for maximized mating surface area for increased clamping strength," said Mike Sanders. "In addition, our block will accommodate 60-mm roller cam bearings and 1.060-inch bushings to increase valvetrain stability during high-rpm operation. Combine these features with our high efficiency, priority main oiling system, and you have a block that will withstand extreme cylinder pressures on the street and on the strip."

COUNTERING CHALLENGES

From a manufacturing viewpoint, block manufacturers have been challenged by supply issues as well as soaring prices.

"It's just the nature of the industry

right now," said Heath Norton of Energy Manufacturing, Fremont, Ohio. "Everybody thinks we're not doing our job, but it's the job that changes every day. We just had a 21.5% increase in the cost of the forged aluminum blocks we use."

Norton added that sister company Callies was seeing a 56% increase in the cost of Timken steel that is used for crankshafts. "It's painful, but it is what it is. People are getting mad at the price. It's harder to run a business when every time you turn around your cost goes up 56%," he said.

Energy Manufacturing specializes in solid billet blocks for drag racing. One of its most popular products is the LS block, which is getting a makeover that includes larger main caps to support the Cleveland-sized 2.750-inch crankshaft journals. "The bigger crank will have more rigidity for higher horsepower," said Norton.

"It's basically our third generation of that block," added Ben Mens of Energy Manufacturing. "It will be available in a 9.240 deck, a 9.750 deck, and a 10.200 deck height. It will also be available with a .388-inch raised cam location. And with the Cleveland mains, the whole bottom end will be more robust."

Some rulebooks limit the deck height to 11.700 inches and stock bore spacing on a BBC platform. Energy offers BBC blocks with 9.800- and 10.200-inch deck heights. These blocks start as 485-pound chunks of forged 6061 aluminum and are whittled down to around 115 pounds in the CNC machine.

To manufacture a block with an 11.700-inch deck height, however, would require a much larger starting block of aluminum and result in considerably more leftover metal shavings. Instead, Energy designed deck extenders that are sandwiched between a 10.200-inch block and the cylinder head using extra-long head studs. These extenders can be surfaced and O-ringed just as other blocks. Longer-than-normal cylinder liners are installed through the extenders into the parent block, so the piston and rings don't know there's a seam in the block structure.

"We use the deck extensions for a couple reasons," said Mens. "You don't have to get a large, ultra-expensive billet block and figure out how to get it into the CNC machine. Also,

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The LS engine block offered by RHS was built to withstand extreme boost by utilizing premium aluminum in its construction and six-bolt steel main caps, which are designed for increased clamping strength.

if a customer is running a massive dose of nitrous and has a failure in the tune-up, it could be catastrophic in a one-piece block—maybe unrepairable. With our block, you could literally replace that one section.”

Should the customer choose to race in a class with a lower displacement, the extenders can be taken off, and with a new set of liners the block would be suitable for the correct rotating assembly.

“We build these blocks up for grudge racing,” said Taylor Lastor of TRE Race Engines, Cleveland, Texas. “They’re 747 cubic inches with a 4.600 bore and 5.500 stroke.”

In the Top Fuel arena, Energy Manufacturing is working directly with teams to deliver legal blocks for nitro and alcohol racing. The company is also eyeing the endurance market with an early design phase for water-cooled versions of its race blocks.

“But that comes with a whole other set of issues,” noted Mens. “You want to make sure that you don’t create problems as you’re creating solutions.”

With power levels of Pro Street, Nostalgia Super Stock, and blown classes going through the roof, Keith Black of Clearwater, Florida, has revisited its famed A356 T6 alloy Hemi and Wedge blocks. With Top Fuel roots, this Mopar water jacketed block has been recognized for its strength. Further refinements have now been made. Adding

4340 steel main caps, to accompany the 5/8-inch threaded studs and double 1/2-inch side bolts, was the first step taken, proving reliable and stress free at virtually any power level, according to Tim Banning.

"Listening to our dealer and customer base, many other changes were also made," Banning stated. "KB only uses premium quality Darton cylinder sleeves. Maximum cylinder head clamping force is now attained by adding deep threaded 1/2-inch head studs, eliminating the need for O-rings in most applications. A front valley web has been added for improved lifter support and oil retention. The cam tunnel has been strengthened/enlarged allowing cores up to 65 mm. All blocks are machined for full-time top-end oiling, including lifter galleys and valvetrain. Additional ports have been added for dry sump and/or oil accumulators. The new block design also allows for fine tuning the oiling system in three locations. These changes take the Keith Black water block to another level, ensuring further success in the most demanding of racing environments." **PRI**

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STOPPING POWER

AN INSIDE LOOK AT BRAKING COMPONENTS AND THE TECHNOLOGY
USED TO DESIGN THEM FOR THE MOST EXTREME RACING
CONDITIONS IMAGINABLE.

By Jim Donnelly

At the pinnacle of racing, packs of cars sweep at maximum, no-lift velocity through the arcing corners of Daytona or Indianapolis. That's one extreme of motorsports, where braking is almost superfluous in top-speed turns. Most of the rest of racing is just the opposite. On road courses, short-track ovals, and in specialized pursuits such as autocross and off-roading, the brake pedal is not for decoration. Constant, heavy use of the brakes as drivers rush from corner to corner quickly results in torturous heat and vibration. In this kind of racing, braking components can get battered like an undersized NFL lineman when the ball is snapped.

The manufacturers that design and produce braking systems for race vehicles know about the hammering their components can face under extreme-application scenarios and have engineered solutions that specifically address the worst temperatures and juddering that certain branches of the sport can dish out. Brake pads, calipers, rotors, and related hardware all exist, and are under ongoing development, to survive—even flourish—under circumstances where the driver is forced to boot the brake pedal again and again, even multiple times per lap.

Their research makes clear that some of the worst torment directed at brakes comes on short oval tracks, or other venues including tight road circuits, where drivers are forced to max out their braking power. In conversations with technical experts from the performance braking world, they describe new products and ongoing research to effectively deal with maximal braking forces. Some products are aimed at specific branches of racing, while others are more broadly created to be effective across multiple motorsports applications.

*“FLOATING ROTORS ARE
ADVANTAGEOUS IN EXTREME
RACING ENVIRONMENTS BECAUSE
THEY DIVORCE THERMAL STRESS
FROM MOUNTING HAT ATTACHMENT
POINTS AND WHEEL HUBS.”*





Wilwood's new Lug-Drive Dynamic Mounting System replaces the traditional hardware used to mount a rotor to a hat with a single internal snap-ring. With the new system, rotor changes can be done quickly and with no tools, said our source, and the service life of the hat and rotor are extended thanks to a reduction in the distortion that can be caused by thermal cycling.

ROAD CIRCUIT RACING

Wilwood's GT Rotor and Lug Hat Drive Assemblies are preassembled packages that eliminate the rotor bolts with a large, internal snap ring used instead to secure the rotor to the hat. The floating-type system allows the rotor to move independently of the hat as both components expand and contract through their heat cycles. Removing the heat allows the rotor to remain flat and true. The rotors are fabricated from a proprietary iron alloy that resists distortion and cracking.

"Floating rotors are advantageous in extreme racing environments because they divorce thermal stress from mounting hat attachment points and wheel hubs," said John Grieco of Wilwood, Camarillo, California. "When rotors are fixed, especially to different metals like an aluminum hat, they will distort through heat cycles, compromising braking efficiency, feel, and shortening their service life. Wilwood's lug-drive mounting system eliminates traditional bobbin-style hardware, rotor bolts, thread locker, and safety wire, and instead utilizes a single large internal snapping and ensures longer component life. This system is competition-proven in professional Trans-Am TA2 road racing and oval racing, and is available now for Corvette, BMW 3-series, Camaro, Mustang, and coming soon for wide 5 hubs."

LATE MODEL SHORT-TRACK COMPETITION

Having its braking products used by three of the past five NASCAR Cup champions has left Brembo of Plymouth, Michigan, positioned to create products aimed at stock car teams racing at smaller venues. At the 2021 PRI Trade Show, Brembo introduced a new, single-package braking kit applicable to both dirt and pavement Late Model

racers. Brembo's Late Model package is aimed specifically at weekly racers who a company source said had been clamoring for products that suited their own needs.

The Brembo package is designed to provide high short-track braking performance at a price that won't break the bank for weekly racers. The new package expanded on Brembo's production of a Late Model-capable brake rotor, incorporating technology and proprietary design elements honed through Brembo's NASCAR experience. Much of that development has focused on pedal feel and drag reduction, using a Brembo-specific seal-and-groove design that was considered to be a must-have attribute for Late Model use. The package's brake calipers rely on a load-optimized asymmetrical design to further boost overall stiffness, which also helps drag reduction by helping the brake pistons retract more efficiently.

FINDING THE BALANCE

An absolutely essential element in tuning the handling characteristics of a race car involves getting the braking forces correct at both ends of the car. BrakeOMeter, LLC, in Chicago, Illinois, makes precision brake bias adjusters that are designed to eliminate the guesswork and hassle of getting a race car's front-to-rear stopping power properly

Brembo has introduced new brake kits designed for dirt and pavement Late Model racers. The kits incorporate technology and design elements honed through Brembo's experience in the top tiers of NASCAR competition, but at a price point affordable for weekly racers.



proportioned. Its signature product is marketed as “A Knob with a Brain,” allowing micrometer-precise fine-tuning of the car’s make-or-break balance.

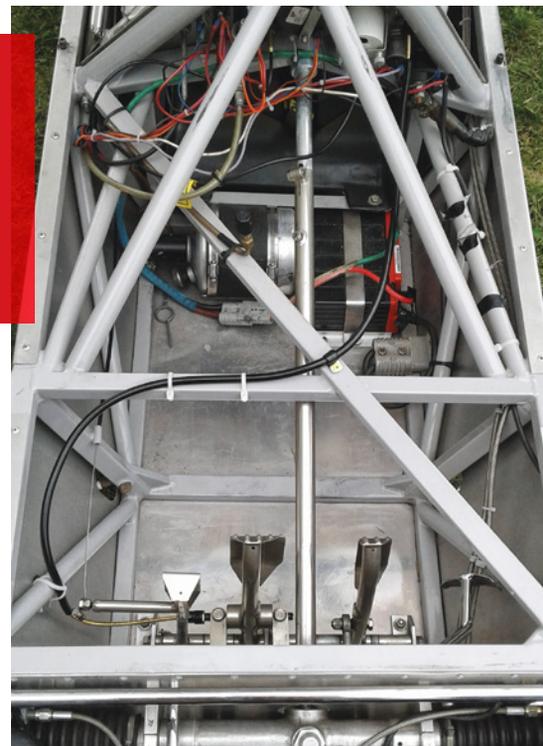
“Bruce Nesbitt designed and engineered the BrakeOMeter because there was a void in knowing what your brakes are adjusted,” said Glen Johnson. “By using the BrakeOMeter, racers have found out they had the incorrect master cylinders size on their cars, either having too much or too little front or rear brake.

“Another challenge was the brake bias adjuster’s cable,” continued Johnson. “The major complaint from racers was, ‘I turned my adjuster one way and it’s fine, but when I turn it the other way it doesn’t adjust.’”

BrakeOMeter bought adjusters from popular suppliers and dissected them, especially the cables, most of which, Johnson stated, were originally intended for use in speedometers, meaning they’d only turn effectively in one direction. “To fix that

The cable used in BrakeOMeter brake bias adjusters is a proprietary design that allows movement in both directions, as opposed to other, speedometer-based cables that only turn in one direction. The inside of the cable housing is nylon coated for easy cleaning.

problem, we have a proprietary cable with a solid core, and the outside layers are biaxially wound, so one layer goes to the right, one to the left, etc., with a naval bronze coating on the outer layer,” he said. “With our cable, either way you turn your adjuster, it’s going to adjust your brake balance. We went a little bit further because people were complaining they get grit and dirt in their cable. So, we Teflon coat the inside of the housing, you can wash it out and it doesn’t need lubrication. We’ve eliminated the problem of not being able to turn the adjuster only one way.”



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The click-precise adjustment that BrakeOMeter produces is a true system that allows teams to know exactly how much front or rear brake they have, according to Johnson. He said much of the feedback came from road course and stock car drivers. One in particular is Ernie Francis Jr., who adjusts his brake balance from corner to corner on every lap. The BrakeOMeter's thoroughness, plus the precise readings, has convinced drivers and crews to switch to different size master cylinders to improve their braking performance, Johnson added.

FLEX-FREE CALIPERS FOR SHORT TRACKS

High heat during heavy braking has a domino effect on braking components. Extreme heat can cause the pads and caliper bodies to warp, which can, in turn, distort the rotor. That means vibration, which, eventually, could lead the bolts holding the whole brake assembly together to stretch and loosen. When the brakes are being booted to the max twice every few seconds, that's a potentially huge problem, especially on short tracks.

The team at PFC Brakes, based in Clover, South Carolina, think they have a solution. What PFC Brakes has developed is a new monobloc brake caliper for short-track usage, which supplants the far more common system of using caliper halves bolted together. According to Kyle Tellstrom, "Most competitors use two-piece calipers.

Ours is stiffer, more rigid, it does not flex, which in turn means less maintenance over time, plus the two brake pistons are moving, rather than having the caliper halves moving or clam-shelling. That all ties into better brake feel, even at high temperatures, when you come off the pedal."

The specific product is PFC Brakes' ZR94 caliper model, either nickel plated or black anodized, in leading or trailing configurations, with a variety of piston diameters. Applications exist for Super Late Models, Pro Late Models, tour-type modifieds, Late Model stock cars, and SCCA Trans-Am TA2, all running on blacktop. By removing the ZR94's external crossover and other non-critical material, the caliper's weight is significantly reduced. An internal fluid passage system adds strength while also inhibiting failure.

"It essentially can be used for road racing applications based on short-track racing components," Tellstrom said. "We use forged aluminum monobloc calipers and two-piece pistons with aluminum bodies and stainless steel faces, efficient tolerances for temperature ranges, plus seal grooves to make sure the pistons don't drag on the rotors. Our rotors are built on zero failure and use mid-moly alloy, which is a grade up from the low-moly alloys that most short-track braking systems use. It's a harder material that will not crack or fail, even if glowing. We also do dry-machining to promote low metal contaminants."

ENDURANCE RACING

The latest product advance from PAGID Racing in Troy, Michigan, is its line of RSL brake pads for endurance racing, which Jim Emerson describes as the company's primary heritage in manufacturing. "Our goal is to have longevity with performance through the life of the pad," he said. "Traditional endurance racing lasts from eight to 24 hours. We want to ensure our customers that our products have good modulation, with controllability, which is important because most modern sports cars come with ABS. We focus a lot of our pad design to be really cooperative with the ABS systems that are in use."

The RSL pads are aimed primarily at GT-type classes, which can be filled with ABS-equipped race cars, unlike the prototype categories. With technical partners including Turner Motorsports, consistency is a key performance goal, Emerson said. "The ABS works off friction levels, so it has to be the same on lap 10 as on lap 200. The modulation characteristic can be defined as the area where a driver enters the braking zone. We want the ability to pressure the brake with variable pressure input so when the driver releases the brake, the pad comes off the rotor, which then allows for a free-rolling condition. We want the driver to get to that threshold and be able to choose, because not every driver brakes at the same level."

The RSL family is about to be expanded with new 1E and 2E compound formulas aimed at boosting pad longevity. "You want to get as long as you can out of the pad," he said. "We want our pads to last 12 to 18 hours, but our goal is to create the 24-hour pad. We're taking the feedback from our technical partners and adjusting the formula, and we've made some definite strides in the past two to three years."



The monobloc brake calipers made by PFC Brakes for short track use are stiffer and more rigid than a two-piece caliper, said our source, which means they require less maintenance over time. The calipers also improve brake feel, since only the pistons are moving, not the caliper parts.

BROAD-BASED SEVERE SERVICE

Hawk Performance of Medina, Ohio, is an all-around braking component supplier specializing in pads, rotors, and fluid for severe applications. "For us, the focus is on pads, because they're our bread and butter and the main component of the braking system," said John Butler. "In motorsport, the consistent force we always fight against is heat. Every part of that brake system is designed around heat dissipation. We make sure we have a friction component that handles that heat, performs consistently within that heat range, and creates consistent amounts of friction across wide ranges of temperatures."

Hawk Performance operates more than 15 dynamometers at its headquarters to test and evaluate the performance of its braking components. Butler said the dynos "can replicate different race tracks, such as Daytona or Road America, to play with those pad compounds, take away different types

of metals or compounds, to find that balance of thermal capabilities. A brake pad dyno is a spindle, a caliper, and a rotor, where we'll do either a track replication or take the brake through testing procedures, such as dragging the brake through 1,500 degrees and then do five immediate stops, or do a series of 7 G stops, or 0.5 Gs."

Hawk Performance's most popular product is its line of DTC-60 pads, specifically formulated for cars with high deceleration rates and increased aerodynamic

downforce, and applicable for everything from spec Miata classes to off-road trucks to a variety of oval track classes. Its advertised attributes include low-abrasive rotor wear, high torque, and an optimal operating range of 700 to 1,100 degrees.

"Like a milkshake, it's made up of a lot of steels, fibers, and resins," Butler added. "We want it to have a smooth initial bite, release effectively, and not drag, so the driver can drive the car properly and not have it function as an on-off switch." **PRI**

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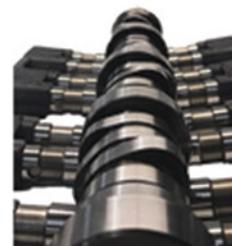
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SELLING THE D.I.Y.

Whether they're analyzing telemetry data at the track or wrenching on the car back at the shop, teams need specialized workstations in order to work efficiently. Tailor-made solutions can deliver exactly what they need to perform at their best.

By Bradley Iger



Lap times and ETs can provide a sense of a car's setup and a driver's technique, but a team's competitiveness isn't just about on-track performance. The work that's done in the pits and back at the shop is also critical to their success, and optimized workflow can yield tangible benefits on race day.

"Organization is absolutely essential for these teams," said Randy Booth of Beta Tools, Columbia, Pennsylvania. "In the upper tiers of motorsport, just about every one of the technicians on a team has a specific job for a specific part of the car. There's an engine mechanic, a gearbox mechanic, a suspension mechanic, and so on, and they

focus on that specific aspect of the car. In order to achieve the level of efficiency they need for their race program to be successful, they need to be highly organized in terms of the tools that they use."

That means "one size fits all" solutions for their workstations are rarely the best option, so the ability to build out customized solutions is essential. Here we'll take a closer look at how manufacturers collaborate with their customers to develop application-specific systems to get these teams exactly what they need.

BETA TOOLS

Booth said that while organization is a universal necessity for motorsports

teams, the requirements for the workshop equipment can vary significantly. "Some of it depends on the size of the organization, and what they want to optimize, whether that's workflow in the shop, at the track, or in the pit box. But in all of these situations, it comes down to having the right tool in the right spot when you need it."

That organization can also allow teams to identify issues before they become bigger problems. "Having a custom foam cutout for tools allows a technician to immediately determine if something's missing or misplaced. Leaving a tool in a car could become a real problem if it's not noticed right away."

Customers have many potential options when it comes to custom configurations with Beta Tools' products, so the company developed an online platform that allows customers to build out their systems from the ground up. "It has all the tool box configurations, the different work surface options, and they can also select specific 'modules' to integrate into these systems,

whether that's toolbox storage, multi-drawer systems, vertical storage, or other the systems that are offered," Booth explained. "The platform allows them to lay all of that out themselves, if they prefer to do it that way."

Beta Tools also offers sets that consist of specific selections of tools that customers can choose from to fill out tool box drawers, and the presets are offered in either foam cutouts or ABS thermal form trays. "We do them in full-drawer, half-drawer, and quarter-drawer increments," he said. "One drawer could be sockets and ratchets, the next drawer could be all T-handles, and the next could be files, or whatever configuration they need."

The company offers fully customized foam sets as well. "As long as I know what the

individual items are that they need, we can put that together for them."

For those who would rather not go through the configurator on their own, Beta Tools can walk them through the design process by more traditional means as well. "We can work with them in-person or over the phone to get a sense of what they need by getting information like the size of the shop, how many technicians they have, how many drawers they want a given technician to have, and what kind of storage they need based on their use-case," Booth said. "Then we start building it out from there. We can help them configure the drawers for the tool sets as well. It's truly full service."



Beta Tools has an online configurator that allows shops to design custom tool storage solutions from the ground up, including special modules to accommodate multi-drawer systems, vertical storage, and other specialized needs, said our source. "It comes down to having the right tool in the right spot when you need it."

UNITED RACE PARTS

United Race Parts in Troutman, North Carolina, tends to focus mainly on completely custom workstations with its UK partners Greaves 3D Engineering because, as Thomas Decker explained, the technological sophistication at the higher levels of motorsports more or less requires it today. "The IT infrastructure, the telemetry data they're analyzing, and the communications systems—they all play a part in the equipment that they need,

POPULAR FEATURES & ACCESSORIES

When considering a customized workstation or pit cart, our sources offered their recommendations that truly benefit race teams.

"Wire management systems are one of the biggest requests that we get from teams," said Thomas Decker of United Race Parts, Troutman, North Carolina. "Teams want to future-proof the stand, but no matter how far you plan ahead, it's impossible to know what kind of electronics you're going to need to add to the stand in the next five to 10 years. The ability to add those electronics in an organized and clean way isn't just for aesthetics; you need that wiring to be tidy and easily accessible in case there's a problem that needs to be addressed."

Meanwhile, Cody Freeze of Badass Workbench in Kearney, Nebraska, said that fork channels are popular on their workbenches because they make it much safer and easier to move them around when needed. "These things are heavy, and it's a lot safer to do it that way—you don't have to worry about where the weight is. If you have a 10-foot bench that you need to load into a truck, and all of the heavy stuff inside of it is on the right-hand side, it can be difficult to find that center point for the weight in situations like that. These fork channels eliminate the issue."

Modularity is also in high demand according to Randy Booth of Beta Tools in Columbia, Pennsylvania. "Most of the wall setups that we do have fixed base units and also mobile units that come out of there," he said. "The fixed base unit might house tool sets for working in a bench environment when you're, for instance, taking apart a transmission, while two modules down you'll have tool boxes on casters that can be rolled out to the vehicle trackside for whatever they might need to do on the spot."

Beta Tools' quarter-drawer foam sets are sought-after accessories as well. "They give you the option of putting a larger variety of tools in a given drawer in an organized manner," Booth said. "If you do a drawer in quarter increments, you can have all of a technician's most commonly used tools in one drawer together so they're not hunting around for a socket here and T-handle there. It always comes back to the application. If I'm working on the front end of a car, I'm probably going to use more T-handles and more combination wrenches than someone who is working on a gearbox. If these are tools that you're always using, you want to be able to access those tools as efficiently as possible. Opening one drawer is a lot quicker than opening five drawers." —Bradley Iger

and each team operates differently. These systems are basically 'race control' for a lot of these teams, and because there's a variety of different suppliers for radios, data



Rather than using an online configurator, United Race Parts keeps a few generalized workstation examples at its facility so teams can get a hands-on feel for what's possible. "Their need is so specialized that there isn't really a pre-existing configuration that makes sense to build off of," said our source.

acquisition systems, video processing, and things like that, it creates this huge variety of system combinations that need to be taken into account and integrated properly. That dictates things like the wiring layout for the stand and how its design will accommodate all of those different pieces of equipment."

Decker said they typically start a project with a general concept proposal and work with the team to hone in on the ideal setup for their application and the technology they're using. "One of the projects we're currently working on started with a chat at the track. Within a few days Greaves had a rough concept rendering that we shared with the team, and after getting some feedback on that, we developed another rendering based on those notes, and it continues back and forth from there. It's a collaborative process that gets us to exactly what their vision is for the system."

Rather than using an online configurator to give customers a sense of the look and feel of a potential workstation design, United Race Parts typically keeps one or two different configurations at its facility so race teams can check out the systems and

features to get a better sense of what they need and what they don't.

"In some cases, the requirements are so specific that we don't really have a standard configuration that makes sense to use as a template," Decker said. "Typically, those teams have seen our stands before and they understand how we work with Greaves to build stands, but their need is so specialized that there isn't really a pre-existing configuration that makes sense to build off of. In those situations, it's about understanding the end goal, the time frame, and collaborating through those concept renderings before we move into production."

BADASS WORKBENCH

"The vast majority of a team's budget is typically going into the car, but the shop needs to be considered as well," said Cody Freeze of Badass Workbench, Kearney, Nebraska. "Whether it's a wall of tools, fabrication equipment, or welding gear, a workbench system like this often becomes the focal point of the garage. If done right, it's a one-time investment."



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“Whether it’s a wall of tools, fabrication equipment, or welding gear, a workbench system like this often becomes the focal point of the garage,” said our source at Badass Workbench. “If done right, it’s a one-time investment.”

Freeze said that when teams become frustrated with standardized systems that don’t really meet their needs, they turn to manufacturers like Badass Workbench to get something that has the features and durability required to function effectively and endure in a motorsports environment. “At some point they get tired of re-investing in equipment to address a certain issue. Our goal is to fix those problems once and for all.”

“ONE OF THE PROJECTS WE’RE CURRENTLY WORKING ON STARTED WITH A CHAT AT THE TRACK.”

The company offers a base template to start from, and a 3D configurator on the website allows customers to dig further into the available options in terms of general layout, drawer dimensions, tabletop materials, and other possibilities. When customers want something with deeper customization, he prefers to work with them directly. “In some cases, someone will come to us and say, ‘I need this specific type of workbench, it has to have these specific features in these dimensions, and this is what we want to do with it.’ In those situations, we work with the customer from the ground up in terms of design and have someone on-site who creates Solidworks renderings that we can share with the customer. That allows us to work together and offer suggestions or make any tweaks that

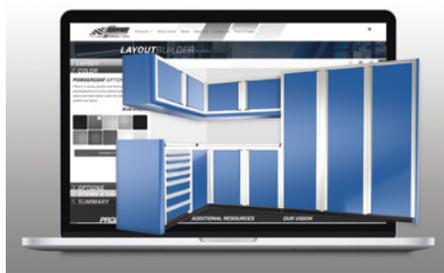
might be needed along the way to ensure that everyone is on the same page.”

In other situations, customers may prefer to collaborate onsite, and that’s an option as well. “Usually, we can handle most of it over the phone, but in the past, we’ve worked together over Zoom and things like that, too,” Freeze said. “We’ve flown out to customer sites to do walk-throughs at shops to get a better idea of exactly what they want to accomplish. Sometimes laying eyes on the facility helps to clear up any potential ambiguities.”

CTECH MANUFACTURING

CTech Manufacturing in Weston, Wisconsin, was built from the ground up to manufacture custom storage solutions,

CTech’s recently redeveloped website provides a completely web-based online cabinet-building experience, according to a company source, who noted that because their products are designed to allow for optimal customization, “our engineers can easily manipulate product dimensions, drawer counts and heights, add options, and much more during the design process.”



according to Max Kittleson, which includes tool boxes, pit carts, drawer inserts, and cabinets. “CTech products utilize parametric design properties to maximize the potential for customization,” Kittleson explained. “That means our engineers can easily manipulate product dimensions, drawer counts and heights, add options, and much more during the design process.”

CTech recently redeveloped its website, providing a completely web-based online cabinet building experience. “The first experience is a ‘clean slate’ cabinet layout builder, which allows customers to design and order sophisticated cabinet systems from scratch in an engaging 3D rendering interface,” Kittleson said. “The second experience begins in our new e-commerce storefront, where customers can select pre-configured cabinet sections and packages that can then be customized and ordered with just a couple clicks. Both of these experiences share the same basic workflow; customers enter the online builder and adjust cabinet dimensions, select a powder-coat finish, add or remove features, and even customize individual cabinet compartments by adding drawer stacks and changing cabinet door swing directions. Once the customer has designed a custom cabinet, their creation can be added to a shopping cart and purchased via credit card.

A similar web-based cart builder option is currently in development from CTech that will allow racers to build their own custom pit carts and toolboxes from the website. This will be launched in the coming months to allow teams to purchase new equipment for the 2023 season.

MODULINE

Tim Cass of Moduline in Brockton, Massachusetts, pointed out that it’s not just the motorsports discipline and the technology involved that necessitate specialized tool boxes, workstations, and storage systems,



Moduline takes a collaborative approach to the design of its workstations, said our source. That way the company "can really tailor it to the end user's needs based on what they want and the space that they have available." Photo courtesy of Moduline.

it's also where the work is being done. "In some situations, you need to be able to get those tools to the car rather than the other way around, and that can change the

requirements of the system significantly."

Because of that, Moduline generally takes a hands-on approach to custom system design to make sure their customers get the right solution for their use-case. "It's about discussing what the needs are with the client, and getting their ideas," Cass said. "They may have something very specific in mind that they think they need, but when you get down to it, there might be a better solution that they weren't aware of. So it's a conversation where we get a sense of what the requirements are and what they're envisioning, then we sketch it out in CAD for them and brainstorm together to make sure that they get a solution that fits the bill."

Moduline's collaborative process with its clients is typically conducted through a series of phone calls, emails, and concept renderings shared with those customers. Cass said that while an online configurator system might work well for combining basic off-the-shelf elements of a workstation or tool box, it can get complicated very quickly.

"On a basic level those systems are great, but the configurator isn't going to

ask questions," he explained. "With an a-la-carte system like ours, we can really tailor it to the end user's needs based on what they want and the space that they have available. Where the system is going to be installed can also have a significant impact on the overall design—whether that's a race shop, a trailer, or somewhere else. The personal touch really matters with a product like this." **PRI**

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badass-workbench.com

Beta Tools
betatoolsusa.com

CTECH Manufacturing
ctechmanufacturing.com

Moduline
modulinecabinets.com

United Race Parts
unitedraceparts.com

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ESTABLISHING ROOTS IN INDIANA

PRI strengthens its commitment to the motorsports industry with the grand opening of its 42,500-square-foot Membership headquarters in the Racing Capital of the World.

By Rex Roy

Giant scissors sliced through ribbon on May 26 to officially open the Performance Racing Industry (PRI) Membership headquarters.

"This space is to help everybody in the industry do business," said Mike Kirks, PRI's membership benefits manager. "Big business."

Just days before the 106th running of the Indianapolis 500, racers, industry leaders, and the media joined hundreds of motorsports professionals for the public christening of the new PRI Membership headquarters building. The heavily renovated member-focused facility is among the many new attractions in the small town of Speedway, located Northwest of Indianapolis proper.

PRI's headquarters building is on Speedway's revitalized Main Street, just a few blocks from the Indianapolis Motor Speedway. The 42,500-square-foot facility is situated among neighbors Indy Racing Experience and the Dallara factory. The Bell Helmet Pro Shop and Bryan Herta Autosport are even closer, as they're co-located in the PRI building.

"We're excited to provide the racing industry with a place to call home," said Dr. Jamie Meyer, PRI president. "For years, the industry has gathered at the PRI Trade Show to conduct business and celebrate all things motorsports. For the first time, the racing industry has a dedicated place where they can connect all year long, not just for three days in December."

NHRA racer, team owner, and PRI Founding Member Antron Brown added, "This building brings PRI Membership to life, and I think this space will strengthen our advocacy efforts. It gives us a physical presence."

Brown expects the facility to help his new NHRA team grow by tapping into the collective wisdom of the PRI community. "I need the knowledge that PRI is assembling in this space," referencing the fact that key staff of both PRI (including the PRI Membership Team) and SEMA are now located on-site at the building.

"We hope our members will use this facility when they come to the upcoming Brickyard 400 and US Nationals, and certainly 2023's Indy 500," added PRI



Pictured clockwise, from top left, are the PRI headquarters exterior, speed painter Justin Patten, guests enjoying the opening reception, DJ Mike entertaining the crowd, and Greg Fornelli of SRI Performance and Stock Car Steel & Aluminum.

General Manager Jim Liaw.

Large conference rooms equipped with the latest AV and connectivity gear make the PRI headquarters well-suited to conduct business. Meyer and Kirks both added that the building is ideal for PRI members to use for team training, client presentations, board meetings, and media events. “We are here for our industry,” Meyer said.

Added Kirks: “We also saw an opportunity to be part of this neighborhood, and we knew it was the right thing to do.” There are plans for the PRI headquarters to host local cruise-ins, car shows, and community activities.

Among the many distinguished grand opening attendees was Edelbrock Group

Chief Commercial Officer Chris Douglas, a member of PRI’s Advisory Committee. “I became a PRI Founding Member to help bring about a place like this. This place, and the things that will happen here, will help our industry thrive for decades,” Douglas said. “With [Edelbrock’s] status as a Founding Member, we can support the community that supports us, and we’ll be using this space for meetings and events in the near future.”

Douglas affirmed his personal and corporate support, too, for the RPM Act of 2021 (H.R. 3281/S.2736), a bipartisan bill designed to protect Americans’ right to convert street vehicles into dedicated race cars, as well as the motorsports-parts industry’s ability to sell products that allow racers to compete. “Our company mission is to help people achieve their dreams, but this can only happen if the ecosystem is healthy,” he explained, referencing the reality of government interference in motorsports.

“I’ve watched PRI grow and grow, and this is an innovative next step to help members and solidify the fact that PRI is more than just a trade show,” commented Greg Fornelli of SRI Performance and Stock Car Steel & Aluminum. “As a Founding Member, I wanted to be a part of something like this. PRI did this space right.”

What Fornelli and others saw was just the first phase of the PRI headquarters build-out. Phase II installations will include the completion of a members’ lounge, multiple podcast studios, and a photography/video stage. Members will be able to reserve these resources to further their marketing and content creation goals.

Contact the PRI Membership team with inquiries about PRI headquarters at membership@performanceracing.com. Access to the facility is open to all members, so if you’re not on the PRI Membership roster already, join now at performanceracing.com/membership. **PRI**

MEMBER CHECK-IN

D H DAVIES RACING

David Davies is determined to ensure the future health of motorsports as a PRI Founding Member, driver, team owner, and title sponsor of an emerging drag racing series.

By Jim Donnelly

Even if they like racing, and work in the transportation sector, few CEOs will ever take the plunge and become motorsports sponsors. Fewer still will have a race team competing in the series their firm supports. And practically none of them will ever drive the race car.

On the other hand, there's David Davies. He not only runs the major aviation business that sponsors a developing NHRA racing series, but when it's race time, Davies is on the line in his drag-prepped Dodge Challenger antsy to grab the green.

"I came up through the Modern Street HEMI Shootouts, with those guys, so I came up through street cars," Davies explained. "I was running a 2018 Dodge Demon in 2019

when they announced this new generation of Drag Pak at SEMA. I knew I wanted to do this. It was time to upgrade."

The end result was that Davies, the CEO of Constant Aviation in Cleveland, Ohio, got himself a new Drag Pak Challenger, and he didn't stop there by any means. A PRI Founding Member, he also inked a deal with the NHRA by which his firm became title sponsor of today's NHRA Constant Aviation Factory Stock Showdown category, which will perform at eight of the 22 national events on NHRA's 2022 schedule. Campaigning one of the limited-production 2021 Dodge Challenger Mopar Drag Pak race cars, Davies also hammers the Challenger at NMCA Muscle Car Nationals events and elsewhere.

"They announced they were going to release the car in 2020, and we all know what happened in '20," Davies said. "The SRT team at Dodge did a good job of reaching out to those of us who had expressed interest, and come March of 2021, they tell me, 'You have car 15. Let's get the paperwork done.' About the time I was getting ready to take delivery of the car, the NHRA called and said, 'Hey, the NHRA Factory Stock class is looking for a sponsor.' They'd started the season without one. One of the things that I've always done with companies that I've been involved with is to

DHDR

D H DAVIES RACING®

think outside the industry bubble."

Constant Aviation is what the Federal Aviation Administration calls an MRO, which stands for Maintenance, Repair, Overhaul, essentially a general repair facility for aircraft. The service can perform fabrication work and FAA-approved modifications. Davies explained, "You want a pool table in your aircraft? We can get that approved by the FAA and have it installed."

Constant Aviation has major operations in Cleveland and in Sanford, Florida. A company affiliate, Flexjet, operates a fleet of 170 business jets. Constant Aviation's FAA certification allows it to work on any type of aircraft in the world.

Flexjet already had Davies' type of outside-the-bubble affinity linkage through its sponsorship of a tony polo league. Constant Aviation was looking for a somewhat broader sponsorship presence and established NASCAR relationships, particularly in the truck series.

"This time, I started to zero in on NHRA because the skill sets that are used to work on the cars that are racing are almost identical to the skill sets of my troops in the hangars," Davies said. "The fabrication, the electrical, the composite work, all that stuff is pretty well transferrable. The difference is, you don't have to have a license and be certified to work on a race car."

Beyond that logic, Davies also recognized that some of Constant Aviation's technical specialists were already wrenching on their own race cars outside of work. "It was a very relatable sponsorship," he recalled. "It wasn't like the troops didn't understand what I was doing. So when it came time to get a sponsorship, the NHRA knew I was already involved and that they



David Davies has a vested interest in the health of motorsports as both a team owner and CEO of Constant Aviation, which signed on last year as the title sponsor of the NHRA Constant Aviation Factory Stock Showdown, where he also competes as a driver.

had me hook, line, and sinker.”

Constant Aviation came aboard as an NHRA title sponsor partway through the 2021 season, beginning at the Norwalk, Ohio, event. “At Norwalk, we had 120 employees there at the track, every day,” he said. “It was the first time we took the employees out as a group since I took over the company.”

At the Denver stop in 2021, a chance meeting with team owner Don Schumacher led to an agreement by which D H Davies Racing became a satellite operation of the Don Schumacher Racing army. The team has also lined up major sponsorship from Bilstein.

Davies anticipates driving in all eight of the 2022 events in NHRA, plus selected NMCA and Modern Street HEMI Shootout stops. It’s the culmination of his raucous recreational past running doorslammer cars down the quarter-mile. His involvement with PRI as a Founding Member has helped ensure that the cars, and the series, keep a vibrant



A chance meeting with team owner Don Schumacher in 2021 led to an agreement by which D H Davies Racing became a satellite operation of Don Schumacher Racing. David Davies anticipates driving in all eight of the 2022 NHRA Constant Aviation Factory Stock Showdown events, plus selected NMCA and Modern Street HEMI Shootout stops.

existence as part of American motorsports.

“What PRI is doing is providing a voice, to the parts manufacturers, the tuners, the car builders—and specifically, to the drivers—that they understand what the regulatory risk is,” Davies said. “I had the fastest stock Demon in the country, and

if you tune it, you’re technically running afoul of the regulations that they’ve been talking about. In the environment we’re in, the odds of someone tapping the EPA to do something stupid is 100% legitimate. PRI is facing that head-on, providing our people with a voice.” **PRI**

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PRI MOTORSPORTS RETAIL BUSINESS SURVEY: WEBSITES

Many race businesses still don't have them, so PRI asked some that do, as well as professional web developers, to share tips on what an effective site needs and how to launch one inexpensively.

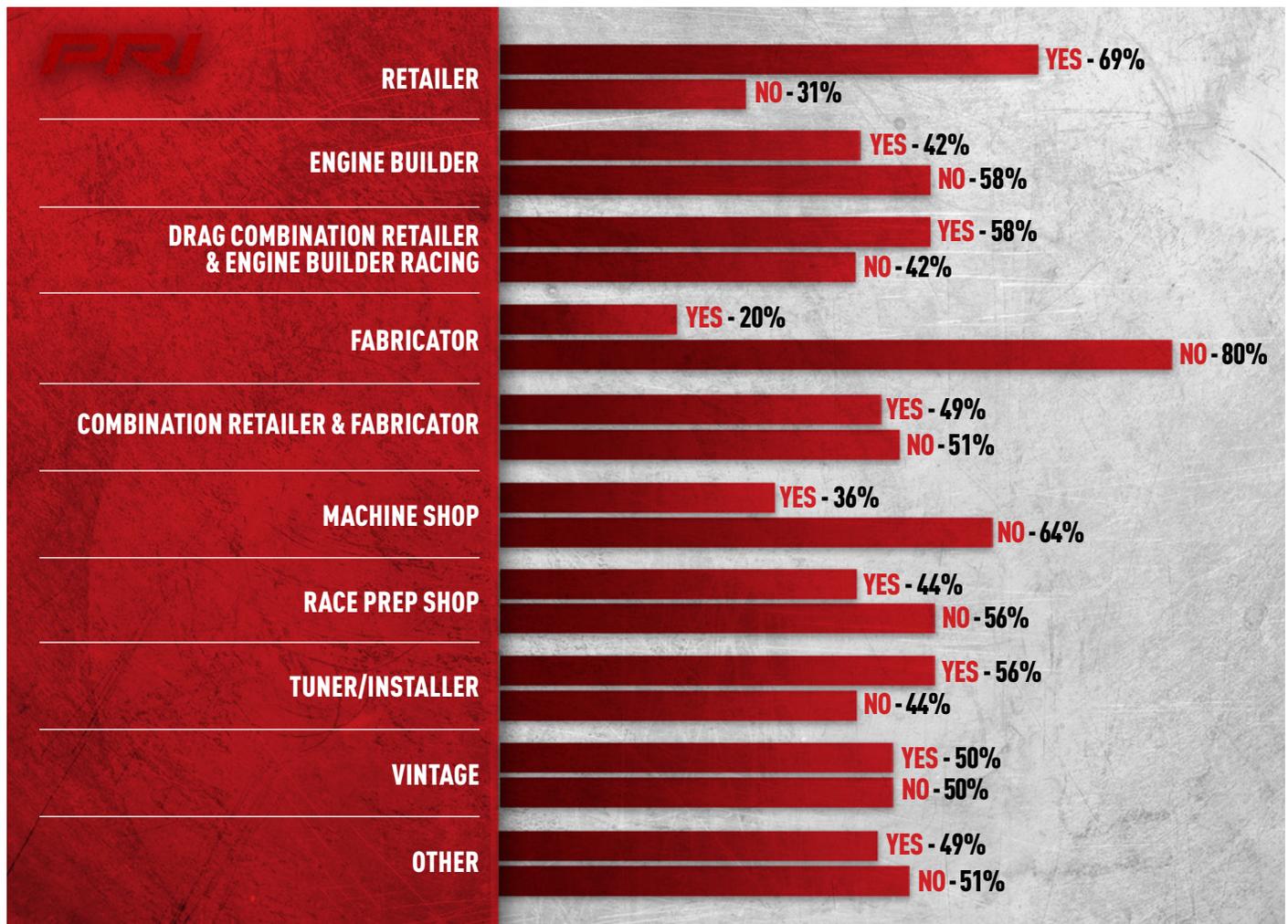
By Jim Koscs

For the past several years, results of PRI's annual Motorsports Retail Business Survey have revealed that just 50% of racing businesses that answer our questionnaire report having a website. Drilling down into the results shows that 69% of retailers

have websites, but just 42% of engine builders and 20% of fabricators/builders do, too.

What benefits are businesses without a website missing? PRI talked to three website developers that specialize in motorsports

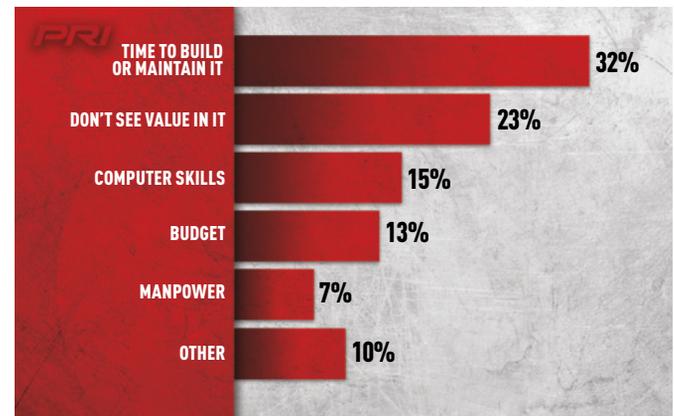
WEBSITES BY TYPE OF BUSINESS



DOES YOUR COMPANY HAVE A WEBSITE?



IF YOU DON'T HAVE A WEBSITE, WHICH OF THE FOLLOWING IS THE BIGGEST BARRIER TO CREATING ONE?



clients to find out. All shared some basic website must-haves to get maximum value from the investment.

We also spoke with an oval track parts retailer that added e-commerce about two years ago and an engine builder that launched an all-new site with new features in late 2021.

We found that some race businesses use Facebook instead of a website. One, MasterSbilt Race Cars in Crothersville, Indiana, which builds dirt late model cars, uses an older website only for search results and to mirror its Facebook feed. "We've done more business over Facebook than we ever did with the website," Tader Masters said.

While all three of the web developers included agree on many basics, each offers some specific actionable advice here.

In summary:

1. Even many "good" websites can use some immediate attention, especially updating contact information.
2. Social media and a website can work together to boost effectiveness of both, without increasing work for the business.
3. Launching a brand-new, professionally made, multi-page site can cost under \$1,500.
4. The website developers we spoke with build sites that clients can update themselves and offer monthly packages to do that work for them if they prefer.

A REBUILD, OR A BRAND NEW SITE?

Ainsley Jacobs' company, P.TEN

"IF THE WEBSITE LOOKS THE SAME AS A COMPETITOR'S, THE CUSTOMER MAY ASSUME THE PRODUCT IS THE SAME, AS WELL."

Marketing in Augusta, Georgia, develops and manages websites for a wide array of racing and street performance businesses. "I'd say about 70% of my clients' sites are rebuilds or refreshes. The rest need completely new sites," Jacobs said.

The most glaring problem she sees on older websites is a lack of basic information, such as clear descriptions of products and services, location, and hours of operation.

That becomes a place to start with a new or refreshed site. She recommends choosing a vendor that will be hands-on in taking a client through every step, from purchasing the domain and securing hosting to developing, deploying, and managing the site.

Jacobs counsels clients to use a website design that showcases their individual business's character. "If the website looks the same as a competitor's, the customer may assume the product is the same, as well."

Jacobs cited fresh and useful content as essential not only for search engine optimization and search rankings, but

also for generating customer interest. She recommends active updating, including a 300- to 500-word blog post at least once or twice a month, plus passive content from integrating social media streams and Google reviews.

"If you think you don't have anything to blog about, your customers sure do," she said. "Post about their successes and wins. The search engines respond positively, and your customers get value from the recognition."

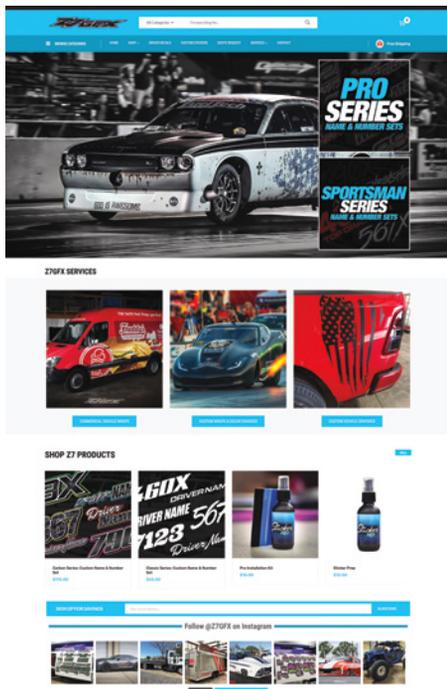
In instances when cost comes up as an obstacle to having a website, Jacobs said it usually relates to setting up e-commerce. While e-commerce involves such complex elements as inventory integration, retail and wholesale pricing, shipping logistics, and credit card processing, available services such as Shopify can streamline the process.

THE 'MAGIC FORMULA' FOR SMALL RACE BUSINESSES

Many race drivers, tracks, and other motorsports businesses know Ben Shelton for his former company, MSR Mafia Marketing and PR Services. MyRacePass bought the firm in August 2021, also hiring Shelton and his staff and bringing on more than 170 of their website clients. Shelton told PRI that MyRacePass in Lincoln, Nebraska, now handles roughly 70% of race track websites in North America.

PRI asked Shelton what he would advise for an engine or chassis builder with a few employees, and who either has an old website or no website at all.

"If you have a website that's from the



Whether you're launching a completely new website or simply refreshing an existing one, our source at P.TEN Marketing recommends choosing a vendor that will be hands-on in taking a client through every step of the process.

early 2000s and hasn't been touched again, it can hurt you," he said. "A potential customer will see it's outdated and think you don't have what they need or that maybe you're not even in business anymore."

Shelton agreed that the idea of adding e-commerce can intimidate some companies into thinking any website is too much to handle, and he said that many just need a web presence.

"Often, we find ourselves 'down-selling' to what they really need," Shelton explained. "The magic formula for such businesses is to 1) highlight what the company offers, 2) feature customer accomplishments, 3) provide good contact information, and 4) keep the content concise. Remember, many people prefer to see photos and watch videos."

Shelton agreed that race businesses

"IF YOU HAVE A WEBSITE THAT'S FROM THE EARLY 2000s AND HASN'T BEEN TOUCHED AGAIN, IT CAN HURT YOU."

need both a website and social media pages, with the latter's feeds integrated into the site. He also emphasized a must-do: "Make sure the website is mobile-optimized. If it's not, Google won't index it." (All the web developers we spoke with optimize sites for mobile phone viewing.)

While website developers may vary in cost, MyRacePass highlights packages on its site starting at \$1,000 for a basic five-page informational site and \$39 per month for hosting. A site with e-commerce starts at \$2,000 and \$79 per month.

Interestingly, Shelton said that some motorsports customers follow their own "old-fashioned" approach to e-commerce. "We find that, especially with dirt track clients, many go to the websites to see what products are offered, but they still pick up the phone to place an order. They want to talk to a person and make sure they get exactly what they need."

HOW AN OLD FAMILY BUSINESS MOVED TO E-COMMERCE

Don Kreitz at Kreitz Oval Track Parts in Sinking Spring, Pennsylvania, can relate to

Shelton's observation about "old-fashioned" e-commerce, even though he is not a client. Kreitz told PRI that the business had a web presence for 20 years, but only shifted to an e-commerce site when COVID-19 struck in 2020. He said the change increased business, though not all customers take advantage of the easy ordering through the site's Shopify platform.

"We still have people who have been in racing for a while who only place orders over the phone, even a lot of the younger people," he said. "We get so many calls where they say, 'I saw this on your website.' The way it is laid out makes it so much easier for them to find what they need. Then they call with questions and place an order."

Kreitz's father started the business in 1968 as a welding shop. The website, as well, has been a family project. "My daughter Kassidy did the site," said Kreitz. "She went to college for this. She was in Drexel University in the middle of COVID-19 and taking classes remotely."

Kreitz said he would encourage similar businesses to offer e-commerce websites, but he advised that it is "a lot of work." His sister and business partner, Vicki Ely,



The homepage on the Vic Hill Race Engines site demonstrates the "magic formula" for a successful website, according to our source at MyRacePass: Highlight what the company offers, feature customer accomplishments, provide good contact information, and keep the content concise.

What We Offer

PME offers in-house engine development and design with a cutting-edge CNC machining department, dyno and Spintron testing. Under the operational supervision of Dennis Borem, our CNC machining, building and testing departments join together to allow PME the unique capability of designing, creating, and testing engines in-house. We're proud to offer service to our customers with integrity and timeliness. We understand the high demands of a racing schedule and the time and effort it takes to win. We offer personal service to work with every customer and address their specific needs to meet their goals. This is the story of Pro Motor Engines. Now, let us help you tell yours!

Services

"WE FIND THAT, ESPECIALLY WITH DIRT TRACK CLIENTS, MANY GO TO THE WEBSITES TO SEE WHAT PRODUCTS ARE OFFERED, BUT THEY STILL PICK UP THE PHONE TO PLACE AN ORDER."

providing basic information on engine packages can reduce time spent providing the same information to callers. The website information can then encourage serious customers to call.

For a small business needing just a bare-minimum web presence, Kiser suggested three essentials:

1. A simple landing page that shows who you are and has a legitimate domain name.
2. A Google My Business account, which is especially important for those serving a local area. Make sure the information is up to date and accurate.
3. Link Facebook and other social account feeds to the website and post at least once a week to show you are an active business. **PRI**

handles site updates.

"We don't have all our inventory on the website yet, but we've sold almost everything that we feature," Kreitz said. "We try to add a few items each week. Each item needs photos, which we do in-house. You must write good descriptions, and each item needs the weight and box size. It's very time consuming, especially because our products are so specialized, but nowadays, I think it's something you need to have."

STEPPING SLOWLY INTO E-COMMERCE

Pro Motor Engines (PME) in Mooresville, North Carolina, which provides approved engine packages for NASCAR, ARCA, and SCCA series and the Trans-Am TA2 class, recently switched gears for its website strategy. Dennis Borem told PRI the business launched a new e-commerce website in late 2021 to replace an older informational site. Also part of the conversation was Jesse Kiser, whose firm, Earnest Marketing, handles PME's website and content.

"We want to reach a larger customer base and have more retail sales," Borem said about the change. "We've had some sales without doing any advertising, and we've had some inquiries on engine packages."

He explained that the site launched with "a good foundation of our third-party products" and that more of PME's own products and

engine packages will be added.

Borem relies on Kiser's company to keep evolving the site. Kiser offered advice for e-commerce and for developing simple sites where online selling is not needed.

For an e-commerce site, he said, "Don't over-complicate. I always tell my clients to look at Holley's site. It's simple and functions well. They made it easy to buy parts and easy to navigate to their tech articles."

Kiser suggested that a business needing e-commerce could get started with a Shopify account and website builder account for "under a couple-hundred dollars a month." He contrasted that with a business doing \$10 million a year that may be spending \$3,000 monthly just on the e-commerce package.

"Those differences, without proper context, breed misconceptions about cost," Kiser said.

Among businesses without a website, or still idling along with an old one, Kiser said he still encounters misconceptions about what an effective site requires. "Put simply, a website needs to be a tool that provides convenience for customers and solves problems for the business," he said. "A good, simple website gets the customer one step closer to contacting you to buy something. It should have all vital information about your business. That is the most basic thing needed, and it is missing from many sites."

For example, Kiser explained that

SOURCES

Earnest Marketing
earnestmarketingnc.com

Kreitz Oval Track Parts
kreitzovaltrackparts.com

MasterSbilt Race Cars
mastersbilt.com

MyRacePass
myracepass.com

P.TEN Marketing
ptenmarketing.com

Pro Motor Engines (PME)
pmeengines.com

HONING TECHNIQUES FOR LASTING PERFORMANCE

The key to mastering piston ring seal begins with the understanding that the rings, cylinder bore, piston, and motor oil all work together.

By Lake Speed Jr.

The piston ring was invented 170 years ago. Yep, that's right. Piston rings were invented decades before the internal combustion engine. Originally designed for steam engines, piston rings have come a long way in design, materials, and coatings since 1852.

Along with the evolution of piston rings, cylinder honing has also progressed. In fact, piston ring performance (and durability for that matter) directly relates to cylinder bore surface finish, which is created by the honing techniques.

In the last 10 years alone, the understanding of the piston ring seal has greatly advanced. What was once considered a "black art" can now be easily measured and modified scientifically.

The key to mastering ring seal begins with the understanding that the piston rings, cylinder bore, piston, and the motor oil all

work together to create a seal.

Just as the head gasket seals the block to the cylinder heads, the motor oil functions as the "gasket" between the piston rings and cylinder wall. This is where cylinder bore surface finish plays the critical role in ring seal.

The cylinder bore needs to hold enough oil to both function as the gasket and lubricate the rings. If the bore is too smooth, it can't hold enough oil to properly seal and lubricate the rings, which will result in higher blow-by and reduced engine life.

In years past, the use of ductile iron rings with a plasma moly coating called for a smoother cylinder bore finish than the previous chrome-faced cast iron rings. The "old school" chrome rings needed a rougher cylinder finish (created by a coarse grit honing abrasive) to break-in. This was due to the fact that chrome was much harder than

moly (upwards of 50% harder). Conversely, the softer moly-faced rings need a smoother surface to prevent excessive wear.

TODAY'S STEEL RINGS

Now enter today's steel piston rings. The advent of steel piston rings has revolutionized engine efficiency and durability. Since more than 40% of all friction within an engine comes from the piston/ring contact with the cylinder wall, reducing piston ring thickness reduces friction, which increases horsepower and extends engine life. That's right, thinner piston rings actually live longer than thicker piston rings. Let me explain how.

When using iron to make piston rings, the rings need to be thicker in order for the rings to have the proper strength. If they are too thin, the brittle nature of iron allows the rings to break.

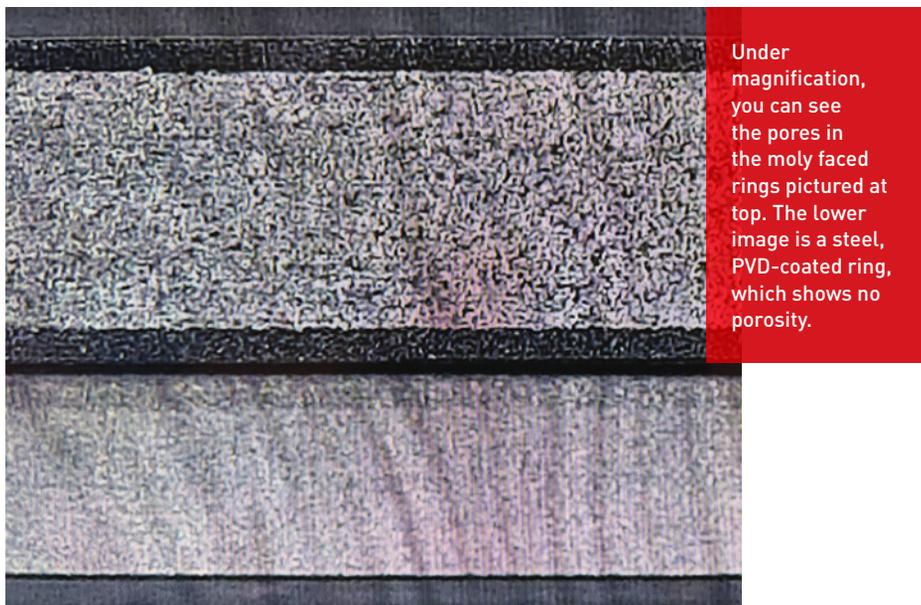
However, steel provides the advantage of ductility. The greater yield strength of steel enables the creation of thinner and stronger rings.

For example, NASCAR engines used .043, .043, 3.0-mm ductile moly ring sets 20 years ago. These rings lasted about 500 miles (one race). These engines would be down 5-8 horsepower after just one race, so the engines would have to be rebuilt.

Today, NASCAR engines use .5-mm, .6-mm, 2.0-mm PVD coated steel rings, which last more than 1,500 race miles (up to three races, without any loss of power).

What does that have to do with cylinder bore surface finish? Well, the improved durability comes in part from the increased material strength of steel as well as the hardness of the PVD face coating on the rings (the same coatings used to extend drill bit and cutting tool life). But the other part of the increased performance and longevity comes from the plateau honing process, which is critical for modern steel rings.

The ductile moly rings naturally have porosity on the face of the ring, so those pores hold oil, which reduces the amount of



oil needed to be held on the cylinder wall.

As such, the ductile moly rings allow for a smoother surface finish to function well. Depending on the type of fuel being used, ductile moly rings work well with a 320- or 280-grit abrasive followed by a few strokes with a 400-grit brush.

In contrast, the PVD-coated steel rings have no natural porosity, so the cylinder bore finish must hold all the oil needed to lubricate and seal. Accordingly, a more aggressive plateau honing process must be employed to create the deep “valleys” to hold oil.

MESAS AND MOUNTAIN RANGES

When thinking about surface finish, it helps to think in terms of things like a mesa and a mountain range. These oil-holding “valleys” can be measured with a profilometer, which is a surface finish measuring tool. When using the profilometer, there are three key measurements: Rpk, Rk, and Rvk.

Rpk is the peak height: Think about the peaks of a mountain range. The piston rings interact with these peaks, so we don't want rough peaks.

Rk is the core roughness: Again, you'd rather have rolling hills than jagged mountains.

Rvk is the valley depth: The deeper the valley, the more oil the cylinder will hold.

To provide some perspective, the profilometer is measuring and reporting these values in micro inches. That's a millionth of an inch, so 100 micro inches

equals .0001. A good plateau finish is about 100 micro inches from the highest peak to the lowest valley. Let that sink in for a minute.

This means the entire surface texture that can make or break your engine is .0002 when measured with a dial bore gauge (.0001 per side). This is why the modern plateau honing process requires going to finished bore size with the roughing abrasive (170–200-grit diamond) and then “plateauing” with a 600-grit CBN abrasive for 10 to 12 strokes.

That process should yield the following values:

- Rpk 10–15 micro inches
- Rk 40–45 micro inches
- Rvk 50–55 micro inches

These surface finish measurements will work for both steel and ductile moly rings.

When using steel rings with methanol or E85, increase the Rvk to 60–70 micro inches. That extra valley depth will hold additional oil to offset the higher volume of fuel that goes into the cylinder because of the richer air-to-fuel ratios of these fuels compared to gasoline. Essentially, the more fuel that goes in the cylinder, the deeper the Rvk needs to be. This rule applies to boosted engines as well—the more boost you run, the more fuel will be going into the cylinder, so the Rvk needs to increase to retain more oil, which is the key to increasing ring seal and extending cylinder bore/piston ring life.

Without enough oil to properly lubricate and seal the rings and cylinder bores, the performance and durability of the engine

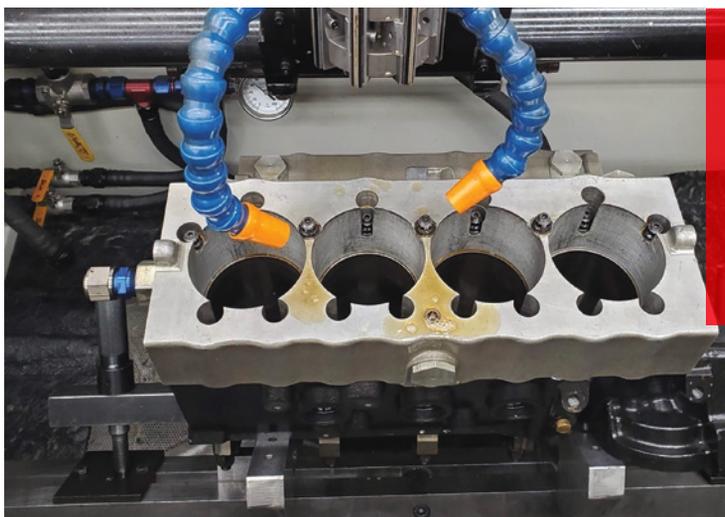


The human eye can't see objects smaller than .002 of an inch, so a profilometer, which measures roughness down to a millionth of an inch, is needed to accurately measure surface finish. (A fingernail isn't accurate enough.)

will be compromised.

Fortunately, we don't have to guess or rely on “tricks” to get the right surface finish. Today, we have the profilometer and proven surface finish values that allow us to achieve precise surface finishes with the same level of precision as we do with other parts of our engines. **PRI**

Lake Speed Jr. is the son of Lake Speed Sr., who raced professionally in NASCAR and International Karting Foundation before retiring in the late 1990s. After graduating from the University of Tennessee, Speed Jr. moved to Charlotte, North Carolina, to work for Melling Racing, which fielded Bill Elliott's No. 9 NASCAR from 1982 to 1991. There, Speed Jr. helped develop an engineering department to test programs and improve performance. After joining Joe Gibbs Racing in 2004, Speed Jr. studied lubrication fundamentals and chemistry as part of a development relationship with Lubrizol. He later joined Driven Racing Oil as the director of research and development. In 2019, Speed Jr. joined Total Seal to advance the tribology of piston rings.



Torque plates and multi-abrasive honing heads allow for better surface geometry, i.e., cylinder straightness and roundness.

ADVOCACY CORNER

Tracking legal, legislative, and regulatory developments impacting the racing and performance industry.

Edited by Laura Pitts

PRI race track ambassador Tom Deery and the Washington, DC-based advocacy team work continuously to protect and promote tracks, sanctioning bodies, and motorsports businesses around the nation. This month we are tracking several initiatives, including a new campaign to highlight pro-motorsports legislation and election candidates; the PRI Career Center offering opportunities for job seekers; an opportunity for businesses to branch out to Nordic markets, and more.

PRI'S ALL-NEW 'VOTE RACING' CAMPAIGN

PRI, the leading industry organization supporting the interests of racers, enthusiasts, builders, tracks, sanctioning bodies, and businesses, has expanded its advocacy efforts to further promote and protect one of America's oldest pastimes and hobbies: motor vehicle racing.

PRI's enhanced Save Our Racecars initiative features a redesigned website (SaveOurRacecars.com) that streamlines the process for industry professionals, enthusiasts, and fans to join the fight to preserve racing. Included is an all-new "Vote Racing" program to help facilitate voter registration while highlighting pro-racing candidates in the November midterm elections. Visitors will also find PRI-created template letters, phone scripts, and other resources designed to streamline outreach to lawmakers.

"PRI has a long history of advocating for and protecting the racing industry, and the expansion of the Save Our Racecars campaign is our latest effort," said PRI President Dr. Jamie Meyer. "Bringing together industry, enthusiasts, and fans will be critical to driving awareness and support for an American passion that is under fire. The resources and access available on SaveOurRacecars.com make it easy for anyone to get involved, show their support, and demonstrate that support at the polls."

Critical to the industry's future—and central

to PRI's advocacy efforts—is the Recognizing the Protection of Motorsports (RPM) Act of 2021 (H.R. 3281/S.2736), which must be enacted into law to protect the right to modify street cars, trucks, and motorcycles into dedicated race vehicles. Supported by both PRI and SEMA, the RPM Act aims to protect Americans' right to convert street vehicles into dedicated race cars and the motorsports-parts industry's ability to sell products that enable racers to compete.

The RPM Act reverses the EPA's interpretation that the Clean Air Act does not allow a motor vehicle designed for street use to be converted into a dedicated race car. This American tradition was unquestioned for 45 years until 2015, when the EPA took the position that converted vehicles must remain emissions-compliant, even when they are no longer driven on public roadways. The RPM Act does not interfere with the EPA's authority to enforce against individuals who illegally install race parts on vehicles driven on public roads and highways and companies that market such products.

Converting street vehicles into dedicated race vehicles is an American tradition dating back to the 1800s. Motorsports competition involves tens of thousands of amateur and professional participants and vehicle owners each year at more than 1,300 race tracks across the United States. In addition, retail sales of racing products make up a nearly \$2 billion market annually helping drive the larger \$50.9 billion high-

performance aftermarket industry. The RPM Act will provide the racing community with certainty and confidence in the face of an EPA interpretation of the Clean Air Act that threatens to devastate an American pastime and eliminate jobs in our communities.

To date, more than 150 federal lawmakers and candidates on both sides of the aisle have either signed on as co-sponsors or expressed support for the RPM Act. PRI has compiled a database on SaveOurRacecars.com that allows individuals to "Vote Racing" in November's midterms by researching and identifying those elected officials and candidates that share their passion. The site also provides resources to register to vote, apply for an absentee ballot, and access election resources through sites such as USA.gov.

Additionally, visitors to the site can join PRI's Membership to show their support for the industry and stay up to date on critical developments. For more information and to get involved, visit SaveOurRacecars.com.

EMPLOYMENT OPPORTUNITIES ON PRI'S CAREER CENTER

PRI's interactive job board, the PRI Career Center, offers PRI members, as well as the entire racing industry, an easy-to-use and highly targeted resource for online employment connections.

For job seekers, the PRI Career Center is a free service that provides access to employers and jobs in the motorsports industry. In addition to posting their resumes, job seekers can browse and view available jobs based on their criteria and save those jobs for later reference if they choose. Job seekers can also create a search agent to provide email notifications of jobs that match their criteria, receive career coaching, get



help with resume writing, and even validate their skills through reference testing.

“The PRI Career Center allows job seekers and employers to access a collection of job opportunities focused solely on the racing industry. We’re proud to offer this service free of charge to motorsports professionals looking for new opportunities,” said Dr. Jamie Meyer, PRI President.

At press time, the PRI Career Center included opportunities for several categories of motorsports professionals, including the following positions: engine builder or motorsports technician in Scotts Valley, California; track promoter/general manager in Barberville, Florida; event operations manager in Concord, North Carolina; parts manager in Santa Cruz County, California; wholesale sales representative in Garden Grove, California; service technician in Lantham, New York; regional sales manager in Columbus, Ohio, Denver, Colorado, and San Diego, California; engineering assistant for product development in Corona, California; product specialist (remote); purchasing agent in Rochester, New York; sales and marketing manager in Sterling Heights, Michigan; marketing director in Murrieta, California; and marketing manager in Clover, South Carolina.

For more information, including how to register for the PRI Career Center and search for jobs, visit jobs.performanceracing.com.

REP. SOTO VISITS FORMULA DRIFT EVENT IN ORLANDO

US Representative Darren Soto (D-FL) joined PRI for the recent Formula Drift event in Orlando, Florida.

In addition to watching Pro Series drivers qualify, the Congressman took a tour that included meetings with racers, PRI exhibiting businesses from Florida, and members of the US Air Force. He also met with PROSPEC driver Richard Advani and Pro Series driver Dan Burkett’s race team, along with representatives from BC Racing, Drift HQ, and LZMFG.

“It was great to see so many local businesses working hard to make exciting drift racing events happen. Events like Formula Drift not only promote safe legal racing, but they also bring visitors from all

over to Central Florida. I am happy that our region was chosen to hold this event and hope it continues to happen every year.”

Rep. Soto was elected to the US House of Representatives in 2016 to represent Florida’s 9th Congressional District, which includes Osceola and parts of Orange and Polk counties. The Congressman has been a strong advocate for the Recognizing the Protection of Motorsports Act (RPM Act), using his position on the House Energy & Commerce Committee to advocate for the bill’s passage. The RPM Act must be enacted into law to guarantee your right to modify street cars, trucks, and motorcycles into dedicated race vehicles and ensure that the industry can offer parts that enable racers to compete. Lawmakers must continue to be reminded of the importance of passing the RPM Act, as we need your help now more than ever.

Below is a list of things you can do right now to help to pass the RPM Act:

- Call or send a letter to your lawmakers at: saveourracecars.com. A letter has already been drafted. It takes less than a minute.
- Invite your lawmakers to tour your business or attend a race—email erics@sema.org to coordinate the invitation.
- Post about the RPM Act on your company’s social media accounts using the toolkit of digital assets, or pass out a flyer at your business or events.
- Learn more about PRI’s Political Action Committee (Performance Racing PAC) at performanceracing.com/pac. Performance Racing PAC allows PRI members to support the lawmakers that stand up for racing in Washington.

For additional information, contact Eric Snyder at erics@sema.org.

PRI-SUPPORTED RACE RAISES AWARENESS TO HELP ‘SAVE OUR RACECARS’

Wenatchee Valley’s Super Oval (WVSO) in East Wenatchee, Washington, hosted “Save Our Racecars Night,” a PRI-supported race, on Saturday, June 4.

Known as “the fastest quarter-mile in the Northwest,” WVSO featured four classes of racing—Rockstar Energy B-Mods, Plumb

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Perfect Roadrunners, WMRA Midgits, and Northwest Vintage Modifieds—along with fireworks and a special appearance by stunt man Mr. Dizzy. The event was presented by Performance Racing Industry (PRI), Jerrod Sessler for Congress, and Z Country 94.7.

The Save Our Racecars Night event helped further PRI's efforts to build grassroots support for the Recognizing the Protection of Motorsports (RPM) Act 2021 (H.R.3281/S.2736), a bipartisan bill in the US Congress that protects Americans' right to convert street vehicles into dedicated race cars.

NC GOV. TOURS NORTH WILKESBORO SPEEDWAY AHEAD OF REVITALIZATION

North Carolina Governor Roy Cooper recently visited and toured the historic North Wilkesboro Speedway in Wilkes County, North Carolina, ahead of grassroots racing's return to the iconic short track later this summer.

The governor was joined by Speedway Motorsports President and CEO Marcus Smith, NASCAR Hall of Fame team owner Richard Childress, legendary NASCAR driver Harry Gant, and state and local officials. Following a tour of the facility and three ceremonial pace laps with Childress behind the wheel of a Chevrolet Camaro, Gov. Cooper addressed the importance of motorsports to the state's economy.

"North Carolina's speedways are strong economic drivers for communities across the state that bring friends, families, and neighbors together for a rip-roaring good time," Gov. Cooper said.

After more than a decade without racing, the 0.625-mile facility will host the "Racetrack Revival" with nearly a month of grassroots racing on the paved track in August. Then, following removal of the old asphalt, racing will return on dirt in October. The facility will also have upgraded water, sewer, and Wi-Fi capabilities. Smith likened his vision of North Wilkesboro Speedway to that of a resto-mod, maintaining the speedway's nostalgic appeal while upgrading to modern conveniences.

A total of \$18 million in funding was secured as part of the American Rescue Plan allocations in the North Carolina state budget, which earmarked a total of \$45.8

million to help revitalize motorsports venues across the state.

"North Wilkesboro Speedway is hallowed grounds for the racing community," said PRI Director of Congressional Affairs Eric Snyder. "PRI is passionate about protecting racing venues, including everything from this historic track to restoring the conditions of the Bonneville Salt Flats. PRI encourages our businesses and tracks to work with our government affairs team to host federal and state lawmakers. It's critically important that we educate policymakers on all that racing and the industry that supports it does in the communities they represent."

For more information, contact Snyder at erics@sema.org.

PRI, SEMA INVITE BUSINESSES ON NORDIC TRIP IN AUGUST

Registration is still available for the SEMA/PRI Nordic trip set for August 24–28, 2022, in Stockholm, Sweden. Participants will have the opportunity to learn about the potential for their products in the region, plus meet with top trade buyers from Sweden and the surrounding countries of Norway, Finland, and Denmark.

Performance upgrades are highly sought-after for vehicles in the region, which hosts the FIA European Drag Racing Championship and the Summit Racing EDRS Series. Rally racing and drifting are also prominent across the area. In addition, ample disposable income and a love of American vehicles and products, coupled with a passion for personalization, make the Nordic area an attractive region for motorsports businesses.

Registration costs include hotel accommodation, a tabletop display, meals, and invitations to networking events. Pricing starts at \$3,860 per company (not including flights). Companies may also be eligible for an instant \$1,200 US government grant, which would help defray costs.

Register now, as space is limited and participants are taken on a first-come, first-served basis. More information is available at sema.org/Nordic; for more on the aforementioned government grant, contact Linda Spencer at lindas@sema.org to schedule a call. **PRI**



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PRI POLITICAL ACTION COMMITTEE

As an official PRI Member, you are eligible for inclusion in the racing industry's Political Action Committee, Performance Racing PAC.

100% of the funds raised go toward helping elect candidates and lawmakers that support the racing industry.

Each PRI Member is eligible to donate any amount, up to a maximum of \$5,000 per calendar year.

Learn more about how Performance Racing Political Action Committee protects racing by visiting:

PerformanceRacing.com/PAC

QUESTIONS ABOUT THE PRI PAC?

Contact us at
RacingHelp@performanceracing.com
or call (202) 794-8279



INDUSTRY NEWS

2022–2023 SEMA BOARD OF DIRECTORS ELECTION RESULTS ANNOUNCED

The Specialty Equipment Market Association (SEMA) has released the results of the 2022 SEMA Board of Directors election. SEMA Board members are industry representatives who volunteer their time to lead and guide the association. They are elected by SEMA-member companies and represent the key membership categories: manufacturers, distributors/retailers, manufacturers' reps, and services. The SEMA Board of Directors for 2022–2023 will be as follows:

Manufacturer:

- Norris Marshall – CEO, BluePrint Engines
- Kathryn Reinhardt – director of retailer marketing, 4WP/Pro Comp
- Melanie White – president, Hellwig Products

Manufacturer Rep:

- Rich Butler – CEO, R&R Marketing Consultants

Board Officers:

- Chairman – James Lawrence, CEO, Power Automedia
- Chair-elect – Kyle Fickler, director of sales and new business development, Driven Racing Oil
- Immediate Past-Chair/Secretary – Tim Martin, CEO, Aftermarket Advisors
- Treasurer – Les Rudd, president, Bob Cook Sales

Board Members:

- Rich Butler
- Lindsay Hubley – managing partner, Lodestone Events LLC
- Norris Marshall
- Larry Montante – vice president, category management, Keystone Automotive Operations
- Kim Pendergast – CEO, Magnuson Superchargers
- Brian Reese – president and CEO, T Sportline
- Kathryn Reinhardt
- Ted Wentz III – CEO, Quadratic Inc.
- Steve Whipple – director of private-label sourcing, Jegs High Performance
- Melanie White

Outgoing Board Members:

- Chris Douglas, Edelbrock Group
- Les Rudd

The 2022–2023 SEMA Board of Directors and outgoing Board members will be honored and recognized during the 2022 SEMA Awards Gala, July 29, in Anaheim, California. All SEMA members and industry professionals are invited to join the celebration by purchasing tickets at sema.org/gala.

FAMED NHRA ANNOUNCER DAVE MCCLELLAND, 85

Dave McClelland—the voice of the NHRA from the 1970s to the early 1990s—has passed away. He was 85.

In 1985, McClelland formed Dave McClelland Enterprises to

serve as emcee and do voice-over work for clients, including SEMA, NHRA, NASCAR, and much more. For many years, he served as emcee for the annual SEMA Awards Gala and SEMA Show Banquet. He was enshrined in the SEMA Hall of Fame in 1994.



Dave McClelland

the passing of José Abed, the honorary FIA Vice President, Formula One promoter, and OMDAI president. He was 82.

Abed was a former motorcycle and race car driver, and a longtime advocate for motorsports in Mexico and Latin America. He also worked with Adrián Fernández, the Mexican driver who participated in IndyCar and endurance racing.

“Deeply saddened to learn that José Abed has passed away. The FIA family pays tribute to him, and our thoughts are with his loved ones,” said FIA President Mohammed ben Sulayem in a social media post.

DRAG RACER, JOURNALIST JOHN DIBARTOLOMEO, 68

Longtime drag racer, motorsports journalist, and business owner John DiBartolomeo has passed away. He was 68.

During his driving career, DiBartolomeo won six NHRA national sportsman-class events dating back to the 1990s.

He also served as the longtime editor

of Drag Racing Action Online and Drag Racing Edge magazine, and owned DRC Race Products, the manufacturer and parts distributor based in Beaver Springs, Pennsylvania.

MELLING ACQUIRES SIGMA ENGINEERING

Jackson, Michigan-based Melling Engine Parts has announced the acquisition of Sigma Engineering, a developer and manufacturer of rocker arms and shafts located in Pontiac, Michigan.

Sigma has supplied key automotive aftermarket customers with private label products for 26 years. Sigma Engineering owner Arshad Suri will remain with Melling to help design and develop new valvetrain products.

The announcement marks Melling's second acquisition of manufacturing companies in recent months, following its purchase of Casalandra Metal Stamping in late April.

OMDAI PRESIDENT, F1 PROMOTER JOSÉ ABED, 82

The Mexican Organization of International Automobile Sport (OMDAI) has announced

RACE WINNING BRANDS ACQUIRES HALTECH

Mentor, Ohio-based Race Winning Brands (RWB), a portfolio company of MiddleGround Capital, has announced the acquisition of Haltech Engine Management Systems. Haltech, which specializes in engine management systems, is based in New South Wales, Australia, and has offices in Lexington, Kentucky, and Lake Forest, California. The acquisition represents the 13th add-on for Race Winning Brands.

S&W PERFORMANCE GROUP ACQUIRED BY PRIVATE INVESTMENT FIRM

The S&W Performance Group—the drag racing and performance street vehicle chassis and components manufacturer—has been acquired by Ken Wible and Jay Lankford's private investment firm.

"I have decided to step away from ownership and into retirement," said S&W President Terri (Weney) Gdowik.

S&W will continue to operate out of its Spring City, Pennsylvania, headquarters, which first opened in 1959.

THE SHOP MAGAZINE ACQUIRED BY CAHABA

Cahaba Media Group has announced the acquisition of The Shop's assets—the automotive aftermarket print magazine, website, podcast, and more based in Broomfield, Colorado—from National Business Media.

Previously the editor of Cahaba Media Group's Pumps & Systems magazine, Jennifer King will lead The Shop team as the executive editor. Jef White will remain the editor, while AJ Hecht will remain the associate editor.

The acquisition also included the RV Pro brand, including a print magazine, website, and more for the RV market and related products.

SHELL, INDYCAR TO INTRODUCE RENEWABLE RACE FUEL

Beginning in 2023, Shell will produce a new race fuel for the NTT IndyCar Series. The new product will consist of a blend of second-generation ethanol derived from sugarcane waste and other biofuels to create a fuel that is 100% comprised of feedstocks categorized as renewable under the applicable regulatory frameworks.

The fuel would make the NTT IndyCar Series the first US-based motorsports series to use 100% renewable race fuel and enable at least 60% greenhouse gas emissions reduction compared to fossil-based gasoline, according to IndyCar.



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GRABER APPOINTED PRESIDENT, CEO OF TOYO TIRE U.S.A. CORP

Toyo Tire Holdings of Americas has announced that Michael Graber has been appointed president and chief executive officer of Toyo Tire U.S.A. Corp., the aftermarket sales unit for Toyo branded tires based in White, Georgia. Graber was promoted from the position of vice president of sales. In his new role, Graber will be responsible for replacement market sales, strategic sales planning, pricing, marketing, product planning, and consumer affairs.

NGK SPARK PLUGS ANNOUNCES EXECUTIVE CHANGES

NGK Spark Plugs (U.S.A.), based in Wixom, Michigan, has announced that Clair Stewart has joined the company as vice president of supply chain management

and will be responsible for procurement, materials, packaging, and logistics.

Mark Pratt has been promoted to director of supply chain management and will be responsible for planning and fulfillment operations.

Jeff Desveaux has been promoted to general manager of strategic growth and partnerships and, in his new role, will be responsible for the creation, sourcing, and development of new business opportunities.

Richard Ebert joins as GM of Finance, where he will be responsible for financial reporting, corporate accounting, accounts receivable and payables, and more.

ULTIMATE HEADERS NAMES JIM BROWNING JR. PRESIDENT

Ultimate Headers, the performance headers manufacturer based in Berea,

Ohio, has announced Jim Browning Jr. as company president.

Browning previously oversaw products and customers as vice president, where he also helped with Ultimate Headers' move to a new 12,000-square-foot facility in Berea. Prior, he worked in the oil and gas industry for six years, and before that he was with CORSA Performance Exhaust in Berea, Ohio, for over 20 years.

LINCOLN ELECTRIC ANNOUNCES EXECUTIVE ADDITIONS, PROMOTION

Lincoln Electric Holdings based in Cleveland, Ohio, has announced that Steven B. Hedlund has been promoted to chief operating officer (COO). He has served on the Lincoln Electric executive management team since 2008, and most recently was executive VP/president of domestic and

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Lisa A. Dietrich has been named executive vice president/chief information officer (CIO). She most recently held an executive role at American Greetings Corp.

Michelle N. Butler, meantime, has been appointed vice president of Environmental, Health and Safety (EHS) & Sustainability. Butler most recently served as the director of Sustainability at Wabtec Corporation, where she led its EHS efforts in the US.

POWER AUTOMEDIA ANNOUNCES NEW APPOINTMENTS

Power Automeia, the automotive enthusiast media company based in Murrieta, California, has announced that Lloyd Hunt was promoted to chief revenue officer. He will be responsible for sales and customer relations and will work alongside

Ivan Korda, who succeeds him as the new senior director of Business Development, a position Hunt held for three years.

Florida native Robert Fisher was also named a business development rep.

CENTERFORCE NAMES NEW NATIONAL SALES MANAGER

Centerforce Performance Clutch, the high-performance clutch systems and products manufacturer in Prescott, Arizona, named Chris Thomson as national sales manager.

Thomson is a longtime motorsports professional, most recently serving as a national account manager for TMG Performance Products based in Berea, Ohio. Prior, he was director of Business Development for Baer Brake Systems in Phoenix, Arizona; senior director of sales for Airaid/K&N Filters; and Western regional sales manager and sales/marketing

manager for Holley Performance Products.

Thomson also served on the SEMA Board of Directors from 2006 to 2012.

TORQUED DISTRIBUTION ADDS TO SALES TEAM

Torqued Distribution, the motorsports and automotive performance warehouse distributor based in South San Francisco, California, has announced Alessandra "Ali" Holmes has joined the company in a senior sales role.

Prior, Holmes was with Turn 14 Distribution based in Horsham, Pennsylvania, for over six years. She held various positions, including senior sales specialist (European), new account sales specialist, and senior customer service representative.

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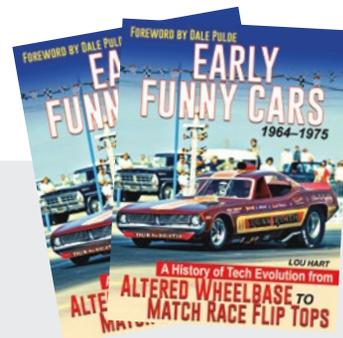


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The Flowmaster FlowFX axle-back exhaust systems for the 2010–2015 Chevrolet Camaro with the 6.2L V8 and the 2016–2022 Camaro with the 3.6L V6 are manufactured using durable 409 stainless steel throughout and feature 3-inch mandrel bent pipes for better exhaust flow. FlowFX straight-through mufflers are used for an aggressive to moderate sound level and maximum performance.

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“Early Funny Cars” is a comprehensive book on the early years of Funny Car, which are considered one of the most popular variations of drag cars. The metamorphosis from doorslammers to fiberglass flip-top dragsters wasn’t ever a cut-and-dry plan. This book describes how a series of innovations quickly evolved and refined the genre.

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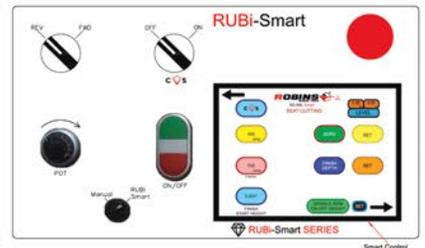
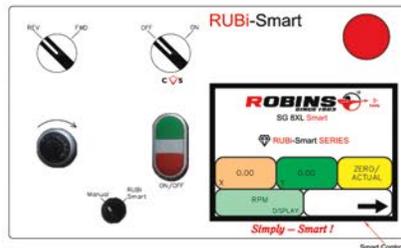
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SOCIAL STATUS

A closer look at racing and performance industry members' winning engagement strategies on Instagram, Facebook, TikTok, and more.

A social media takeover is when a company or account gives up posting rights to another individual, usually someone significant within the same industry. In PRI's case, that could include a professional racer, automotive influencer, parts manufacturer, and so on.

Prominent motorsports photographer Larry Chen described a social media takeover as "when someone else becomes the voice of a brand for a predetermined period of time." Chen has been involved in at least 10 social media takeovers and boasts an Instagram following of more than 650,000.

Why should your business consider running a social media takeover? Various reasons come to mind, including increased brand awareness, follower growth, exposure to a new audience, engagement with your current following, and more.

Additionally, "the takeover can benefit either participating party depending on how many followers the accounts have," Chen noted. Ideally, you'd want an individual with more followers to take over yours because "if you have more followers than the person taking over, it might actually help them

more," he added. But if both accounts have similar followings, they can each benefit by reaching new audiences and therefore possibly increasing their respective followings.

When deciding who you want to take over your account, the partnership has to make sense. Don't just choose a random influencer because they have a large following. "I won't be doing any takeovers for a food photography account anytime soon," Chen told us. "And generally speaking, it's best to have a good relationship with the individual you are asking to do a takeover." After all, you are giving that person full access to your social media platform(s) for a specified amount of time.

Once you've chosen your takeover participant, prior to the takeover, parameters should be set by the host account to determine what they hope to achieve through this takeover; those expectations should then be relayed to the individual taking over the account. An example would be how many feed posts, Instagram Stories, or Reels will be published during the takeover. The type of content the host

account is looking for should also be considered. It's important to continue to stay on brand, experts say, but also allow the individual to get creative and introduce a different perspective.

Furthermore, both parties should promote on their respective social media accounts that the takeover is happening, specifically which day or days. "Typically, you would announce [on the client account] that you are taking over an Instagram, or other major social platform," Chen said. "It's also typical to let your own followers know that you are taking over another account."

And, "when it's over, make sure to let everyone know. You can also let people know where to continue to follow you," Chen added.

After the takeover is complete, it's important to track the metrics in order to determine if it was successful. Then, you can decide whether or not you want to try it again in the future. You can also learn what worked and what didn't so adjustments can be made for the next takeover.

So, who's ready to host their first social media takeover? **PRI**



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