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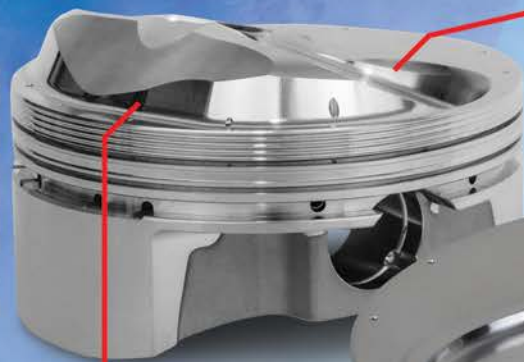
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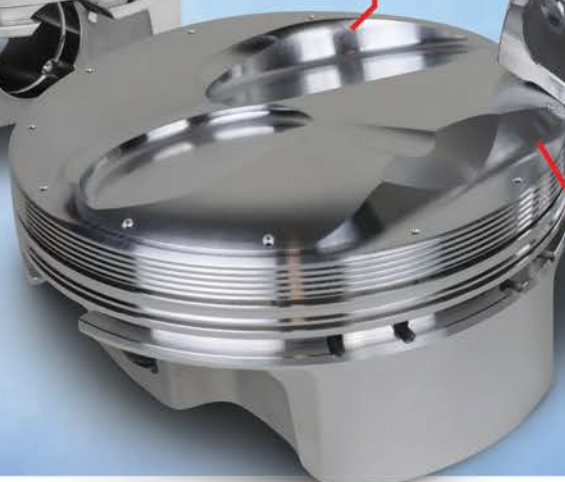
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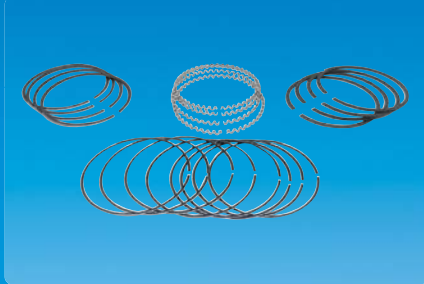
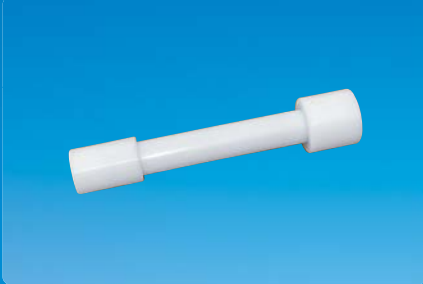
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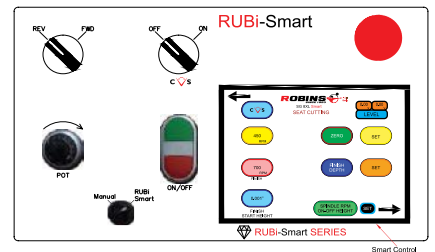
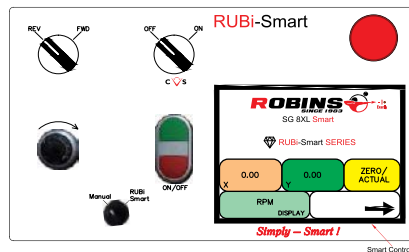
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FROM THE PRESIDENT

Two years ago, our world faced off against the COVID-19 pandemic, and the racing industry suffered quite a setback. Together with your entrepreneurial spirit and the work ethic from the racing industry, you bounced back quicker and better than most other industries. And PRI was there with local and federal support, educational programs, and grassroots-level advocacy to help tracks, sanctioning bodies, and parts manufacturers across the country. Now, as the world adjusts to a “new normal,” the racing industry is faced with a whole new group of challenges. I wanted to spend some time this month sharing what we have learned as well as offer up what PRI is doing to help you. Of course, we are always looking for ideas that can help your industry partners, so shoot me a note with how we can do better. So here, in no certain order, is what we are watching:

CHALLENGES TO THE RACING INDUSTRY

The US is facing its highest inflation rate in over 40 years. The amount of money printed through the pandemic (hidden as stimulus packages) as well as an increase in wages (employee retention and acquisition) is fueling this. We are hearing reports from across our industry about the high prices of, well, everything. Still, industry leaders are sharing positive news. In fact, our largest distributors are reporting strong sales well into Q2, and we still see new race cars being assembled and brought out to race. As this issue goes to print, the Fed continues to adjust the interest rate in an attempt to bring spending into check. Watch for the housing market to react, and for bigger-ticket goods (trucks, trailers, large equipment, etc.) to be impacted. Obviously, if you are looking to expand your business, this is going to affect you.

Without question, all of us are getting stung by high fuel prices. I honestly cannot remember ever paying this much for gas. And for those of us that are towing each week, the cost of diesel fuel is slowing our economic health as well as adding to the cost of goods and services. While our

expert sources don't foresee a break in this trend anytime soon, PRI continues to communicate with fuel suppliers and will bring you any additional information as it becomes available.

With inflation on the rise, and the cost of goods going up, the racing industry supply chain has been as bumpy as the back straight at your favorite dirt track. A year ago, the industry was shocked by an unprecedented surge in demand for product. As raw material supplies became limited, now we are hearing about “parts we never thought would run out” coming into question. Fasteners, small parts, and gaskets seem to be leading to shortages for more complicated products (engines), and suppliers are scrambling to make more. You are all caught up in this right now. But our contacts tell us they are starting to recover, and we have information on some of the largest names in the entire PRI universe starting to get back on track. So, look for better times ahead; but for now, some key products remain in short supply.

Candidly, nothing has us as nervous as the immediate need for tires, as we face the largest tire shortage in the history of our industry. All forms of racing are affected, and this shortage has already caused the cancellation of race events, with many, many more in jeopardy this summer. Sanctioning bodies are loosening the rules for spec tires to open options for racers. And manufacturers are looking at the most-used tires in racing to streamline their product mix. In the meantime, PRI staff are working daily with tire manufacturers, sanctioning bodies, and race tracks to try to find solutions for you.

Hand in hand with the supply chain issue are staff shortages that have crippled some companies through the pandemic. We are happy to report that the workforce is bouncing back with skilled professionals in high demand. If you are looking for your next career move, or you are an employer who has openings in your company, list those positions on the new PRI Career Center website at jobs.performanceracing.com. We



DR. JAMIE MEYER
jamiem@performanceracing.com

have already placed a number of folks in our industry, and we are going to continue to grow this critical connection between employer and employee.

We are all aware of a series of track closures over the past two to three years. While no type of racing is immune to these closures, big drag strips that are strategically close to (or closer to) large population areas seem to be the most vulnerable. In the coming months, PRI will launch a special investigative series examining track closures to bring you closer to the story, while at the same time examining possible solutions. We remain in regular contact with a handful of these tracks and are working to determine how PRI's lobbying efforts may be able to help their situations. Still, this trend is a big bag of not good.

As we have since 1986, PRI will focus on bringing our industry together to solve problems and grow the racing community. In fact, we are embarking on another series of town hall meetings soon where we will leverage experts from across our industry to help address these issues and more. In summary, I still believe we are living through the golden age of racing, and PRI will continue to do everything in our power to help you expand your business and enjoy this great American pastime. **PRI**

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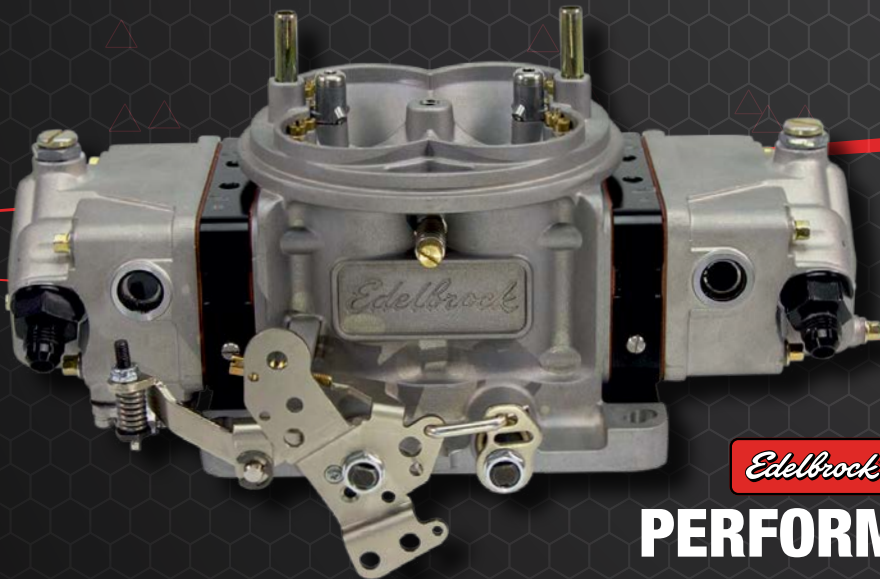
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FROM THE EDITOR

Three things I think as we prepare for the 100th running of The Race to the Clouds later this month:

1) I THINK OUR SPECIAL REPORT ON

private equity firms' mounting interest in the motorsports sector offers some really good insight into why this industry has become so attractive to investors. For the piece, which begins on page 36, author Steve Statham spoke with representatives from both MiddleGround Capital, whose portfolio includes Race Winning Brands, and Industrial Opportunity Partners, which owns the Edelbrock Group, and others to understand the "why" behind this emerging trend. It's important to note that our goal in this exercise was not to weigh the positives vs. negatives of PE involvement in the performance sector—that's a debate for another place and time. What we did seek to uncover, and I believe we accomplished, are the factors driving these acquisitions...from both the buyer's and seller's perspective. So give it a read, see what you think, and as always, feel free to share your feedback with us at editorial@performanceracing.com.

2) I THINK IT'LL BE INTERESTING TO

see how a new unified rules package for Super Late Models plays out at dirt tracks across the US. Billed as one of the category's most significant developments of the last two decades, the seven-pronged rule set was developed during an impromptu meeting of sanctioning body officials at last December's PRI Trade Show. After a bit of fine-tuning it was soon set in stone, and has since been adopted by the World of Outlaws Late Model Series, the Lucas Oil Late Model Dirt Series, the Iron-Man Late Model Series, and others. Officials we spoke with for our report on the matter, which begins on page 48, are optimistic that racers will embrace the effort to establish greater uniformity in the segment. "You'll always have guys who want to push the envelope, and going that extra mile is part of what makes our sport unique," noted



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Chris Tilley, whose CT Promotions puts on the Iron-Man series. "But at the same time, we all need to be on the same page so that the guy who runs at a weekly or regional level can feel like he's getting a fair shake compared to the guys who are running with the national tours every night."

3) I THINK THE FIRST ENTRY IN THIS

month's Advocacy Corner column (Motorsports Businesses: Time To Host Your Lawmakers, page 108) is worth a closer look for almost any entrepreneur in the racing and/or performance space. Large or small, the opportunity to meet and forge a relationship with your member of Congress is, in a word, invaluable. Callies Performance Products and Summit Racing Equipment have already taken advantage of this program offered by PRI's government relations team in hosting US Representatives Bob Latta (R-OH) and Jake Ellzey (R-TX), respectively, for tours and meetings at their facilities. As noted, our team handles the heavy lifting—invitations, pre-visit briefings, day-of logistics management, etc. It brings us back to the old political saying: If you're not at the table, you're probably on the menu. So why not pull up a chair and get better acquainted with the folks who cook for a living. **PRI**

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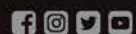


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LEAD POSITION

Specialty pistons are all the rage. Whether that means diving deeper into the LT and late-model Hemi market or expanding one's offerings across European supercar platforms, manufacturers are meeting demand however and wherever it appears. Case in point: Because of growing interest in engines with a 3.900-inch stroke crankshaft, the team at Wiseco Performance Products has upped its production of LS 3.900-inch-stroke pistons. "The skirt shape was specifically designed to reduce piston rock with 3.900-stroker rod angle," noted Matt Polena, "allowing the rings to maintain better ring seal." Others, like the crews at Howards Cams and MAHLE Motorsport, are scoring wins with grassroots racers running hobby stocks, sport mods, and spec programs through SCCA, Trans-Am, and other series. For the full report on how suppliers are answering the call for lighter, stronger, and yes, even more affordable performance pistons, see our coverage beginning on page 70.

ASK THE EXPERTS

CHOOSING TIRES FOR SMALL-TIRE DRAG RACING

Bias-ply vs. radial is often the first decision for these racers, but additional factors should be considered, too, before they burn that rubber on the drag strip.

By Drew Hardin

It's as simple as this: "Racers are looking for traction, something that can move their car as quick as it can," said Faron Lubbers of Hoosier Racing Tire, Lakeville, Indiana. Sounds easy enough.

But while the goal is straightforward, the best choice for straight-line competitors isn't always cut and dried, even for a class whose very name ("small-tire") suggests a measure of structure. How to know, then, what specific requirements and factors racers should consider when choosing racing rubber for small-tire drag classes? We tapped Lubbers and other tire experts to find out.

THE BASICS

"When determining the tire for a race application, there are several things to consider," said Mike Crutchfield of Coker Tire, Chattanooga, Tennessee. First among them are "the height, width, and circumference of the tire, along with the construction—whether to use a radial or bias-ply."

"Radials have come a long way in the last few years, but if a racer is dealing with marginal surfaces and a lot of horsepower, a radial is tough to make work, because it has to dead hook," Lubbers said. "That's why they spray the track so much at those radial events. But on an unprepared surface or a marginal track, it's more of a challenge to hook up the radial initially than a bias-ply."

"Definitely in a no-prep situation the bias-ply tire will absorb more energy on the starting line," said



Jason Moulton of Mickey Thompson Performance Tires & Wheels, Stow, Ohio. "But it's also absorbing energy down the track, which makes the bias-ply slower than the radial, ultimately. We've seen people pick up anywhere from five-hundredths to a tenth in the eighth-mile on a radial. If track conditions are good, or the tuning setup can work with the radial, it is going to be quicker."

While they seem like separate considerations, tire size and construction are interrelated, particularly with bias-ply tires. Bias-ply slicks grow at speed, as much as an inch and a half at 150 mph, Moulton said. When determining how much tire will fit under the car, he recommended clearance of "no less than 3/4 inch side-to-side, depending on the suspension. For a leaf-spring-style suspension, or an old coil-spring suspension, it's best to leave at least an inch."

The circumference of a bias-ply tire can vary as well, Moulton said, which is why the company writes the circumference on the tread of the tire. When buying a set of slicks, "make sure they're matched up within half an inch. If the difference is more than that, with a race car with a locked or spooled rearend, the tires will try to steer the car in one

At the track, tire temperature generally should be about 20 degrees over the track temperature. "On colder days, do a longer burnout," recommended our source at Mickey Thompson Performance Tires & Wheels. "On hotter days, just get a little smoke and clean them off. The shorter the burnout, the less rubber will wear away, so the tires will last longer." Photo courtesy of Evan Smith/Mickey Thompson Tires & Wheels.

The 28x10.5-15 Phoenix PH185 "was developed with Phoenix proprietary features and placement of construction parts to enhance the performance and grip with no-prep racing in mind," said our contact at Coker Tire. "With the F9 compound the combination has produced a very good tire for this type of racing and is also a great fit for the weekend bracket racer."

direction or another. You definitely don't want that."

Hoosier marks its bias-ply tires with a reference number that correlates to the tire's rollout length as it comes out of the mold and has gone through the company's post-inflator process. When a set is ordered, "we pull two tires with the same numbers on them and send them out together, so 9.9 out of 10 times, if they're aired up the same way when they're mounted, they'll have a matched set," Lubbers said.

From there, decision parameters "go into the horsepower level and weight of the car," Moulton said. In heads-up classes, for example, "the horsepower levels tend to get a lot higher, so racers want a tire with a compound and sidewall that's going to hold up to the weight and horsepower. With a heavier car—which in our world is something above 3,000 pounds—and high horsepower—say north of 800—they'll want something with a firmer compound and stiffer sidewall. Stiff sidewalls tend to scare people. They think they won't absorb the energy needed with their application. But the sidewall stiffener tends to keep the tire round and keeps the footprint



a little bit bigger on the ground.”

When racers “talk tires, they like to just talk about hard and soft,” Lubbers said. But they should look for a tire “that has some toughness. They want to get as much traction as they can, but they also need toughness, because those cars get wheel spin. They’re not usually dead hooked in a marginal condition. The racers need something that, when it’s spinning, doesn’t ruffle up and get the wavy tread to it. That’s the toughness part.”

TIRE CARE, ON-TRACK AND OFF

At the track, the general rule regarding tire temperature is that it should be about 20 degrees over the track temperature. “On colder days, do a longer burnout,” Moulton recommended. “On hotter days, just get a little smoke and clean them off. The shorter the burnout, the less rubber will wear away, so the tires will last longer.” This holds true for both radial and bias-ply tires, he said.

Between race seasons, “keep them out of the weather and in a controlled environment,” Lubbers said. “You don’t want them to freeze.”

Keep air in the tires and weight off of them in the offseason, Moulton said, as that will help them hold their shape. Also, store the tires away from “high heat or high electrical sources, like a furnace, a welder, or an air compressor,” he added. “That will prematurely age the tires.”

All of our sources agreed with Crutchfield when he said, “We do not recommend any type of chemical treatment for race tires. It could damage the integrity and corrupt the rubber compound of the tire.”

“And don’t put them on chassis dynos,” said Lubbers. Strapping down the car and running the tires on rollers “creates all kinds of heat, which will tear the rubber right off.”

WHEEL CONSIDERATIONS

When it comes to wheel selection, “wider is better up to a certain point,” Moulton said, “but that’s dictated by the height and tread width of the tire.”

“I wouldn’t put a 10-inch tire on anything less than an eight-inch wheel,” Lubbers said. “The ultimate thing would be around a 10-inch wheel. The wider wheel is an advantage because it gives a better profile of the tire’s tread on the surface of the track.”

Securing the tire to the wheel with rim screws or beadlocks is recommended when using a bias-ply tire to keep the tire from slipping on the wheel. Racers using wheels wider than the tread width to maximize the tire’s footprint should step up to beadlocks, Moulton said.

“Some of these guys are running 28x10.5s on a 14-inch-wide wheel. When the bias-ply tires grow going down the track, they also try to pull the beads in.” If that happens, especially with low air pressure in bias-ply slicks, the bead can unseat “pretty quick,” Moulton said. “Usually that happens at the top end of the race track, which is the worst place for it to happen.”

“I know they’re a lot of money,” Lubbers admitted, but beadlocks “are the ultimate setup.” **PRI**

SOURCES

Coker Tire
cokertire.com

Hoosier Racing Tire
hoosiertire.com

Mickey Thompson Performance Tires & Wheels
mickeythompsonstires.com

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STOP DOING THAT...DO THIS INSTEAD

DATA ACQUISITION SYSTEMS

Today's missteps often involve picking the wrong system for the race car, or not installing it properly once it arrives.

By Jim Donnelly

Look at it this way: Until data acquisition systems and loggers gained widespread acceptance in motorsports, most racers had no real idea how their cars were performing. They guessed at it, and sometimes got it right. The emergence of data gathering has since turned the tuning of race cars into an empirically driven process, with systems available that can keep real-time track of 100 vehicle functions, or more.

The information's there, finally, but some guesswork has persisted, morphed into a different entity. Today, it's less common for crew chiefs to misinterpret data. Instead, the imprecision more realistically extends to picking the wrong data system for the race car, or not installing it properly once it arrives. The manufacturers that produce these sensitive, highly specialized instruments have a vested interest in helping their customers get the setup basics right and do so on a regular basis.

"A lot of racers are afraid to order extra sensors, especially when they're new [to data acquisition], because they think they're going to be overwhelmed by the data since they've never seen it before," said Donny Cummins of Racepak LLC, part of Holley Performance Products, Bowling Green, Kentucky, which produces both pro and sportsman data devices. "What bites them down the road is, for example, if they didn't order fuel-pressure sensors, and now they're having fuel delivery issues. My suggestion is to get the system that this [competition]



category needs to tune the car, be consistent, but also be able to diagnose problems. When something happens, and something malfunctions, that's when you'll need to look at that sensor data."

Racepak systems exist for more basic sportsman categories such as Super Gas, with cars that have about 1,000 horsepower, and for pro applications like Pro Modified, whose 5,000-horsepower tire shake might beat a sportsman data system silly in a few runs. Cummins said making the system appropriate to the car, and to the number of functions it needs covered, is a crucial consideration.

Another is being able to properly set up the system, since doing it wrong poses its own set of problems. As an example, Marc Erickson of AutoMeter in Sycamore, Illinois, pointed to earlier types of systems that came with unfinished data cables, which the customer had to crimp with specialized tools. "That was basically self-inflicted," Erickson explained. "Now, it's all plug and play, so our biggest issue usually involves grounding. Our cables are wrapped in shielding to send RF interference to the ground, so if it's not properly grounded, the RF will go to the data unit itself. Another mistake is running cabling

Racers often fail to order extra sensors over fear they'll be overwhelmed by the data in front of them, especially if they're new to data acquisition, noted our source at Racepak. "What bites them down the road is, for example, if they didn't order fuel-pressure sensors, and now they're having fuel delivery issues," he added.

Our contact at AEM cited competitors that either can't properly interpret their data, or don't know how much they have in the first place. "We have seen racers who are new to data analysis log every channel coming into the unit but have no idea how to organize it," he said, "leading to paralysis by analysis."

or a power wire next to an ignition source, which will do the same thing."

RF interference can also drive other electronics, such as delay boxes, absolutely crazy. Most ignition providers will include specific grounding instructions with the products, and furnish good-quality ignition wiring, which Erickson said is essential for a data system to work properly.

"Another big issue, for us, is that people will wire the actual system, or playback tach, to the ignition switch, so it will still be recording when they go through the lights and shut the car off. It scrambles the data because it's still recording," Erickson said. "We always say, wire our stuff to the main power, not the ignition switch. Even if you shut the car off, it won't drain the battery immediately, because our system draws maybe 3 amps."

Stripped to its basics, the core function of data systems is to create a bunch of wriggling lines on a graph. At AEM Performance Electronics in Hawthorne, California, techs frequently see racers who either can't properly interpret their data or don't know how much they have.

"We have seen racers who are new to data analysis log every



channel coming into the unit but have no idea how to organize it, leading to paralysis by analysis,” AEM’s Lawson Mollica said. “We also see the complete other side of the spectrum, where a racer will buy a basic logger that provides a handful of specific channels that are helpful, but as the driver becomes more experienced and wants more data, there is no way to expand the dataset with their current logging solution. The challenge of buying too little can cause racers to have to reinvest in a more powerful logger. That is where a system like our CAN-based CD Carbon logging displays become advantageous because they provide both data visualization and logging capability with near limitless expandability.”

By dint of what they do, racers acquire technical knowledge as they gain experience, but computers can get fuzzy for most mortals. That’s why the industry invests in tutorials that can keep racers from getting hopelessly lost. At AEM, setup templates are provided for bringing a new data system online. Racepak produces quick-start guides and YouTube videos demonstrating proper installation. Like other providers, AutoMeter urges buyers to know and understand the tech basics involved in data acquisition.

“We always try to give our racers the tools they’re going to need before they get to the race track,” Cummins said. **PRI**

SOURCES

AEM Performance Electronics
aempower.com

AutoMeter Products
autometer.com

Racepak LLC
holley.com/brands/racepak



940A1R83
Speedway/Pro Shocks Sprint Car AI Adjustable Shock



91077855
Speedway Chromoly Round Tube Rear Wing Tree



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AFCO 80201N, Sprint Double Pass Radiator



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MAKE THE CASE

KARTING VS. QUARTER MIDGETS

Building a solid foundation of race craft and sportsmanship is critical for any young driver with aspirations of establishing a career in motorsports. While the formats of karting and quarter midgets emphasize different elements of racing, both offer established paths for competitors to move up the ranks—or transition into other racing disciplines—as they gain experience. So, which offers the more advantageous entry point?

By Bradley Iger



**QUARTER MIDGET
ADVOCATE:**
Denise Smutny,
Quarter Midgets of America

*“ONE OF THE BIG
ADVANTAGES WE
HAVE WITH QUARTER
MIDGETS IS THAT THE
CARS HAVE FULL ROLL
CAGES AND FIVE-POINT
HARNESSES.”*

Our racers start at the age of five, and at that point you're really focused on the core fundamentals of motorsports: Understanding a sense of fair play, how to win and lose graciously, how to be responsible for your race car, and how to work with a team.

When you're talking about kids in that age range who are just starting out, I also think that one of the most important things to consider is safety. You want to keep those kids safe, and you want their parents to know that they're safe. One of the big advantages we have with quarter midgets is that the cars have full roll cages and five-point harnesses, so we're doing everything we can to keep them encapsulated to prevent them from getting hurt.

I also believe that it's really important to provide these kids with a supportive environment at this early stage in their racing careers. Here they're surrounded by their families and friends—people who want them to succeed at all times. So while there's fierce competition out on the track, afterward the kids jump out the cars and head off to the playground together. It's a very family-oriented way for them to build up those fundamentals.

As they gain experience, there are also clear paths to move up the ranks. There are several platforms and engine types that are available to racers between the ages of five and eight, and as they develop their skills, there are faster platforms available for the older kids. But race craft is always a part of it. You're going to see our five-year-olds

making passes wherever they see a gap. As they get older, their abilities mature. They go from kind of driving wherever they want to go to a tight racing line. When you think about the fact that we're on a 1/20th of a mile oval and there are 10 cars out there, the kids are learning a lot about how to race in traffic. On a track that size with that many cars on it, you have to be constantly thinking about what your next move is going to be, and that's obviously a core fundamental in racing.

There isn't a rigidly defined ladder system here, but we see a lot of kids who move from quarter midgets into micro midgets, and then later to dirt ovals. We also have kids who have moved into the karting world from here and then onto open wheel disciplines, and some of the others have transitioned to hobby stocks, Legends, and pro stocks racing. Sometimes where they end up going is determined by factors like where dad raced, and the costs involved can be a factor as well. As with any form of motorsports, the families often have two questions to ask themselves: How fast do you want to chase the dream, and how much do you want to spend?

For kids of this age, the supportive atmosphere of quarter midgets is hugely important and can't really be replicated elsewhere. Karting generally lends itself to a much broader age group, and that can have an effect on the dynamic. And quarter midgets is an all-volunteer sport—the families are running the whole show. It's a labor of love for everyone involved, and that creates a really encouraging environment for the kids.



**KARTING
ADVOCATE:**
Randy Word,
Word Racing

“THE KARTS ARE INCREDIBLY RESPONSIVE—WITH NO SUSPENSION AND A SOLID REAR AXLE, EVERYTHING YOU DO IS JUST INSTANTANEOUS.”

When kids are starting out in motorsports, I see two things that are very important. The first one is seat time—they need to gain the experience and learn how to drive well. Coaching is a big part of that, too, because good coaching means they won't have to un-learn bad habits later on. The other important thing is to keep it fun. I see too many parents putting too much pressure on their kids and taking the fun out of it. If a kid really wants to do well and is very competitive, they can achieve without that.

As a motorsports discipline, karting is about as close as you can get to a formula car, and it's remarkable how much these kids can learn here. The karts are incredibly responsive—with no suspension and a solid rear axle, everything you do is just instantaneous. It teaches good reflexes and car control, and there's a lot you can do with the setup, so they also learn how to communicate with an engineer about what the car is doing and what it needs.

I also believe that karting allows these kids to establish a wider skill set when it comes to technique. Road course-style tracks provide more variety in terms of overall layout as compared to circle tracks. At the national events, the fields are very large, so there's a lot of competition and race craft to be learned.

On a course with a lot of different types of corners and other features like that, they're going to learn more about things like braking points, different types of apexes, and how to pass. Even at this level the kids are setting up passes three or four corners before they actually make their move. It's a different situation if your goals are strictly focused on oval racing, but I think that it's beneficial for these kids to establish a wide variety of skills. That allows them to have more choices—and more potential career opportunities—down the road.

Here in the US, there are a couple of different options for karting drivers to move up the motorsports ladder. The one that probably sees the most focus is the Road to Indy. The cars are similar to karts, and there's a strong connection between the karting teams and the Indy teams.

The first steppingstone in the Road to Indy is F2000, but there's also a more affordable option with the Formula Speed 2.0 series. We've also seen a lot of kart racers move on to closed-wheel racing in IMSA and NASCAR, while others have gone on to dirt oval track racing and things like that.

There are a lot of different routes these kids can take, and the skills they learn in karting will help them with just about any motorsport that they choose to get into. **PRI**

EDITORS' CHOICE

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

MOD-TWIN 225 HD CLUTCH KIT

ADVANCED CLUTCH TECHNOLOGY

advancedclutch.com

High-powered, all-wheel-drive cars like the Mitsubishi Evo and Subaru STI will probably eat up the stock clutch in short order when racing at the drag strip or road course. Swapping in a new Mod-Twin 225 HD kit from Advanced Clutch Technology in Lancaster, California, can help prevent any setbacks before they occur.

"Turbo four-cylinder engines have a lot of torsional vibration and are notorious for being hard on clutches, specifically stripping out the splines in the hubs," said Richard Barsamian. "We created a clutch that is completely modular, and both friction plates mount to one mono-drive hub."

The clutch achieves a high torque capacity of 700 lbs.-ft. by combining a double dose of organic friction surfaces with a spring-center mono-drive hub. Each of the diaphragm springs is put through a four-stage, heat-treat process. The result is a light pedal effort and a soft, progressive engagement.

"We have had requests for years from racers to develop a kit like this. The number-one challenge was finding a way to engineer a spring-centered hub because racers were blowing through discs," said Barsamian. "With the modular design, you don't have to buy another clutch. Simply change out the discs or mono-drive hub and you can go from a street to race setup or vice versa." —Mike Magda



NEMESIS 4500 EFI KIT

FITECH

fitechefi.com

Bolt-on, self-tuning electronic fuel injection is now available for big engines making up to 1,600 horsepower. The Nemesis 4500 features a 4500 footprint so that it can be easily swapped onto intake manifolds designed for Dominator-style carburetors.

“FiTech offers racers an easier tuning interface to manage the complexity of a high-feature EFI system,” said Jeremy Schmidt of the Riverside, California-based company. “The Nemesis’ huge throttle blades, accompanying airflow, and up to 12 injectors will allow maximum power, while the parabolic ramps on the throttle bores gain a lot of low-throttle drivability. Dual throttle-position sensors and progressive linkage takes drivability to another level of control.”

The Nemesis is constructed from CNC-machined billet aluminum. The hidden injectors fire into annular discharge rings that can



be changed for different spray patterns and other performance adjustments. The kit includes the throttle body, ECU, wiring harness, sensors, and handheld tuner.

The ECU works off speed-density metering and is mounted remotely to avoid engine or ignition electrical noise. The system can be programmed to work with gas, E85, and other race fuels. In addition to dual TPS, the system comes with dual IAC motors, the latter being helpful for tuning large-displacement engines that require additional airflow. —Mike Magda

16X20 63 PRO FORGED WHEEL

RACE STAR

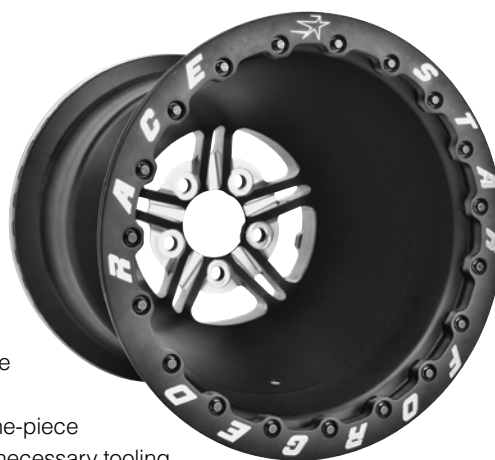
racestarindustries.com

Race Star Industries in Kearney, Missouri, already offered a 16x18-inch wheel in its popular 63 Pro Forged line, but Outlaw street racer Kye Kelley was seeking a very large footprint for better power transfer to the racing surface.

“He knew Race Star was the only company in the market today to make a one-piece configuration,” said LB Davis, noting that wheel designer Mike Kent made the necessary tooling adjustments so the company could manufacture the wider wheel. “We know run-out is important in large wheels. At Race Star, our tolerance requirements are less than .004-inch run-out, which is among the best in the industry. Everyone else in this larger wheel market makes a multi-piece wheel, which has a much harder time reaching that spec as well as being as lightweight as a Race Star wheel.”

The introduction of the 16x19- and 16x20-inch wheels complements Race Star’s existing 16x16- and 16x18-inch wheels in the wide-tire category.

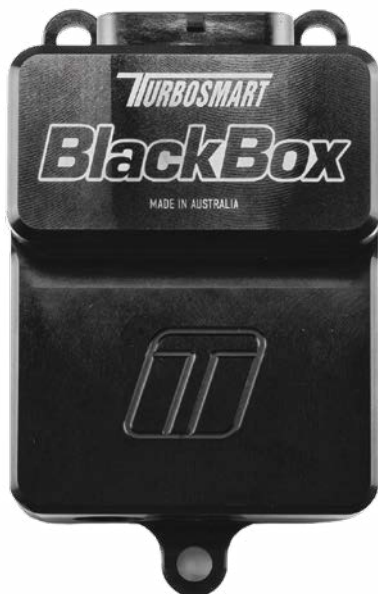
“It gives the big-tire racer a one-stop shop for the wheels he needs to make his car hook up correctly,” said Davis, noting that the wheel meets SFI 15.3 standards. “The largest benefit to this wheel is the flat footprint it allows the tire to have on a no-prep surface. This definitely gives you the advantage over the smaller width, large-tire wheels on the street today.” —Mike Magda



BLACKBOX

TURBOSMART

turbosmart.com



Following the release of electronic wastegates by Turbosmart in Ontario, California, customers started asking for help controlling them. The concept was definitely new to the aftermarket, and only a few dedicated ECU manufacturers developed their own native control strategies.

"We took matters into our own hands and worked closely with some of our industry partners to develop the BlackBox to bring electronic wastegate functionality to the broader market," explained Joshua Burney. "Now, anyone with nearly any ECU can control our electronic wastegates."

The BlackBox is a dual-channel, high-current-capable H-bridge driver that works with any of the Turbosmart electronic external wastegates. It's capable of multiple strategies and will accept PWM inputs as traditional boost-control solenoids. The BlackBox is pre-configured with the flow vs. lift calibration data of all Turbosmart electronic wastegates, and settings can be adjusted via a simple USB connection and PC-based application.

"Feedback from our customers was the primary motivator in developing the BlackBox," added Burney. "For several decades, pneumatic-style wastegates have been the norm in the industry. Our electronic wastegates have been years in the making with thousands of hours of development and testing. With their introduction came the need for an equally advanced dual H-bridge driver to control it properly." —Mike Magda

HIGH-VOLUME HEMI OIL PUMP

MELLING

melling.com

With more interest in the Gen III Hemi engine platform, performance engine builds are requiring a consistent and generous oil supply. The new high-volume Hemi oil pump from Melling in Jackson, Michigan, produces 20% higher volume than stock on 5.7- and 6.1-liter engines found in a variety of Dodge, Chrysler, and Jeep production vehicles.

"The Chrysler Hemi engines tend to have some valvetrain issues that can, in some cases, be significantly reduced with added oil flow/pressure," said Cale Risinger.

Basically, the engine has an intricate oil path from the rocker-arm shafts, through the rocker arms, down through the pushrods to finally lubricate the lifters.

"All of these essentially slip fit connections can create the perfect storm for oil-pressure-robbing internal oil leaks," Risinger explained. "Adding the additional volume that the HV pump supplies can greatly help to overcome these types of issues."

The pump comes with the high-pressure spring installed, and



a stock pressure spring is included. Made from a cast aluminum housing, the pump has an anodized hard-coated body and cover. Other features include a threaded pressure-relief nut, standard bolt-on screen, and an exclusive rotor set.

"The primary benefit would be the added oil volume needed in many performance engine builds. Adding things such as a remote oil filter, oil coolers, and oil-cooled power adders would all be good reasons to install a high-volume pump," concluded Risinger.

—Mike Magda

SR21 BRAKE PADS

EBC BRAKES USA

ebcbrakes.com



The SR21 brake pads from EBC Brakes in Las Vegas, Nevada, are constructed from sintered materials specially formulated for racing applications.

“There were many teams we worked with to develop SR,” explained Preston Lapping, “from club racing in SCCA/NASA—such as GT, Trans-Am and American Iron—all the way up to the demanding IMSA GT vehicles. There are even a few sponsored series in the UK that now have SR as the homologated brake pad.”

The pad materials feature stable friction-coefficient temperatures up to 1,700 degrees F, which is suitable for endurance and sprint racing. Another significant benefit is that zero

bed-in is required.

“Racers can spend their time collecting data or just enjoying their HPDE activities instead of trying to get their brakes to settle in,” added Lapping.

He said testing has shown improved wear life for the brake system as a whole. The brake pads don't exhibit the typical negative side effects of sintered materials being hard on the rotors. Also, strong pad bite is observed through a wide operating range.

“There is no need to stay conservative after caution, which can be a huge advantage in the chaotic Turn One restart,” continued Lapping. “The pad works for the HPDE driver operating at 400 degrees C/750 degrees F rotor temps as it also does the 800 degrees C/1,500 degrees F IMSA guys. Also, the pad release and subsequent modulation is excellent and has been echoed in every vehicle test we have performed. This means great trail braking and predictable weight transfer.” —Mike Magda

TITANIUM RETAINERS

TICK PERFORMANCE

tickperformance.com



Titanium retainers from Tick Performance in Mount Airy, North Carolina, are now 1.5 grams lighter than its previous model. Each retainer weighs 8.2 grams.

“A competitor reached out and claimed our retainers were similar in appearance to theirs. Rather than get into a battle over looks, we took the opportunity to design something better,” said Jonathan Atkins. “Engineer Matt Goins had a good idea, and we ran with it.”

The new two-step design reduced weight from a three-step configuration. Dual springs now locate on the retainer and locator/seat at the bottom. The same design was also carried over to the H13 tool-steel model, making it 2.2 grams lighter than the previous edition.

“Matt designed the retainer and locators on Autodesk software and then went to 3V Performance in Denver, North

Carolina, for Spintron testing,” added Atkins. “They performed high-rpm endurance testing and multiple simulations of a car shifting and driving. They also performed endurance testing at a lower rpm, around 4,000 rpm, which puts more load on the retainer and is more like a street-driven car.”

The retainers are manufactured in-house from 6AL4V titanium and fit most 1.270- to 1.300-inch dual springs. The outer step is .925 inches, and the inner step is .670 inches. They also fit PAC 1206x and 1208x springs. —Mike Magda

NEWLY APPOINTED

JONATHAN ECKELBERG

As the head of Wisconsin's High School Racing Association, this competitor is laser-focused on attracting high school-aged youth to stock car racing—and hopes to one day reach a national audience.

By Jim Koscs

The High School Racing Association (HSRA) started in 2020 to give young adults an economical way to enter stock car racing. The organization recently hired Late Model racer Jonathan Eckelberg as director to expand its reach.

It seems like a “Why didn’t someone do this sooner?” idea. Started in Wisconsin, the HSRA enables high school-aged drivers to compete with pre-2005 American V6-powered sedans on dirt and asphalt oval tracks up to a quarter-mile long. Cars are modified only with safety equipment and display their high school’s colors and sports team mascot. The HSRA season runs June through September.

Chuck Deery and Gregg McKarns, promoters of La Crosse Fairgrounds Speedway in West Salem, Wisconsin, and Madison International Speedway in Oregon, Wisconsin, respectively, started the HSRA. Tomah-Sparta Speedway in Tomah, and Dells Raceway Park in Wisconsin Dells joined this year.

As HSRA’s newly appointed director, Jonathan Eckelberg comes with the experience of racing with the family team started by his father, which has been a staple at La Crosse for 35 years. Eckelberg spoke with PRI to share his plans for growing the HSRA to other tracks and states and increasing driver participation. He will also manage race schedules and points rankings.

PRI: Tell us how you got into racing.

Eckelberg: I grew up in auto racing at La Crosse Fairgrounds Speedway.

My dad retired from driving a few years ago, and my sister and I have made our way through the divisions to the NASCAR Late Models. I have raced for 16 years, but 2022 will be our team’s final season.

PRI: What attracted you to the opportunity to lead HSRA?

Eckelberg: I grew up in the racing community and enjoy the extended family I have gained. I want that for other young people who are interested. As I transition from being a racer, I’m thrilled at the opportunity to help build a sport from the ground up and attract young racers.

PRI: What qualities do you possess that you believe make you a good leader for this organization?

Eckelberg: Growing up in the sport and racing myself for years in multiple divisions equips me to help guide new racers and serve as a resource to all the tracks participating in HSRA. As we work to expand the HSRA to other tracks and more states, my planning skills and attention to detail come into play. I will also produce photo, video, and TV shoots and manage social media for HSRA.

PRI: What are you most looking forward to in this new role?

Eckelberg: I’m excited to be connecting and working with other race tracks. I’m also looking forward to watching this grow into something big and impactful.

PRI: What are your goals at the HSRA?

Eckelberg: My immediate goals include expanding HSRA in the Midwest. We’ve already added one new track for 2022, Dells Raceway



JONATHAN ECKELBERG

TITLE:
Director

ORGANIZATION:
High School Racing Association

HOMETOWN:
Morrisonville, Wisconsin

FAST FACT:
Jonathan Eckelberg co-hosts a podcast “by beer lovers, for beer lovers” called “Pour Another Round.” It features interviews with brewery owners about their businesses and brews. His favorite beer is Milwaukee’s own Pabst Blue Ribbon, which sponsors the family race team.

Park in Wisconsin Dells, and are hoping to add more in Wisconsin and other states. I would love for HSRA to be nationwide. In addition, we want to increase the number of drivers at each HSRA-sanctioned track. We recently had our first school district make auto racing a letter sport at the high school. This was a huge leap forward for HSRA!

PRI: How is HSRA reaching out to youth?

Eckelberg: We’re getting in front of students and their families through high schools regionally based around participating tracks. I make contact both with the athletic director and with any technical education or automotive program instructors. They’re helping to spread the word to students interested in automotive and racing, and about the opportunity to build a car and race it at the local track.

As students express interest, I’m connecting them with veteran racers who can serve as mentors and help them understand the inner workings of their cars and what to expect on race night. In addition, I immediately began working on social media growth to get HSRA in front of students.

PRI: What programs do you offer to generate interest in motorsports?

Eckelberg: Right now, the focus has been on adding tracks and increasing driver counts at the established tracks. Developing HSRA educational materials and programs is certainly a long-term goal.

PRI: How do you think this industry can better serve the youth motorsports market?

“GROWING UP IN THE SPORT AND RACING MYSELF FOR YEARS IN MULTIPLE DIVISIONS EQUIPS ME TO HELP GUIDE NEW RACERS AND SERVE AS A RESOURCE TO ALL THE TRACKS PARTICIPATING IN HSRA.”

Eckelberg: The biggest barrier to entry is cost. The motorsports industry is expensive, and the investment to get started is what deters so many. To make it easier for high school students to enter the sport, we're doing what we can to provide cost savings, including for safety equipment, gas, and food on race nights.

HSRA racers are not paid a monetary purse. If we pay student athletes, we run the risk of them being ineligible for other sports per the NCAA and state athletic association regulations. Since they are unpaid racers, their \$25 annual HSRA membership gets them greatly reduced admission fees to enter the tracks and pits.

PRI: What is one trait that you admire in others, and why?

Eckelberg: I admire people who can focus on one thing at a time.

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

Eckelberg: Can koozies. Who wants cold hands? I've got one stuck everywhere and usually have at least one in my pocket. **PRI**

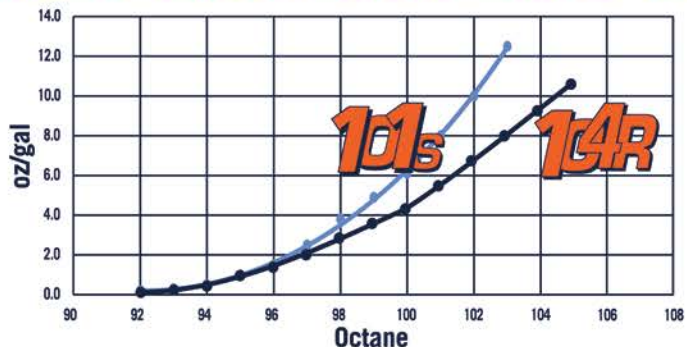


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INDUSTRY INSIGHTS

JILL GREGORY

From corporate boardrooms to herding sheep—not to mention race teams, fans, and sponsors—at Sonoma Raceway, this former NASCAR executive’s motorsports career has been about managing change.

By Jeff Zurschmeide

Jill Gregory took over management of Sonoma Raceway at the beginning of 2021. It would take going back to early 1942 to find a more challenging time to successfully run a race track. Gregory came to Sonoma with a strong background in marketing and motorsports management. Before moving west, she served as executive vice president and chief marketing and content officer at NASCAR. In that role, she was responsible for marketing, media relations, communications, and broadcasting, as well as diversity and inclusion functions for NASCAR. Finally, she was responsible for the sanctioning body’s digital presence, including NASCAR.com, the NASCAR Mobile app, social media, and fantasy games.

Before joining NASCAR, Gregory ran motorsports marketing for Bank of America, and managed the marketing of the NASCAR Sprint Cup Series for Sprint Nextel. In 2011, she was selected for the inaugural class of “Game Changers: Women in Sports Business” by *Sports Business Journal* and *Sports Business Daily*.

Compared to all that, just running a world-class race course in California’s wine country would seem like a vacation. To top it off, this was a homecoming. Gregory is originally from California, having grown up in the state’s vast Central Valley in the city of Modesto. She earned a degree in journalism from California Polytechnic State University in San Luis Obispo.

We caught up with Gregory to talk about the state of racing as the nation emerges from the pandemic, and her ideas on how to bring more people out to the nation’s race tracks in the future.

“AS A RACE TRACK, WE HAVE A UNIQUE ASSIGNMENT AND RESPONSIBILITY TO BE MINDFUL OF OUR NEIGHBORS.”

“IF WE DIDN'T HAVE A RACE TRACK ON THE PROPERTY, IT COULD BE CALLED A WORKING FARM.”

PRI: You've come to Sonoma with a great background in racing and motorsports. How do you think your prior experience prepared you to lead this unique facility?

Gregory: Like any other business, motorsport seems to be one of those where relationships and connections are everything. All of my previous stops along the way have given me the right experience to take on the challenge at Sonoma. To your point, it's a little different in layout than a traditional NASCAR track, but NASCAR is only one component of what we do here. The branding and the marketing experience that I've had from a sponsor side, and from the sanctioning body side, have given me a well-rounded approach to what we want to do here at Sonoma.

PRI: Among the biggest challenges at any raceway anywhere in the country are the neighbors and the neighborhood. Sonoma has had its share of resistance in the past. How are you dealing with that, and do you have any advice you could give to other facility managers?

Gregory: Being a good neighbor is a good rule, whether in your personal life or your professional life. As a race track, we have a unique assignment and responsibility to be mindful of our neighbors. No track more so than ours. We're almost in the gateway of the Sonoma Valley, so we need to be mindful of our role in this community. A lot of [track] neighbors have the same concerns. If we are being good neighbors and staying

in good communication, that puts us in a good position.

PRI: How do you do that? What steps have you taken?

Gregory: Through COVID, we've been able to contribute even more to the neighborhood. We've had several community events here at Sonoma Raceway, but we've always been very connected to the community through our charitable donations. We've also acted as emergency centers for some of the wildfires and other natural disasters out here in Sonoma.

We've been able to act as a command post for the Sonoma County Sheriff and other law enforcement and various firefighters here. There's fair amount of elevation here. Our command center that plays a crucial role during a race weekend was also a place where a lot of our first responders could take advantage of the viewpoint to assess different situations. We also had a lot of displaced residents here during the wildfires. This is pre-pandemic obviously, but with a lot of campgrounds and a lot of real estate here, we've been able to act as a location to take care of people. So, all of those things go into being a good community member. Then when it's time to figure out how to get back to business during COVID, we have a lot of strong relationships that help us do that.

PRI: Has the pandemic changed the way you do business with both big public events and smaller events like SCCA races or other track uses?

Gregory: It really has. The 2020 racing season was essentially canceled here in Sonoma and in all of California. While I was at NASCAR, we spent the better part of 2020 trying to determine what would be the right

way to resume our business, whether that was without fans or virtually through iRacing and then moving on slowly to bring fans back in a safe manner.

That was on a national level in 2020, but when I arrived in 2021, California was still in a more restrictive situation than some other race tracks. I can't speak for everyone, but we really had to become more nimble and more flexible in our business model. Now that we're coming out of the pandemic, our challenge as business leaders is to determine what changes we made during 2020 and 2021 will make sense to keep, because they led to a nimbler operating model.

PRI: Can you detail some of those changes?

Gregory: Whether it's big fan-facing events like NASCAR races or car enthusiasts and clubs and racing experiences, we're trying to evaluate what is the best way to keep fan engagement going, but how do we do it in a way that takes into account some of the new expectations that either a fan or a partner or a community has.

PRI: What are those new expectations?

Gregory: If we didn't have a race track on the property, it could be called a working farm. We're working on water collection and mitigation issues. I'm looking out my window right now, and our flock of sheep is out here mowing the grass. We have a lot of environmental assignments here, to make sure that we are conducting and running this facility in the most efficient way possible. You're really going to see us lean into green and sustainability efforts. We're a natural fit for that effort here at Sonoma. Even the clients that we have, we've been hosting several electric vehicle brands and models here for proof of concept.



With an impressive motorsports background that includes marketing and management roles at NASCAR, Jill Gregory is well-suited to running one of the nation's top road racing venues.

We also have a significant autonomous vehicle testing program that's been out here since November.

The challenge we have is trying to make sure that we can conduct all of these commercial endeavors but do it without ignoring our environmental impact. We have a lot of programs that we need to put in place to make sure that we are delivering on sustainability and green messaging.

One other challenge that I'd be remiss by not mentioning, and I know this is not unique to our race track, but as we ramp back up and add to our staff after a couple years of contraction, we have to find good people to come and help us run this race track. Hiring and retaining employees and providing a great work environment is something that's a priority across every facility. The workforce challenges are fairly well documented in the world right now. We're not immune to that.

PRI: You've been involved in promoting diversity and inclusion at NASCAR. That has been a very public effort NASCAR has made. How do you think the motorsports industry can encourage diversity and inclusion and make the sport more welcoming to more people?

Gregory: It was really important to me as I shifted my career from NASCAR to Sonoma Raceway to make sure that diversity, equity,

and inclusion are still a priority. You're seeing a lot more entities make this a priority. My feeling is, if we don't state it as a goal and set metrics and objectives toward it, then it's not going to be successful. We've gotten better as an industry, but we need to stay diligent in promoting those programs.

For us, we need to attract fans and market specifically to them, make a wider group of fans feel welcome here at the track. We want any fan who loves racing, who loves speed,

who loves the passion and excitement of NASCAR. It will be our job to bring those fans out here, because once they're out here and they see racing, whether it's a big NASCAR weekend or even getting in a hot lap car, we know they'll be hooked. We just have to tell more people and showcase what the excitement of racing is all about.

PRI: You've worked a lot in digital marketing. Do you think influencers are important, or are they noise at the periphery? How can facilities utilize influencers to get their messages out?

Gregory: I don't think there's been a formula that has really proved tried and true. Influencers, used properly, can really showcase and accelerate your fan appeal and awareness. An influencer program where you put NASCAR or any form of racing in front of someone who doesn't really understand it, or has been intimidated, or doesn't know how to follow our sport, can be very impactful, but we need to make sure that we have a plan.

After taking the helm of Sonoma Raceway, Jill Gregory's first order of business was to navigate through the pandemic; although racing had resumed by 2021, California still had significant restrictions.





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To be effective, you really have to understand what you're trying to get out of it. That might be different from market to market. You may just want a lot of eyeballs on your event, in which case it could be about awareness. But if you're really trying to drive engagement, then you have to have a very calculated plan, with metrics. That's where some influencer marketing programs fall down, because it's not enough to get someone to your event. You need to have them engage with it and show their enthusiasm and passion. It has to be that next step, or you might not get as much out of it.

PRI: Pulling the lens back, what do you think is the role of marketing and branding in motorsports in the modern era?

Gregory: Sponsor branding has always been a part of motorsports, but if we're going to continue to grow, what we're looking at here in Sonoma is, what is the brand of the raceway? What makes it unique for someone to come to Sonoma, or any location? I feel pretty lucky because some of those answers are fairly obvious in a market like Sonoma.

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PRI: Does social media have a place in all that?

Gregory: Absolutely. The social component is becoming less transactional and more branding focused. We will always use social media channels as a communication tool,

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to say, what time do the gates open, and where can you find a ticket. Those functions are important. But your social media channel should also be a way to showcase the experience. We'll create different content through different channels. If we are not using social media as a tool, either as a fan engagement tool or a ticket selling tool, then we are missing the boat.

PRI: Thinking in the other direction, how do you make motorsports an attractive place for sponsors?

Gregory: Sponsor engagement goes directly back to the fans. Our sponsors are here to reach the fans, whether it's the fans here in the stands, or the fans watching at home, or the fans consuming on social media. If we bring more fans with the track, then we will attract more sponsors.

The other thing we have at our disposal is the ability to understand what a partner wants to do, and then how to help support that. If Toyota's trying to sell more trucks in the Northern California market, what can we do to put Toyota vehicles in front of the fans, either on a race weekend or leading up to the race? We have a unique set of tools to provide to those sponsors, but the most important thing is to understand what they're trying to achieve and help them achieve it.

PRI: Do you think drivers have a role to play in terms of their personal fan base?

Gregory: Drivers are the most visible piece

"WE'VE LEARNED IN THE PANDEMIC TO DO THE BEST YOU CAN WITH THE SITUATION IN FRONT OF YOU, MAKE THE MOST INFORMED DECISION THAT YOU CAN, AND THEN MOVE ON."

of our sport. They deliver against that excitement and passion message. Their back stories are what engages fans. Social media is a great tool for drivers to really let them show their personality in a way that they can't do one-on-one. Doing that fan outreach just strengthens our sport even more.

PRI: Who have been your major influences or heroes in your life, and why did they inspire you?

Besides its annual NASCAR weekend, Sonoma Raceway hosts a vast array of smaller events, such as the Winter Jam drifting festival. The busy schedule is now being conducted with lean staffing brought on by the pandemic.





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Beyond the work of overseeing racing at the track lies a number of ongoing challenges for Jill Gregory, including encouraging diversity, regional environmental concerns, and the need to market to ever-more-distracted consumers.

Gregory: My parents are the two major heroes. The biggest reason is that they taught me an incredibly strong work ethic and intellectual curiosity and really encouraged us to try new things. They instilled in me the confidence to go try new things. As I've gotten further along in my career, I've come to realize that you can go home again, no matter how things go. That's given me the confidence to jump in on opportunities that maybe I wouldn't have if I had not had that support.

PRI: Are there any top principles that you follow in your career, and are there things that you avoid because of those principles?

Gregory: There isn't a lot of magic to it. You have to do what you say you're going to do, treat people well, and understand what you're trying to achieve. I've also learned

over time, and this was not true earlier in my career: Don't let perfect be the enemy of good. We've learned in the pandemic to do the best you can with the situation in front of you, make the most informed decision that you can, and then move on.

PRI: Last thing: What is the best piece of advice, whether personal or professional, that you've ever received?

Gregory: It was not that long ago. Someone said to me, "Don't be afraid to take your seat at the table. Then when you have it, don't be afraid to participate and contribute." Many times, if you're unsure or there is a tentativeness, then you might miss some opportunities. So, go sit at that front table. When you have your chance to speak, have an opinion. People may not always agree with it, but that's okay. **PRI**

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SPECIAL REPORT

PRIVATE EQUITY IN MOTORSPORTS

Investment in the performance aftermarket is on the rise. But why, exactly? And what does this infusion of capital mean for the industry going forward?

By Steve Statham

Racers who don't make a habit of paying attention to business media might be surprised to learn there's a quiet financial revolution going on in the background of the motorsports industry. Many of the companies and brands that racers grew up with, including legendary brands that originated in modest garages and still carry the founder's name on the box, have been acquired by private equity firms and often combined with other companies to form "super brands" that control large sections of the market.

These iconic racing brands are still out there producing quality parts, but they are no longer the independent mavericks of popular lore. What does this shift in ownership mean for the motorsports industry at large?

This private equity interest is not entirely new, but in the last couple of years the pace has accelerated. In February of this year, New York City-based MidOcean Partners acquired timing drive manufacturer Cloyes from private equity firm Hidden Harbor Capital Partners, which has held Cloyes since 2018. Taglich Private Equity, another New York City firm, acquired Air Flow Research and SCAT Enterprises in 2021.

Industrial Opportunity Partners (IOP), based in Evanston, Illinois, invests in middle-market companies in North America, which are defined as companies with between \$50 million and \$500 million in revenue. It added COMP Cams to its

portfolio in early 2020. IOP folded the COMP companies into the Edelbrock Group, forming a larger entity that includes performance brands such as Russell, TCI Automotive, FAST, and RHS.

"PRI MEMBERS ARE SOME OF THE MOST INNOVATIVE AND ENTREPRENEURIAL BUSINESSES IN THE WORLD AND KNOW THEIR PRODUCTS AND THEIR CUSTOMERS EXTREMELY WELL."

MiddleGround Capital (MGC), with offices in Lexington, Kentucky, and New York, New York, targets lower middle-market companies. It currently owns 11 companies, including Race Winning Brands, which it acquired in late 2021. Race Winning Brands includes heavy hitters such as Dart Machinery, Wiseco, Manley, and JE Pistons.



Greenbriar Equity Group of Rye, New York, announced in February that it had acquired a majority position in Ohio-based JEGS Automotive, which had been in family hands since 1960. All told, these five private equity firms alone own outright or majority control of nearly 30 aftermarket performance companies.

SPEED APPEAL

Some might find it surprising that relatively small brands that appeal primarily to gearheads, with advertising more commonly limited to sponsorship stickers on race cars than national TV ads, would appeal to the centers of high finance. But from other perspectives, it's not that surprising at all.

“THE BRANDS TEND TO DEVELOP REALLY STRONG FOLLOWINGS, SO IT’S A GOOD BASE FOR AN INVESTOR TO BE ABLE TO GROW FROM.”

“It was only a matter of time before private equity noticed the motorsports industry,” said Daniel Ingber, PRI’s Vice President of Government and Legal Affairs. “PRI Members are some of the most innovative

and entrepreneurial businesses in the world and know their products and their customers extremely well. Most of our Members are small businesses that are attractive to private equity.”

Hart Marx Advisors in San Rafael, California, specializes in mergers, acquisitions, divestitures, and succession plans in the automotive and heavy-duty trucking industries. It has seen firsthand the factors that make motorsports companies attractive investments for private equity.

“The brands tend to develop really strong followings, so it’s a good base for an investor to be able to grow from,” said Chris Bovis

Large private equity firms are increasingly acquiring and merging iconic performance aftermarket companies, such as SCAT Enterprises, which was bought by Taglich Private Equity in 2021.

of Hart Marx Advisors. “If you have a good company, making pistons, valves, whatever, and you have a whole contingent of engine builders who swear by your products and have been using them for 30 years, that trust in the quality of that brand has been built up. That’s a tremendous platform to grow from. It makes it very difficult to break in, so it does provide a bit of a barrier to entry.”

Those hard-earned reputations established at the race track do tend to attract notice far beyond the paddock. “That equity in the company, the brand, it’s hard to define and it’s probably impossible to value,” Bovis said. “But it’s extremely hard to create. It’s something that happens over time. If you’re a valve spring company that’s been building quality products for 30 or 40 years, and you’ve developed that following, a private equity firm would look very kindly on that and see that as very attractive. No private equity has the time or interest in investing 40 years to build that up themselves.”

Preserving the character of brands is vital in merging performance companies. “I believe we’ve done a nice job trying to develop a new culture but not throwing out the two old cultures,” said our source at Industrial Opportunity Partners, owner of COMP Cams and Edelbrock.





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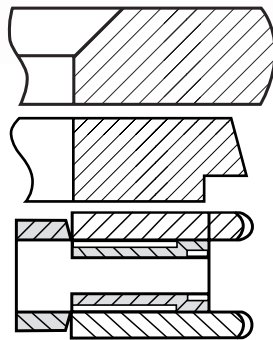
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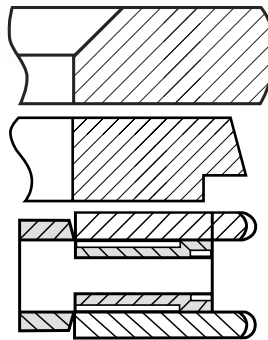
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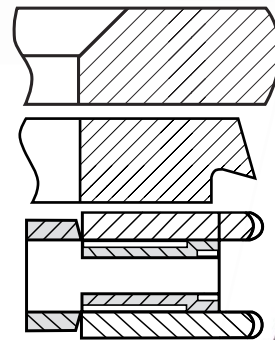
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4.045	20-GNHD4045K8	20-GNHM4045K8	20-GNHS4045K8
4.065	20-GNHD4065K8	20-GNHM4065K8	20-GNHS4065K8
4.130	20-GNHD4130K8	20-GNHM4130K8	20-GNHS4130K8
4.155	20-GNHD4155K8	20-GNHM4155K8	20-GNHS4155K8
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The devoted customer base of performance products companies makes them appealing investments, noted M&A specialists Hart Marx Advisors, allowing private equity firms to sidestep the relatively long process of entering markets and building a base from scratch. Pictured here, from left to right at the 2019 SEMA Show, are Hart Marx's Chris Bovis, Devin Hart, John Nodson, and Tom Marx.

Beyond the brand equity, the appeal of performance parts manufacturers makes sense from a nuts-and-bolts financial perspective. "The performance automotive and powersports aftermarket segment has been an attractive asset class to private equity for several reasons," said Mike Bridge of MiddleGround Capital. "First, there is sustainable end market growth, with the automotive performance segment growing at a historical compound annual growth rate of 2-3% and the powersports segment growing at 4-7%, which we anticipate continuing for the foreseeable future. Second, these companies often boast strong financial profiles with high margins, limited capital expenditures, and high free cash flow. Third, consumers still tend to pursue their hobbies and passions, even in a recessionary environment. Furthermore, customer relationships tend to be very sticky, as consumers stay loyal to quality brands. Fourth, this is a highly fragmented market comprised of companies that are typically



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founder owned, providing a robust acquisition pipeline of businesses that can benefit from operational best practices and additional capital to fuel growth.”

There are other factors that make performance products manufacturers attractive to private equity that are not readily apparent to the fan in the stands. “Given the plethora of deals in the industry for lower- and middle-market companies, I believe that private equity firms are seeing a nice diversity to perhaps a portfolio they may already be holding in transportation, that the performance aftermarket brings to establishing a balance,” said Phil Fioravante, Operating Principal with Industrial Opportunity Partners, owners of the Edelbrock Group. Although it’s not a strategy that IOP currently employs, Fioravante said, equity investors may have investments in Tier 1 OEMs, heavy trucking, or powersports companies, with motorsports companies attractive as final pieces of the transportation puzzle.

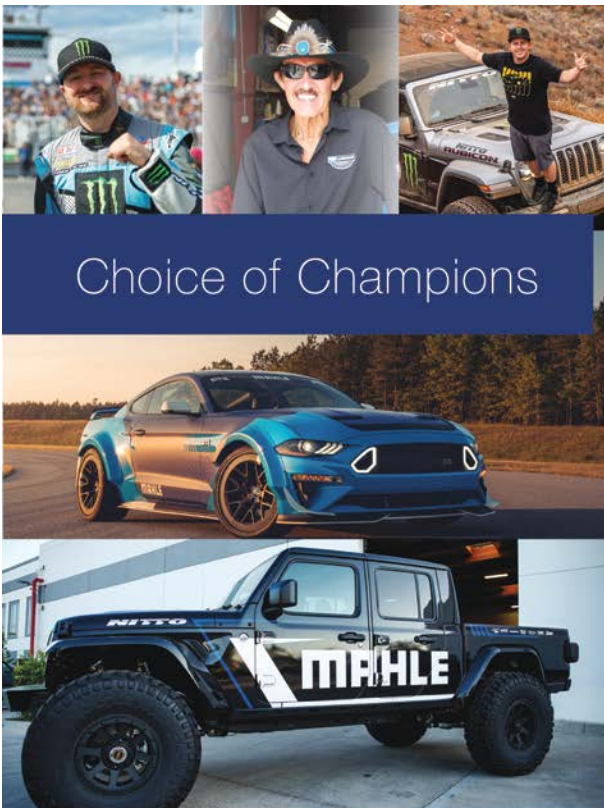
“OUR ROLE IS TO MAKE SURE THE TEAM HAS THE RESOURCES NEEDED TO EXECUTE THEIR VISION AND STRATEGY.”

“I truly believe, in terms of a balanced pie chart, if you will, that the performance aftermarket is becoming increasingly something on peoples’ radar screens to balance out the cyclical nature of the other three,” he said.

Although these transactions for motorsports brands usually boil down to the money that can be made, that’s not always the primary motivator when a company allows itself to be sold. “The decisions that we see from the companies that we deal with tend to be very personal,” said Bovis with Hart Marx Advisors. “They tend to be family oriented—what’s in the best interest of the family?”

“Probably the most common reason for owner-founder businesses, which is primarily what we deal with, is they oftentimes don’t

have a next generation to pass the business to, or the next generation is a firefighter, a lawyer, they’ve found their own path and haven’t really had the interest in the family business,” Bovis continued. “It starts to become an economic question of not just what’s best for the family, but also what’s best for the business. In a lot of cases, they’ve invested 40 or 50 years of their life into these companies, in developing the brand that’s so tied to who they are personally, that just closing down is unthinkable from an emotional perspective. It’s unthinkable from the perspective of what it would mean to their employees. They want to create a home and a future for their employees that have given so much to the business. It’s a blend of emotion and rational financial planning.



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"I would say the trend we're seeing is that fewer and fewer members of that next generation are interested in carrying on the business. That tends to be rarer than I think it has been in the past," Bovis added.

SECONDARY EFFECTS

Is this consolidation of brands good for the motorsports industry? History teaches that, in a general sense, a reduction of true competition usually doesn't work to the benefit of the end customer. Employees are sometimes shed to deal with "redundancies" as companies are merged together. Relocations can transform communities. And if the last couple of years has taught the world anything, it is that larger corporations will often feel pressured to enforce government dictates whether they are good for an industry or not.

But there are obvious upsides, too. Private equity investment in a business that is treading water means access to capital

for expansion, modernizing equipment, and breaking into new markets, plus expertise for navigating the digital age and avoiding legal minefields.

"My experience, in my career, it was quite good for the company," Bovis said. "I worked for a company that was struggling until it was purchased by private equity. They put in a lot of resources. They have expertise that we were able to take advantage of to grow the business, and the company is on very strong footing now. The brand is back, and the products are back, and everything has worked out very well. So I'm very biased toward seeing that side of things because that's been my experience. I see a lot of companies and brands that couldn't have negotiated and managed their way through their growth quite as well."

A big-picture view from private equity can also lead to improvements on the shop floor. "MGC is unique when it comes to how we support the employees of all

our businesses," Bridge said. "First and foremost, we bring first-hand experience to our approach on safety and the physical working conditions in all our investments. We expect facilities to be clean, bright, and free of un-protected critical safety risks. Second, we desire for all our employees to earn a livable wage, which is why last year all our portfolio companies enacted a minimum pay rate of \$15 per hour. Although most of the employees across our portfolio make much more, we saw this as a good starting point. By 2025, we seek to increase our minimum pay rate to \$25 per hour. We feel this will allow us to attract and retain top talent.

"Our motto is to 'leave everything better than we found it.' We are not perfect, but we are proud that we are not a firm that makes money on the backs of others," Bridge said.

Combining companies with distinct cultures into a larger organization is a challenge all private equity firms face, but most have experience in that aspect

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Company founders often sell businesses to private equity firms to preserve the company and its legacy, while at the same time ensuring a healthy future for current employees. Photo courtesy of Holley Performance Products.



of operations. "Typically, our perspective and approach is the development of an operating plan or an operating thesis upon initial investment," IOP's Fioravante said. "In this case we knew how Edelbrock was performing and performing well. We know that COMP Cams is performing and performing well. We were looking at one plus one is three. By instituting the IOP operating thesis that we reviewed with Edelbrock, and we reviewed with the new team at COMP, we started working through synergies that I call 'people, process, and products.'

"From the people perspective, with the

merging of two organizations, do we end up having some redundancies? Then we sort that out, and some of it happens through attrition. There were no forced layoffs. It was happening over time; it's been almost two

years. There are a lot of great technology leaders on both sides. We brought in some new thinkers from outside the two companies, and it has been a great addition to our product management and our engineering



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team. Most of the leadership today at Edelbrock Group is primarily COMP Cams folks. At the senior level, the CEO is from outside of the industry, the CFO is from outside of the industry, the chief commercial officer, Chris Douglas, has the largest portion

of our organization. Our chief operating officer role, that will be a new role for us here in the coming weeks. From a synergistic operating thesis plan, everybody gets together, and we try to figure out what we can gain by doing this, what can we gain by doing that.”

DON'T LOSE THE SPIRIT

The motorsports world is full of stories about entrepreneurial racers who started building parts out of modest shops and garages, creating their future empires through word of mouth, one sale at a time. Preserving that independent spirit is a crucial part of maintaining a brand's reputation. "Private equity has upsides and downsides for the industry," PRI's Ingber said. "It can help some companies reach their full potential, but when private equity companies ignore the judgment and expertise of the individuals who



Operating in a market driven largely by passion, performance products companies like Edelbrock are generally resistant to swings in the economy. This adds to their appeal as investments, particularly among firms with a transportation emphasis.

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built the company, who know the product, who know their customer and are passionate about motorsports, it can change a company, brand, or product in bad ways.”

The people we spoke with seemed aware of that potential danger and appear to be taking a hands-off approach to how to best meet the needs of the racer. “We partner with the management team and employees. Our role is to make sure the team has the resources needed to execute their vision and strategy,” MiddleGround Capital’s Bridge said. “The Race Winning Brands management team has deep roots in the industry with some brilliant minds leading engineering and R&D. The goal of our operations team is to give the management team incremental resources to execute on discrete initiatives to free up their time to continue doing what has made this company great.”

The infusion of capital can lead to an increase in new parts on the shelves as companies gain resources. “From a products

perspective, we’ve been developing some really cool new products like black chrome intake manifolds and carburetors,” Fioravante said. “We launched a whole lifter assembly at the PRI Show that’s getting rave reviews. So we saw a lot of synergies and we’re continuing to work through the branding.”

“There are different sizes and phases of businesses that require different resources and skills and different capabilities,” Bovis explained. “There’s the financial side of things. The financial resources necessary to buy the inventory, to fund the marketing, to grow a national footprint in terms of sales or dealers, that takes time and money. In a lot of cases, private equity has access to those resources, be it direct investment or however they want to structure it. But they bring that next level of financial sophistication and financial resources. They tend not to be experts in any one particular field, but they tend to be experts in growing businesses and helping fund and manage through the challenges

of growth and adding staff and adding resources. As businesses grow from family-owned or generational businesses to first level of professional investment, they do tend to get a little bit of sophistication on managing through the challenges of that growth.”

There’s more at stake than just funding new products. Private equity conglomerates have the ability to shepherd performance brands into entirely new financial realms. Holley Performance Products, controlled by Sentinel Capital Partners, in 2021 merged with Empower Ltd. for the purpose of becoming a publicly traded company. With private equity backing, Holley is now listed on the New York Stock Exchange (HLLY).

LOOKING AHEAD

Private equity interest in the performance aftermarket appears to be here to stay, at least for the foreseeable future. “Certainly, there will be more and more competition for fewer and fewer really good companies and brands.

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There's been a lot of consolidation among maybe three or four major players," Bovis said. "To the extent that there are good companies and good brands and good market niches to pursue, then yeah, it will continue.

"This is highly speculative, out on a ledge a little bit, but where I think there is probably more to be gained is these adjacent markets. Much like SEMA and PRI saw a connection between their core audiences, you see some of the big private equity conglomerates start to see a crossover between the SEMA and PRI crowds and the powersports markets—ATV, UTV, motorcycle, maybe to a lesser extent personal watercraft and some of those things. You'll start to see them pick up and have increased interest in some of these adjacent markets that still have the core attributes of an emotionally connected enthusiast buyer, a true outlet for the end-user, the passionate hobbyist, premium products with good margins and good performing businesses. I think you'll start to see more of a reach out to

these adjacent markets," he added.

Although many top names in the performance aftermarket have been snatched up by private equity investors, the industry is constantly evolving and creating opportunities for the next generation. "There's an emotional side, where you wish the products were still being built out of somebody's garage, that romantic, entrepreneurial side of things. You wish that was still around in some of these companies, but it's around in different companies. There are still companies being built today out of peoples' garages and basements. We just haven't seen them grow to national status yet. They're in the process of doing that," Bovis said.

"There are some things in my life that I don't even know who we're buying a product from," he added. "Half the time I forget who my cell phone provider is. It's just an anonymous company that I only know about when something goes sideways. But I know

everything that's in my race car. I know every part we buy, I know the company, I know who we buy it from. It's such an unusual market and industry in that regard. You're so close to the customer. I couldn't imagine anything better for a private equity group." **PRI**

SOURCES

Edelbrock Group
edelbrockgroup.com

Hart Marx Advisors
hartmarxadvisors.com

Industrial Opportunity Partners
iopfund.com

MiddleGround Capital
middlegroundcapital.com

Race Winning Brands
racewinningbrands.com



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UNIFIED FRONT

Concerns about inconsistent rule enforcement and rising costs led to a meeting of the minds at last year's PRI Trade Show. Here, we examine the agreed-upon solutions and what these changes mean for the future of Super Late Model racing.

By Bradley Iger



Photo courtesy of Jacy Norgaard and World of Outlaws Case Construction Late Model Series

Over the past few years, Super Late Model racing has seen a noticeable uptick in engineering sophistication at all levels of the sport. Innovation has long been a cornerstone of healthy competition, but with budgets varying significantly between racers campaigning cars in local, regional, and national series, staying competitive has become especially tough for smaller teams.

“It’s been more than 20 years since Mike

Swims got a bunch of Late Model pundits together and established a common rule set, and they did that because everyone was kind of doing their own thing at the time,” said Kelley Carlton of the Ultimate Super Late Model Series Southeast Region, Woodruff, South Carolina. “The idea was to be able to take a car to a race track in Florida, Illinois, or anywhere else and not have to make changes. But over the last several years, racers have pushed into the gray areas, and

those rules have been interpreted differently among the various sanctioning bodies. A lot of engineering and technology from NASCAR has been making its way into our ranks recently, so more and more teams have been devising ways to make things better and faster. But, of course, all of that comes at a premium, and there just wasn’t a lot of consistency in terms of how the rules were being enforced.”

That inconsistency has only made things



Our source at CT Promotions told us the rule package variance across sanctioning bodies led to many teams building multiple different cars to ensure compliance among the different series. “That was really the catalyst to make some changes,” he said.

harder for those local and regional racers. “Dirt cars are getting incredibly sophisticated,” said Steve O’Neal of Port Royal Speedway, Port Royal, Pennsylvania. “There’s so much money in the sport right now that it’s becoming tough for the weekend guy to keep up with big teams that can afford dedicated engineers for suspension, aero, and things like that.”

Chris Tilley of CT Promotions in Somerset, Kentucky, which puts on the Valvoline Iron-Man Late Model Series, told us that the rule package variance across Super Late Model sanctioning bodies led to many teams building two or three different cars to ensure that they were compliant amongst the different series. “They were basically tuning them for two or three different rules packages. That was really the catalyst to make some changes. We wanted these guys to be able to build one race car and be able to run any event with it.”

With that in mind, organizers among the major sanctioning bodies in Super Late Model racing seized an opportunity late last year to collectively correct course.

“We all needed to get on the same page,” said Casey Shuman of World Racing Group, Concord, North Carolina, which is the sanctioning body for the World of Outlaws Case Construction Late Model Series.

“That got the conversation started. Then a group of the main sanctioning bodies found themselves all together at the 2021 PRI Show, and at that point it was like, ‘We’ve been talking about getting this figured out—let’s just do it now.’ We made some calls, got everyone in the same room, and sat down for an hour or so and hashed it out. It was really productive, and it seems to be working out well so far.”

The group established seven rules that would be common among the major Super

Late Model sanctioning bodies, but the core focus of the meeting centered on two mandates that were designed to provide more competitive parity while also helping to curb costs.

REAR TRAVEL LIMITER

Also known as the droop rule, this suspension mandate ostensibly revises an existing rule to provide more reliable tech inspection methods while also addressing some of the tactics that teams were using to work around the measurement procedures that were previously in place.

“This essentially replaces the deck height rule,” said Carlton. “The [World of] Outlaws adopted a similar rule recently and it’s much more reliable. You can check it at any time and on any car and the results aren’t going to change. The problem with the deck height rule was that you measured with the car sitting on the ground with the suspension compressed by the weight of the car. But the suspension on the cars is position-sensitive, and because the teams are trying to get the rear spoiler up as high as possible for the most aerodynamic advantage, there really wasn’t a way to reliably

“WE WANTED THESE GUYS TO BE ABLE TO BUILD ONE RACE CAR AND BE ABLE TO RUN ANY EVENT WITH IT.”

“WE ALL NEED TO BE ON THE SAME PAGE SO THAT THE GUY WHO RUNS AT A WEEKLY OR REGIONAL LEVEL CAN FEEL LIKE HE’S GETTING A FAIR SHAKE COMPARED TO THE GUYS WHO ARE RUNNING WITH THE NATIONAL TOURS EVERY NIGHT.”

get accurate measurements.”

The new rule specifies that the car’s deck height cannot exceed 51 inches when measured after a race, but more importantly, it incorporates a new measuring method that’s far more reliable.

“It had gotten to the point where crew members would ride on the car and jump up and down on it to try and get it down as far as possible so it would get to that measurement, even just for a second,” Shuman explained. “As soon as they rolled away, it was back up. Now we measure it after the race on a flat surface by jacking the car up and measuring overall height with the suspension fully extended and the tires just slightly off of the ground. We have a little shim that we slide underneath the tire to check that, and as soon as it’s off the ground, that’s where we measure from. Doing it after the race allows us to take our time and make sure we get it right. I feel like that is a much more fair and accurate way to do it, and it gets rid of a lot of ambiguity for the teams.”

Tilly said that there was some initial pushback when similar droop rules were enacted in other series, but he considers it to be the most important rule change to come out of last year’s PRI meeting. “It keeps that left-rear at a specific, repeatable height, and it’s much more difficult for teams to get around that now.”

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Leading sanctioning bodies met at PRI 2021 to address concerns, leading to new rules for deck height and how it's measured. "The [World of] Outlaws adopted a similar rule recently, and it's much more reliable," said our source at Ultimate Super Late Model Series.

after a race will result in a disqualification that either disallows the driver's time trials or puts that driver in the back of the pack for the subsequent race, regardless of the previous race's finishing order.

THE BODY SKEW RULE

As with the droop rule, the body skew rule addresses a growing trend among teams looking to extract more aerodynamic efficiency out of their setups. "Essentially these guys were mounting these bodies offset relative to the chassis—sort of twisted to the right up front," said Carlton. "That provides more surface area when the car is rotating through a corner, which in turn provides an aerodynamic advantage."

Beyond potential safety concerns regarding how this body orientation might affect a car if the nose digs into the ground, Carlton noted that the engineering required to do this correctly is often out of reach of smaller teams. "The guy racing on the weekends at Laurens County Speedway doesn't have the same wind tunnel and pull-down rig data that these bigger teams have access to. We're trying to give everyone a level playing field by not requiring so much engineering support in order to remain competitive."

The group devised a set of measurements to provide to teams and manufacturers that spells out what the maximum allowable body

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"IT KEEPS THAT LEFT-REAR AT A SPECIFIC, REPEATABLE HEIGHT, AND IT'S MUCH MORE DIFFICULT FOR TEAMS TO GET AROUND THAT."

offset is in no uncertain terms. "We took a whole year to measure this body skew and figure out where all the teams were at with this," Shuman said. "I think the rule that we came up with might have affected 10% of the cars, if that. Most of the cars out there already fit into this new rule anyway. This was more about addressing the outliers."

The new rule dictates that the measurement of the left-rear quarter panel from the center of the hub to the rear of the quarter panel cannot exceed 54 inches. When measuring six feet from the left-rear quarter panel to the right-rear quarter panel and eight feet forward along the right-side door, the diagonal measurement from that point to the top of the left-rear quarter panel must be at least 118 inches.

AN ONGOING PROCESS

Although the majority of Super Late Model teams were already racing cars that are compliant with these new rules, Carlton admitted that there may be some initial costs involved for those with setups that were pushing the previous boundaries. "With the body skew rules there's sheetmetal involved, and it does involve moving some brackets and bars around in order to get the situation corrected," he said. "And the rear travel rule may affect some teams' setup strategies because of the way we're limiting that rear droop, so it might take some time to figure out what the car likes in order to get the same result that the team had previously."

Tilley agreed that there may be some teething issues, but he was quick to point out that changes were necessary in order to ensure the health of the sport going forward. "The vast majority of the race cars in the country at the end of the 2021 season were

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Recent rule changes are leveling the playing field between small and big teams, and have proven relatively easy to comply with. "In cases where changes were needed, they were really minor," said our source at Port Royal Speedway.

legal. We had about 5–10% of the cars out there that were not. Those were the big teams, and they had to get in line with the rulebook. You'll always have guys who want to push the envelope, and going that extra mile is part of what makes our sport unique. But at the same time, we all need to be on the same page so that the guy who runs at a weekly or regional level can feel like he's getting a fair shake compared to the guys who are running with the national tours every night. I've had some racers tell me that they've had to make major changes, and I've had others tell me that they didn't need to change a thing."

O'Neal said that since the adoption of the new rule set, Port Royal Speedway has seen very few problems getting Super Late Model cars through tech. "In cases where changes were needed, they were really minor, so minor that those teams were able to correct

the issues right there in tech. So the new rule package hasn't really been a big problem for us."

With all of the major series implementing the new rules package for the 2022 season, Shuman said it's already helping to bring the teams into closer competitive parity, but change hasn't been dramatic otherwise. "I feel like they were putting on good races before, and I think they're putting on good races now. It's just put everyone into a slightly smaller box."

Tilley noted that with the ongoing evolution in Super Late Model racing, it may be necessary to make some additional updates down the road. "Guys will always try to push the envelope. I wouldn't be surprised if there's a new reason to come back and make more changes within the next year or two. Somebody will figure something out that we

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Revised rules successfully address skyrocketing costs while bringing greater uniformity to their interpretation. "There just wasn't a lot of consistency in terms of how the rules were being enforced," said our source at Ultimate Super Late Model Series Southeast Region.

“WE WANT TO KEEP THE SPORT HEALTHY AND MAKE SURE THAT PEOPLE ARE ABLE TO RACE.”

haven't figured out yet.”

Carlton pointed to tire rules as the next area where racers are likely to see some tweaks. “Right now, there's a multitude of different compounds and configurations for dirt late model racing tires out there, and what everyone's using varies from area to area,” he explained. “Because of that we're really pushing Hoosier Racing Tires to pare down to three tire compounds so we can establish a national tire rule. Hoosier has been open to the idea—they're in a tough spot right now with material shortages and things like that, so this seems like a good opportunity to address it. That's something we're looking at slowly rolling out during the 2023 season, and hopefully it will be in full effect by 2024.”

Potential changes like this upcoming tire rule point the way toward more collaboration among series organizers going forward. “I'd like to see that PRI meeting happen annually,” Carlton added. “It gives us all a chance to discuss things that need to be addressed in order to keep moving in the right direction. I know that racers think that we don't try to save them money, but that's not the case. We want to keep the sport healthy and make sure that people are able to race.” **PRI**

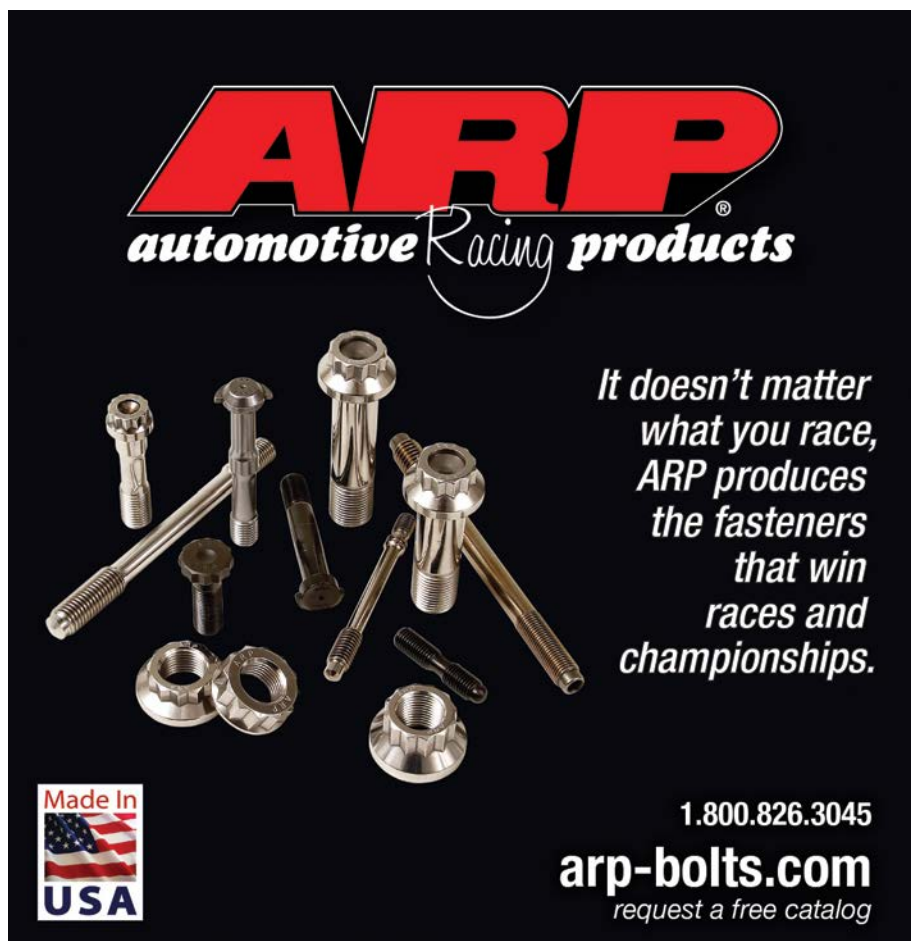
SOURCES

CT Promotions
imdirt.net

Port Royal Speedway
portroyalspeedway.com

Ultimate Super Late Model Series Southeast Region
ultimatesupers.com

World Racing Group
worldracinggroup.com



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Dirt late model racing is increasingly a high-dollar gambit, one that is forcing teams and stakeholders to recalibrate their programs for sustained success.

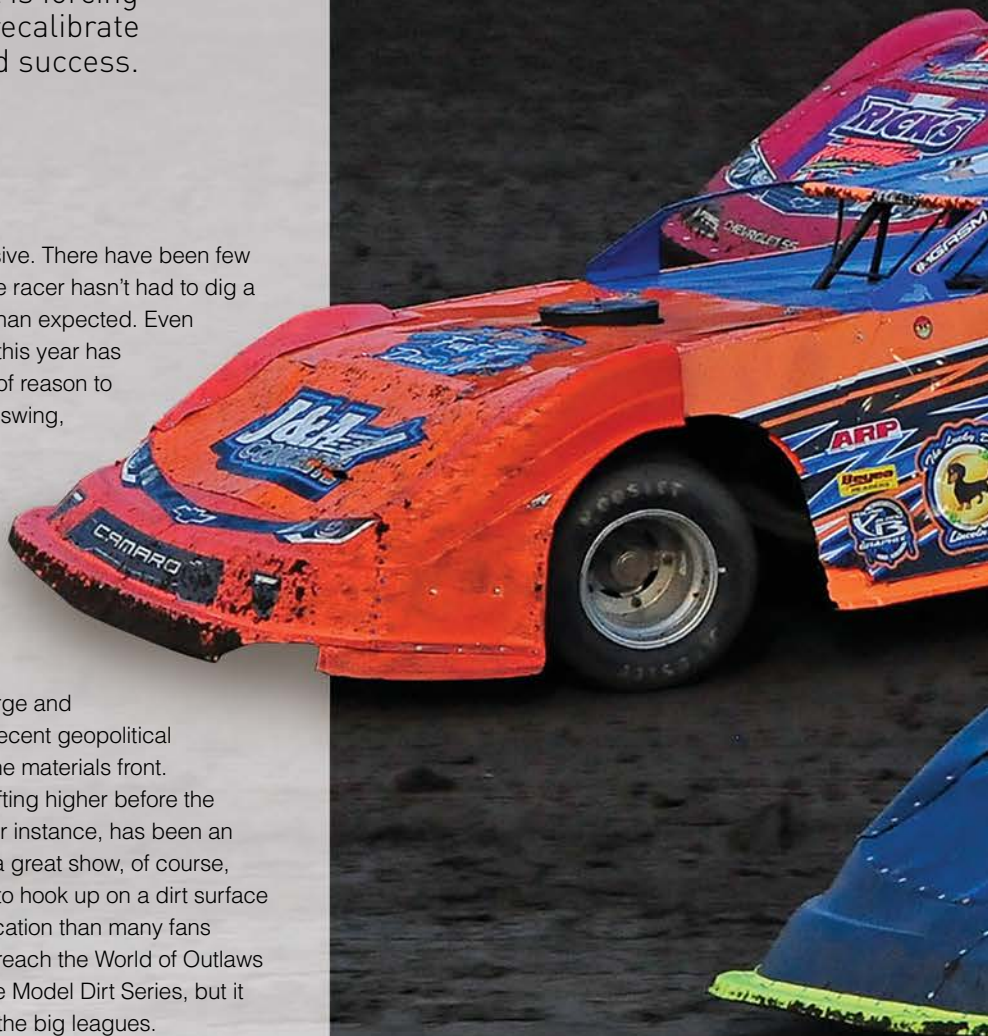
By Steve Statham

Racing has always been expensive. There have been few times in recent history when the racer hasn't had to dig a little bit deeper into the wallet than expected. Even so, the spike in prices for racing parts this year has been eye-popping. And there's plenty of reason to believe we're at the early part of the upswing, not the peak.

There are several reasons for that, covered extensively here and elsewhere. Supply chain disruptions and shortages brought on by COVID-19 restrictions get most of the attention, but inflation pressure was another factor, as is a reduction in competition as large companies merge and gobble up smaller parts companies. Recent geopolitical conflicts are definitely not helping on the materials front.

Some racing series were already drifting higher before the shortages hit. Dirt late model racing, for instance, has been an increasingly expensive enterprise. It's a great show, of course, and getting a 900-horsepower engine to hook up on a dirt surface requires much more technical sophistication than many fans appreciate. Numerous racers strive to reach the World of Outlaws Late Model Series or the Lucas Oil Late Model Dirt Series, but it takes increasingly big bucks to tour in the big leagues.

What can be done at the rulebook level to rein in dirt late model costs is a subject for another time, but how rising costs are impacting dirt late model racers and how they are adapting is a story that is playing out in the here-and-now.



COMPETITIT



ION COSTS

“The sad part about all this stuff is the 40-hour-a-week working man is not in dirt late model racing anymore,” observed Joel Smith of Close Racing Supply, Eldred, Pennsylvania. “They’re really not, especially super late model racing. I feel like they got chased out years ago with the price of stuff. Even the crate racing deal is kind of pricey—a little bit of a savings over super late model but kind of pricey. And I feel like we’ve lost the working man in the sport, or they’ve gone to lower divisions.

“That’s one thing that I’ve seen in the last handful of years,” Smith said. “There are a lot of ex-late model racers that are now into the lower divisions—modifieds, that IMCA stock car deal is pretty popular across the country. So the racers are finding alternatives that they can afford. That’s a good thing for me because we don’t want to lose these customers, these racers, we want them to still be in the sport, but maybe back down to a division they can afford a little bit more.”

The spike in prices this year for everything has only accelerated the trend. “Unfortunately, I don’t think there’s a lot you can do anymore,” said Cory Hedgecock of Eagle Racing Engines, Knoxville, Tennessee. Besides the engine-building business he and his father own, Hedgecock races in super late model and crate late model classes. “I just bought a timing cover for a motor. A year and a half ago I paid \$70 for



Supply-chain issues, inflation, and reduced competition among suppliers are forcing dirt late model competitors to seek new, creative ways to control costs and continue racing.

one, and this year, today, I paid \$130 for it. Blocks have gone up almost 10%. Valves, two years ago they cost me about \$95 or \$96 apiece. They literally cost me \$127 apiece now for a titanium valve. It’s getting out of hand. A lot of it, I think, is materials—I’d say almost half of it.”

Rusty Schlenk is a McClure, Ohio-based dirt late model racer who competes in the Allstar Performance Challenge Series at Michigan tracks and other regional events, as well as running his Domination Race Cars car building business. He’s been feeling the pinch of rising costs in all aspects of his operation.

“Everywhere. It’s literally everything,” Schlenk said. “Thankfully, we build a lot of

our parts. As far as labor costs go, saving on that is what helps us stay going because we do it all ourselves. Material costs, everything is through the roof. Most of my steel has all doubled, the aluminum has doubled. Everything is 30–50% more, at least, than what it was this time last year, or a year and a half ago.

“Honestly, what’s going to hurt me the most is just the diesel fuel costs going up and down the road,” he said. “That’s really going to hurt the pocketbook.”

External factors like the cost of fuel has become one more log on the budget bonfire. “I think that’s why we’ve seen a lot of people this year fall off the tour,” Hedgecock said. “They just can’t justify the money as far as traveling up and down the road only to go to a rainout. It’s one thing if you get to race, but everybody is so desperate to race, and these series [want] to get you to the race track whether it looks like rain or not, and diesel being over \$5 a gallon, it’s just expensive. It’s hell to fill up these rigs anymore. You’ve just got to pick and choose.”

“YOU HAVE LESS ABUSE ON YOUR EQUIPMENT WHEN YOU’RE RACING ON SOME RACE TRACKS VERSUS OTHERS.”



Tires have always been a significant cost for teams, forcing some racers to conserve them by putting on new tires for gentle tracks and saving the old ones for venues with harsh surfaces.

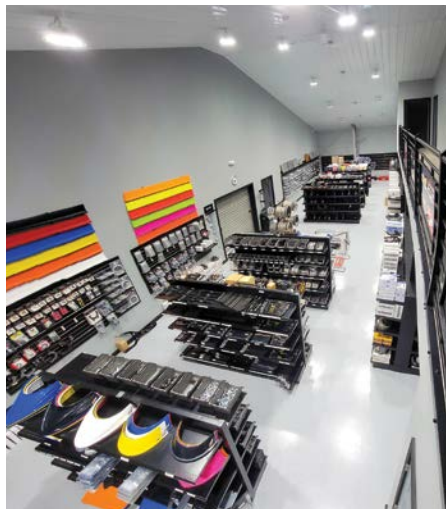
SAVINGS SOLUTIONS

Dirt late model racers are adapting as best they can to spiraling costs, with solutions ranging from creative to traditional. “It makes you really think about what you’re going to do,” Hedgecock said. “There’s a race track around here that’s a little rocky. It doesn’t rubber, but it just chews on tires. I’m going to make sure to plan three weeks ahead that maybe I’ll bolt a new set of tires on at, say,

one race track that never hurts the tires, and then I'll rotate those tires to the race track that chews on tires. That way I won't have to bolt new ones on for that race."

For some racers, travel expenses are the low-hanging fruit when it comes to saving money. "We drove out to Tyler County Speedway with our camper and an open trailer trying to save on fuel and hotel money," Schlenk said. "We've got an open trailer designed up, and I'm going to build an open trailer for us this year if we need to go on any long road trips, where we can save a little bit of fuel money and pull it with the camper. I can't pull my big trailer with the camper, but we can pull that little open trailer, get better fuel mileage, and have a place to stay."

For others, one solution might be re-evaluating assumptions about what's truly necessary. "What I've caught myself saying to some of my customers, kind of jokingly but kind of serious as well, is there are many



Racers can often reduce costs by taking a hard look at what equipment is really essential, and what's more of a luxury. "There are many places they could cut corners," said our source at Close Racing Supply.

places they could cut corners," Smith said. "I've been in this industry 30 years, so I know what it was like 30 years ago, and I know what it's like today. Everybody seems to want to own a pit lift. Well, we didn't have them 10, 12, 15 years ago, and we didn't need them. There are racers who always spend a lot of money on T-shirts, which can be a good thing, advertising their sponsors, things like that. Most of the time they're not making money on the T-shirts, they're giving them to sponsors and friends and crew. Well, maybe that's something to cut back on."

Smith also encourages racers to take a harder look when evaluating which tracks to race at. "What race tracks are easy on equipment? Maybe the speeds are lower, maybe it's a race track that's always been known to be smooth and slick and slower. You're tearing up less stuff, you have less abuse on your equipment when you're racing on some race tracks versus others," he said.

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To limit the effects of rising prices, some shops are buying all the parts and materials they can before prices go up. "We're still using tubing we bought back in November," explained our source at Barry Wright Race Cars.

Car builders such as Barry Wright Race Cars in Cowpens, South Carolina, are also doing what they can to help soften the blow of rising costs. "What we're trying to do to help, to pass it along to our customers and other racers, is when we get a notification from a vendor of an increase coming—and I just got one yesterday saying starting in June prices were going up 18%—that gives me a good two months to buy up at the current pricing so I can pass that along for an extended period of time," said Ashley Wright. "In the fall we bought up a bunch of material so we could hold costs and not have to increase for our chassis. We're still using tubing we bought back in November."

Wright has also seen more of a willingness from racers to not see so many damaged components as disposable. "We have had several come by and want repairs instead of buying new, and not just on the car itself, but even parts," she said. "My dad's been doing this for 50 years, and he's fixed everything in some capacity."

Many racers who get priced out of super late model series are lured by the potential savings of crate engine classes, but the economics of that are not so cut-and-dried.

North Carolina-based Ray Cook races in crate series, and also owns and promotes the Schaeffer's Oil Southern Nationals Series and Spring Nationals Series. He's not convinced crate racing is necessarily less expensive anymore.

"There are a lot of savings in the motor itself, obviously. I've got one and that's why I'm running it because I can't afford a super motor," Cook told us. "So just the motor itself is a good deal. I bought this motor and there was nothing wrong with it, it was perfectly fine and ran fine. But it didn't have the right seals on it, so we had to spend \$3,200 to get the right seals put on it. And when he took it apart, he said the motor had never been into, hadn't ever been apart, there was nothing wrong with it. So we basically took it apart just to make the seals be right. That's the kind of thing that I think has gotten out of hand."

PLANNING AHEAD

One way for racers to avoid paying more than necessary is to plan ahead as much as possible and secure a place in line. For one thing, dirt late model racers in the United States aren't just competing against their countrymen for parts and repairs.

"Regardless of whatever has been going on, we seem to be doing more international business. We have cars going to Canada, New Zealand, and Australia, like it's nothing," Wright said. "I have a customer in Australia who is racing right now, but he's going ahead and buying stuff for next race season. He knows it's going to take time to get the parts to him because it's going into a container.

"The definite increase in what we're selling overseas and sending overseas, and them planning ahead, they're cognizant of what's going on over here, too," she said. "It's not just affecting us in the United States in racing, they're making sure in New Zealand that whatever they're going to need for even next racing season they're going ahead and ordering it now."

Shops are trying to pull forward orders both to have parts available for customers and to lock in today's prices, but that comes with costs, too. "What we have in inventory now compared to what we had two years ago, I'd say we're up seven or eight times, in money. We've got \$300,000 in inventory now because we're just trying to stay that far ahead," Eagle Racing Engines' Hedgecock said.

"I was able to keep two distributors in stock. And looking right now, I've got 14 distributors in stock. That's stupid. I don't need to have that many. But I went through a patch at the beginning of last year where I couldn't get distributors for three months. I was having to pay retail for them. Well, I'm not doing that either. So I'm having to keep 14 distributors on the shelf, 10 pulley sets, six carburetors. It's stuff that I just shouldn't have to do that has tied up a bunch of money for our engine company to make sure we have the inventory," he added.

There is only so much belt-tightening the racer can do. For the continued health of the sport, additional revenue is going to have to materialize. "Sponsors are really going to have to step up for the guys like me who do it out of their own pocket, who don't drive for the big teams," Schlenk said. "I'm definitely already relying more on sponsorship this year than I have in the past.

"Honestly, if the race tracks don't do something different, that's what's going to

"WHEN WE GET A NOTIFICATION FROM A VENDOR OF AN INCREASE COMING...THAT GIVES ME A GOOD TWO MONTHS TO BUY UP AT THE CURRENT PRICING SO I CAN PASS THAT ALONG FOR AN EXTENDED PERIOD OF TIME."

kill us," he continued. "You notice there are race tracks that do a good job with it and some that do a terrible job. You're going to see a split where there are race tracks that thrive and there are race tracks that drop off the face of the earth because of marketing. Some race tracks are still

paying the same thing they were back in the late 1990s, early 2000s, for local races, and it's because they don't go out and get the sponsorship. You don't see billboards all over these race tracks like there should be. There's no reason that every race track shouldn't have plenty of billboards around

the property that are helping pay these purses. If we don't get the purses up at the race tracks, it's going to kill the local guy. We can't afford to race for \$1,000 anymore." **PRI**



Many racers feel that purses need to be much higher to offset today's escalating costs of competition. But as tracks struggle with their own unique challenges, doing so would require significantly more money from sponsors.

SOURCES

Barry Wright Race Cars
barrywright.com

Close Racing Supply
closeracingsupply.com

Ray Cook
raycook53.com

Eagle Racing Engines
eagleracingengines.com

Rusty Schlenk Racing
rustyschlenk.com

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BERNHEISEL

BUSINESS PROFILE

QUALITY PRODUCTS, OUTSTANDING CUSTOMER SERVICE, AND MULTI-TIERED PROMOTION HAVE ALL CONTRIBUTED TO THIS DIVERSIFIED SHOP'S SUCCESS IN THE DIRT LATE MODEL MARKET.

By John F. Katz

Diversify and specialize: Where some people would see opposing concepts, Jim Bernheisel sees a formula for success, an operating philosophy that has grown the parts franchise he opened in 1981 into today's Bernheisel Race Cars, Inc., an industrial complex encompassing Bernheisel Race Cars, an industrial complex encompassing Bernheisel Race Components, Lazer Chassis, Focus Shock Technologies, and the newly expanded Precision Powder Coating—totaling 25,000 square feet on a three-acre campus in Jonestown, Pennsylvania.

Lazer builds both dirt late models and modifieds, but of the two, "dirt late models are our main focus, by a landslide," said Bernheisel, representing "probably 90% of our chassis-building and fabrication, and 70% of our parts sales. We build 30 cars a year, which is bigger than a lot of people, and not as large as the mass producers. But I like knowing my customers, almost all of them on a first-name basis. Most of my customers have my cell phone number, and I answer every one of their emails."

Bernheisel explained the synergy of his multiple operations: "The racing business has become very specialized. You have to know your field of expertise, your type of race car. Having those various companies under our umbrella allows us to diversify, without stepping away from what we're good at doing. We build chassis. We also powder-coat them and powder-coat the parts that go on them. Our shock division builds the shocks that go on them. Through our parts division, we source what we believe to be the best parts for the job. So all our operations tie together, they all build sales for each other, and they allow us to tightly control how things are done. That suits us."

What doesn't suit Bernheisel doesn't stand for long. He attributes at least part of his success to being "a little bit hard-headed. When things get tough, I just lower my head and run it into that brick wall one more time."

RACE CARS

That is, in fact, how Bernheisel started the company. He built his first race car in 1978, in Lebanon, Pennsylvania, using a CSC cage kit on a 1969 Chevelle frame. “I went to one of the most famous speed shops in the country, which will remain nameless, because I am not going to badmouth them. I wanted to buy some parts that I had seen in a magazine ad. They told me those parts were junk, that nobody wanted them. And I said, ‘Well, I want them, and there have to be other people who want them.’ So I went to a bank and borrowed enough money to buy a dealership. I sold zillions of those parts—and I was in the race car business.

“Then, about seven years later, I quit my regular job and said, ‘Well, we’re either going to do this or we’re not,’” he added.

“WE HOUSE ABOUT \$1 MILLION IN PRODUCT IN OUR STORE AT ALL TIMES, AND WE REPRESENT IT WELL IN OUR 5,000-SQUARE-FOOT SHOWROOM.”

GROWING FAMILY, GROWING BUSINESS

Later still, Bernheisel’s sons Brandon, born in 1983, and Bryan, born in 1985, joined the business. Bernheisel calls Brandon “the heir to the throne” and expects that one day he will head up the Bernheisel complex. “Just like me, he’s been crazy about racing since he was a little kid. He’s taking on more and more management responsibility,” while also designing new suspension components for production. As crew chief for Bernheisel Racing, Brandon sets up and maintains the family race cars.

Bryan, “who had to learn to like racing,” is now the team driver, when he isn’t running the fabrication shop. “I know everybody is proud of their kids,” said Bernheisel, “but Bryan is absolutely one of the most talented fabricators in the country and has a reputation as such.

“And I would be remiss if I did not mention Donna, my wife of 40 years, who has been a huge source of support and encouragement.”

Including Brandon and Bryan, Bernheisel employs 12 people. “I have a good group,” he said. “We like this to be a nice work environment. It has those pressure-packed moments, as any job does. But for the most part we think it’s a nice place to work. I treat

my people well, I try to pay them well, and to make it worth their while to stay here for a long time.”

Finding those employees hasn’t always been easy. “It’s a challenge for any industry,” said Bernheisel, “especially this industry, because the skill sets are so specialized.” Any automotive experience is a plus. “For example, when we are looking for someone to work in the body shop, or even the powder-coat shop, we look for someone with an auto-body background. They tend to be able to do what we need them to do. And we teach them from there.” Similarly, “in parts and shipping, we look for someone who has an understanding of what’s going on in that world.” But always, “we look for people with good attitudes, who are going to fit in,” and who show “an enthusiasm for racing. One young man in our shipping department came to us fresh out of school, but he loved racing and was anxious to learn.”

CULTIVATING CUSTOMERS

Bernheisel battered down another brick wall when popular opinion announced the death of brick-and-mortar stores. “They kept saying, ‘The world has changed. Everybody buys online. Stores don’t stock anything anymore.’ Well, we think that’s incorrect,” he explained. Online sales have their place, “but the racing business is still very specialized. People want to touch the product. They want to feel it. They want someone who can give them good advice when they are looking for the parts they need. So we house about \$1 million in product in our store at all times, and we represent it well in our 5,000-square-foot showroom. We know what we are talking about. And we bend over backward to help a customer through a problem.

“We’re not trying to sell someone something they don’t want,” Bernheisel emphasized. “We are helping customers get the right product for the best value. Not every business appreciates that, but in the long run it’s the business philosophy that the customer appreciates.”

Similarly, Bernheisel’s approach to promotion is “multi-tiered,” encompassing both traditional and digital platforms. “We still do a fair amount of print advertising, and we still print a traditional catalog, which we



Jim Bernheisel began his business as a performance-parts dealer in the late 1970s. His younger son Bryan now runs the fabrication shop and drives the company’s dirt late model, seen here. Older son Brandon is the team crew chief, and helps manage the overall business.

hand out at shows. I've been going to trade shows since I started this business, and I still enjoy them, which is one of the reasons we've shown at PRI for many years. We try to keep our name in front of people wherever it's appropriate." That includes mall shows, and even speaking at school events. But because he categorizes himself as "old school," Bernheisel leaves social media to Brandon and Bryan, "whether it's Facebook or banner ads on various platforms.

"We go to the races, which is another way to put our name out there," he continued. Bernheisel Racing fields two cars, driven by Jim and Bryan. "We have a two-seater that we can give rides in as well."

Even at the track, Bernheisel encounters another dichotomous, head-to-the-bricks situation. Ranging over eastern Pennsylvania, with forays into Maryland, New Jersey, the Virginias, and as far south as Charlotte, Bernheisel Racing runs against its own customers. "It's a Catch-22,"



Jim Bernheisel has found a size and niche that suits his business. "We build 30 cars a year, which is bigger than a lot of people, and not as large as the mass producers," he said.

Bernheisel lamented. "If our cars run good, people say, 'You're not going to give me the good information, because you're running against me,' which is ludicrous, because

I'm in the racing business. We are the only manufacturer in the late-model industry to publish our set-ups online, for anybody to see.

"And then if my cars don't run good, the same people say, 'Why should I buy anything from him, when he can't even beat me.'" Still others seem to doubt that one manufacturer can deliver build quality, customer service, and winning speed. "They must think, 'Okay, what's the catch?' But it's all part of the business, and we've learned to manage it the best we can."

Bernheisel doesn't bring a parts truck to the track. "The first year I was in business I tried it, and I realized that trying to do that and race is virtually impossible," he explained. Instead, he makes sure that other companies' parts trucks are well-stocked with Bernheisel components. "And we're available at the track to answer our customers' questions. If they need help, we will help them. Plus, we bring more than enough parts to repair our own cars. Our

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Dirt late models, like that of driver Royce Bray, represent roughly 90% of Lazer's fabrication work and 70% of its parts sales. In addition, the company also offers dirt modified chassis and components.

customers know that if they need something and we have it with us, it is available to them, also.”

Bernheisel knows he has customers who rely on his team for spares at the track. “So when we came out with a new car this year, we called them to let them know that some of the parts on the new car would no longer work for them.”

TRACK CHAMPIONS

“It’s not only the equipment, but the knowledge that sets them apart,” commented Chad Homan, who has driven Lazer dirt late models to six track championships, in six years, at four different venues—his latest at New York’s Fulton Speedway in 2021. “They’ve been so good to me, not only telling me what they know works, but what they are experimenting with, and giving me the chance to try it.”

By 2016, Homan had raced for a quarter century, advancing from micro-sprints to pro stocks to big block modifieds. But he “was getting frustrated, going broke, and ready to try something different,” when he spotted a brand-new Lazer dirt late model up for auction at what was then the National Parts Peddler (now the Northeast Racing Products) Trade Show in Syracuse. “I talked with Jim Bernheisel at the show, and I ended up buying the auction car.

“And my first night out, I ended up getting lapped,” continued Homan. “The car just

wasn’t where I wanted it. So I called Jim and told him what was going on. And he said, ‘Do this, do this.’ He suggested three or four changes. And I went out the next week and won.”

In fact, Homan won “a bunch of races” over the next two years. “Then we went to the Steel City Stampede at Lernerville, and just got absolutely smoked.” This time he spoke to Brandon Bernheisel. “Regionally, we’re good,” Homan added. “But we’re

“WE ARE HELPING CUSTOMERS GET THE RIGHT PRODUCT FOR THE BEST VALUE.”

not up to the RUSH tour level yet. And Brandon said, ‘We didn’t want to mess with your program because you’ve been winning so much—but we’ve been waiting for you to say this.’ They had a whole new shock package for me, ready to go. They completely changed out what I was doing. They updated my car with what they had learned in the prior two years. And we won eight or nine races that year at Outlaw Speedway in Dundee.”

Bernheisel has also helped Homan set up for different track surfaces, as he “bounces around” from Fulton to Genesee

to Woodhull; to Skyline in Ohio and across the Canadian border to Humberstone. Beginning last year Homan has campaigned two cars—his third and fourth Lazer chassis—continuing to run a RUSH 604 crate motor in one, while exploring the Super Late Model division with the other. “In 10 years running big block modifieds,” Homan concluded, “I won three races. But in six years with Lazer I’ve won 175. They have completely turned my career around.”

Seven hours south of Fulton, Scott Sweeney Jr. clinched the 2021 track championship at Virginia’s Winchester Speedway, driving a 10-year-old Lazer dirt late model. “I really liked that car a lot,” Sweeney reported. “I wouldn’t say the car I had before it was a bad car, but the Lazer handled a lot better. It didn’t need as much input from the driver to initiate a turn. I was so impressed with how it entered the corner, and how stable it was. I was able to hang in the top five, or even in the top three, every night, against a lot of new cars. The way the Lazer performed was just awesome.”

Sweeney bought the 2012 Lazer in 2019 from his father, himself a racer for 38 years. Scott Sweeney Sr. “was so impressed with how [the Lazer] drove that he went out and bought a brand-new one.”

We spoke with the younger Sweeney in mid-April, the day after his first night in his own brand-new 2022 Lazer. “I was super happy with how that car come out of the box and ran like my old one, only better. I started ninth and was up to fifth” when his thermostat sprang a leak. “It’s a really high-quality car,” he added. “The welders and the chassis builders at Bernheisel are awesome.”

Sweeney was impressed with the buying experience as well. “When you go up there and look at a chassis, you get a one-on-one experience. Jim will talk to you about



Over the last four decades, Bernheisel's business has grown from a spare-time parts dealership to a multifaceted racing company, encompassing Bernheisel Race Components, Lazer Chassis, Focus Shock Technologies, and Precision Powder Coating.

helping me through it. I had an issue trying to figure out some of the bracketry on the rearend, and Jim said, 'Here's my personal number; shoot me some pictures or a video, and we'll get you squared away.' A lot of places won't do that for you.

"While other cars are more expensive, I really don't think you can buy anything better," Sweeney added. "Hopefully, 10 years from now I might still be winning track championships with it."

BUILDING BETTER, BUYING SMARTER

For all of Bernheisel's diversification, the company can't manufacture every component that goes into its cars. So we wondered how Bernheisel decides what to build onsite and what to buy from outside. "It's a matter of knowing your strengths," he explained, and making the things you're good at making. Even then, there are exceptions. "We are really good at

fabricating steel parts, and if it's a part for one of our cars, we know how many we are going to need. But there are pieces we are capable of making, but if we can't sell enough volume, then we purchase them from someone else."

How Bernheisel chooses his suppliers "has morphed over the years. When I started this business, manufacturers gave retailers protected territories. That allowed us to grow without getting trounced by bigger competitors. Now it's all about buying power, and how much money you want to spend. We're strong enough now that that doesn't matter to us. So when we choose a supplier, it's based on a number of factors." Reputation is a big one, with multiple facets. "Are they someone we are going to like dealing with? Are they someone we want to be associated with? And is their reputation going to create demand for their products? We do business with some suppliers simply because customers have called us and

anything you want to know. Whenever I've called since, he's been the same way. I bought my new car as a bare chassis and had to assemble it on my own. I asked a lot of questions, and he didn't have any problem

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requested their products. We do a ton of business with another company because my son went to pick out something for himself at the PRI Show, and we both liked it so much we became one of their biggest distributors. Or a company may simply have a product that meets a need we haven't met."

In every case, however, Bernheisel looks for a fair price and a reliable supply. "We're not concerned with being the cheapest, but the price has to be reasonable and palatable," he explained. "Then we have to be able to actually get the product, because the best products that you can't get do you no good."

THE UNCONVENTIONAL PATH

Unlike his sons, Jim Bernheisel was not born into a racing family. But he has "been in love with racing as long as I can remember. I was the first person in my family to own a business or have a race car, and I've been very fortunate. I didn't know what I didn't

"ANOTHER CHALLENGE HAS BEEN LEARNING HOW TO LOSE CUSTOMERS."

know, which was probably a blessing from the Lord, because if I did know, I probably wouldn't have done this. But I learned the hard way. Sometimes it was from being a little hard-headed, rather than taking the conventional path. Sometimes that would have been easier and smarter. But other times we found different ways to do things, just by exploring things on our own."

Bernheisel said he had to learn about "buying and selling, dealing with banks, dealing with lawyers and insurance. There's nuance to all of that, and I didn't have anybody to teach me. So I tried to align myself with people who were honest and forthright, and I soaked in everything I

could learn from them."

Cash flow often presented a challenge, and sometimes Bernheisel took risks to grow the company. "I'm a pretty nice guy with a good reputation," he stated, "but if I want to pick up a new line, they still want me to pay for those parts.

"Another challenge has been learning how to lose customers. I used to get my feelings hurt and get kind of bitter about it, and I literally prayed to God to be better at it. Now, I still don't like losing customers, and I wish everybody bought their race cars from me. But life's not like that, and if you buy a race car somewhere else, that's not going to affect my relationship with you. If you treated me fairly and honestly, I'm okay with whatever you do.

"I live in a very unique situation, in that I work with my sons every day; then I go racing with them on weekends; and then I go to church with them, and, remarkably, we get along pretty well. I am very blessed." **PRI**

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GRAND DESIGN



Custom pistons are in heavy demand as engine builders test the limits of their motors. One manufacturer alone has engineered more than 600 different models in the past year.

By Mike Magda

With few rules to respect, grudge racers will test critical limits when building an engine. As a result, they send in numerous parts for failure analysis.

Chris Madsen of Ross Racing Pistons in El Segundo, California, recalled one such powerplant: "It was a long-stroke, large-displacement small block with a lot of nitrous. It was a typical, all-they-could-stuff-in-there to make it as big as possible. But they just could not keep pistons in the engine for more than a couple runs."

The team also complained of inconsistent vacuum readings in the oil pan before sending a sample piston, which was built by a competitor, to Madsen. He recognized the issue with a cursory inspection but double-checked the profile dimensions on a CMM (coordinate measuring machine) to verify.

"We could tell by the wear pattern on the skirt," said Madsen. "Where it changes direction at bottom-dead-center (BDC), it rocked really hard and left a witness mark. We had a pretty good idea of how far the skirt was hanging below

the sleeve at BDC, and it would rock so violently that it would collapse the skirt."

Ross engineers applied a different profile to the piston, essentially moving the gage point higher to help maintain cylinder seal at BDC.

"But there is a point of no return where you can't do anything," added Madsen. "We've seen it before. You're never going to get away from some problems unless you change your combination."

Engine builders often go to piston manufacturers to help solve problems, even when the piston isn't the complication. Pistons happen to bear the scars of poor tuning, improper valvetrain setup, or excessive boost. Whenever a struggling engine is disassembled, there can be a pause for reflection and consolation with a piston tech. And when a new engine with high hopes is coming together, engine builders will bypass the off-the-shelf units in favor of a custom piston to gain an advantage.



“Yes, we have a custom piston program,” explained Joe Maylish of MAHLE Motorsport, Fletcher, North Carolina. “Last year, we made nearly 600 different designs. Our engineers deal with that every single day. One thing we’re able to do more with engine builders is 3D printing. We can take their concept, make a 3D-printed plastic piston, and send it to them for mock up. While 3D printing has been around for a while, we’ve been doing it more often because the designs have become more exotic.”

PURSUIT OF POWER

Still, the driving force for custom pistons is the pursuit of more horsepower.

“We are seeing even more extreme engine applications where engine builders and end users alike are pushing power and rpm levels far beyond what we have seen in the past,” said Nick Diaz of CP-Carrillo, Irvine, California. “Some of this can be seen in compound turbo/supercharging and higher use of E85 to

E100 fuels. Also, thinner piston rings for lower drag and better sealing are finding their way into various applications, and piston coatings are becoming more commonplace to help longevity in endurance applications.”

Over at Diamond Pistons in Clinton Township, Michigan, custom pistons are the company’s core business. “With many racing applications, engine builders are constantly reviewing and making changes to better the performance of their engines,” said Mike Panetta. “More common than not, pistons are subject to changes and improvements with every rebuild. We work with the builders on areas of improvement, with the intent to produce a better performing piston, improving ring seal and horsepower.”

One market that has caught the eye of many piston manufacturers is the European supercar. “We are currently working on new product lines to expand our offerings for European engine platforms, along with other sport-compact offerings across multiple engine platforms,” added Panetta.



Pistons are receiving intense scrutiny in the never-ending quest for more power. Among improvements being pursued are thinner piston rings to reduce drag and improve sealing, and coatings used more extensively to improve longevity, said our source at CP-Carrillo.

Diamond Pistons has launched new pistons for the Audi/Lamborghini 5.2-liter FSI platform, while JE Pistons in Cypress, California, has introduced pistons for Lamborghini, Audi, and Ferrari.

"I think that's a huge, growing market,"

said Nick DiBlasi of JE Pistons, noting that the popularity of track days, standing-mile competitions and roll racing is bringing new entrants into the performance arena. He also said there are unique challenges to developing product for some of the import

engines. "They're really weight-sensitive relative to, say, an LS engine. Also, there are huge variants to an LS bore, from LS1 out to an LSX. But with some of the European stuff, it's basically one aluminum block that's Nikasil coated. So, you don't have a lot of wiggle room.

"Also, these pistons have direct-injection bowls," added DiBlasi. "It's extremely important to get those angles correct because the combustion event happens above the piston, and it has to be there for

PISTON RING TRENDS

In the domain of piston rings, racers are seeing two distinct trends: transitioning from cast-iron to steel and replacing moly coatings with physical vapor deposition (PVD) coatings.

"In the last 20 years, NASCAR and top-level race teams have moved toward the steel/PVD combination," said Lake Speed Jr. of Total Seal, Phoenix, Arizona. "But in the grassroots levels, ductile iron/moly is still the predominant choice because of cost."

Speed, however, is quick to remind customers that he's implying purchase price, not the total operating costs of switching to steel/PVD. He noted that for a NASCAR team 20 years ago, the state-of-the-art ring package was .043, .043, 3 mm.

"Fast forward to today and the teams are running PVD-coated steel rings with a top ring around .020 to .024," said Speed. "So it's half the thickness. But with that old package, that engine ran one race, and the engine would be down five to eight horsepower by the end of the race. Today you have engines running three races, so those rings are living three times longer."

Over the course of a season, racers using the stronger-yet-lighter ring packages will see less wear on the cylinder liners, so there's less to bore out on the next rebuild.

"That means the block and sleeves will last longer, so the overall operating cost will be lower, even though some of these parts will be more expensive on the front end," said Speed. "But people have been hesitant to make the move for different reasons."

With the new ring material and coating, engine builders will



In the upper tiers of motorsports, teams tend to favor steel piston rings over cast-iron, and physical vapor deposition (PVD) coatings over moly coatings. But in the grassroots ranks, racers still prefer lower-cost ductile iron/moly, according to our source at Total Seal.

have to adjust their honing strategies.

"Ductile/moly is porous, and PVD is not. So, the porous ring will hold oil and it's soft, so it will break-in easier," explained Speed. "Since the PVD coating doesn't hold oil, the surface finish on the cylinder walls becomes much more critical. The cylinder finish has to hold oil because the ring won't. You don't want the finish too smooth or too rough, but you need enough Rpk (reduced peak height) to get the steel rings to break in properly." —Mike Magda

emissions and power. Otherwise, if you blow past that, you're going to wash the cylinder walls and have catastrophic ring failure."

The domestic market is certainly not forgotten as piston manufacturers keep up with increasing demand.

"We're getting further into the LT and late-model Hemi market," said Alex Gonzales of RaceTec Pistons, Huntington Beach, California. "We're making them for all-out race motors. It's a high-boost, high-compression product. It's just a matter of designing it and getting it on the shop floor into the machines. It's nothing that difficult. It's just new."

Following the unexpected demand for racing products during the pandemic, there is still a hangover for on-time production. Supplier difficulties in acquiring raw materials and labor issues have combined to increase pressure on piston companies to deliver.

"We've had multiple people come to us asking for quicker turnaround times. We're just trying to please the masses now," admitted Gonzales, adding that developing new shelf products is taking a back seat to custom orders. "We're constantly making new stuff. Somebody will have a cylinder head and say nobody has a piston for it. We'll make it. It's just a matter of getting in line and getting it done. We don't develop stuff for shelf without needing to. We're not going to invest time and engineering and development for something that we're not going to sell that very moment. We'd rather focus on a sale that's waiting."

Wiseco has introduced pistons for Ford's Gen II 3.5-liter EcoBoost and the 7.3-liter Godzilla V8. "The Godzilla engine has a stout foundation, giving builders a lot of room to make a lot of power," said our source at Wiseco.



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One ongoing effort at RaceTec is building a customer base that orders multiple sets of pistons. “We have the ability to mass produce,” said Gonzales. “We have a guy up in the Washington area who builds a lot of LS-type crate engines. He’ll call and say he has X amount of blocks at this bore size, X amount of this crankshaft stroke, and X amount of this connecting-rod length. Now make me pistons for this much compression using this head.”

While different types of LS builds are seemingly endless in the performance market, Matt Polena of Wiseco Performance Products in Mentor, Ohio, is seeing more interest in engines with a 3.900-inch stroke crankshaft. “Between internal experience and input from leading racing and engine building partners, Wiseco’s line of LS 3.900-inch-stroke pistons was designed specifically for that rod angle, optimizing both performance and durability,” said Polena. “The skirt shape was specifically designed to reduce piston rock with 3.900-stroker rod angle, allowing the rings to maintain better ring seal.”

Wiseco also introduced pistons for Ford’s Gen II 3.5-liter EcoBoost and the 7.3-liter Godzilla V8. “The Godzilla engine has a stout foundation, giving builders a lot of room to make a lot of power. Wiseco’s forged pistons are designed with this in mind. Features include 2618 material, proprietary

Manley Performance Products is putting increased emphasis on domestic late-model engines, with offerings such as these pistons for the 6.2-liter Hellcat Hemi.



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For more info: manleyperformance.com



AWA Composites is developing pistons made from a new, highly durable composite material. Although the up-front cost would be pricey, the company believes these pistons could sustain an entire season of Top Fuel racing.

ArmorGlide skirt coating and H13 wrist pin," said Polena. "The EcoBoost pistons have lateral gas ports for improved ring seal."

BUDGET-FRIENDLY OPTIONS

While high-end, big-horsepower engines draw many of the headlines, there's still a huge market in sportsman categories where engine builders are seeking performance on a budget.

"We cater to the grassroots racers, and most of it is pretty basic," said Kirk Peters of Howards Cams, Oshkosh, Wisconsin. "We use a 2618 material. The edges are already radiused, as opposed to when I was younger and had to take pistons to the belt sander to break all the edges, so you don't get hot spots."

The Chevy four-valve, four-cylinder engine is a favorite with entry-level hobby stock and sport mod-type racers at local circle tracks, so Howards has developed a piston that falls within a typical rules package.

"They're allowed to have four valve reliefs on a flat top, no domes," said Peters, adding that racers required to use the Chevy Vortec cylinder head are also active customers.

“They have to run a two-barrel carb, and there are valve lift and vacuum rules. We have to make everything match up to those rules.”

More sanctioning bodies are requiring spec pistons along with other restrictions in an effort to reduce engine costs.

“We sat down with Mazda, which wanted a spec piston for one of its series,” recalled MAHLE Motorsport’s Maylish. “Now, Mazda bought the pistons and supplied them themselves. Then, last year we made an LS3 piston for Trans-Am TA2 racing. If they request it, we can laser-etch a logo, like we did with WISSOTA.”

When developing a spec piston, the objective is to equalize the compression ratio, use a material specified by the organization and develop an appropriate ring package that is durable and readily available. Another noteworthy line from MAHLE is the PowerPak set, which takes a popular racing design and makes it always available.

“PISTON COATINGS ARE BECOMING MORE COMMONPLACE TO HELP LONGEVITY IN ENDURANCE APPLICATIONS.”

“The concept is to have a shelf-stock piston that is a high quality and that engine builders will find is consistent and available,” said Maylish. “As an engine builder, you certainly don’t want pistons that are all over the chart as far as gram weight. It’s definitely been more difficult with the onset of the pandemic, but having parts available is something that we continue to strive for.”

Another manufacturer with strong ties to the sportsman classes is Manley Performance Products in Lakewood, New Jersey. Boasting a very large catalog of pistons, Manley is stepping up development of product for domestic late-model engines, such as the 6.2-liter Hellcat Hemi. There’s also a separate catalog for sport-compact applications.

The extensive Manley offerings place the company in a strong position to serve

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For more info: performance-forge.com



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- This line will initially be available for LS series small block Chevrolet plus the conventional small block Ford and Chrysler applications.
- The AutoTec II line will be available in full custom.
- These new parts will bridge the gap between RaceTec ultra-duty pistons and the AutoTec line while maintaining affordability.

For more info: racetecpistons.com



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For more info: rosspistons.com



Performance Forge provides raw forging to many piston manufacturers. The company has recently introduced new tooling materials, and an oven that heats forgings faster to create a tighter grain structure.

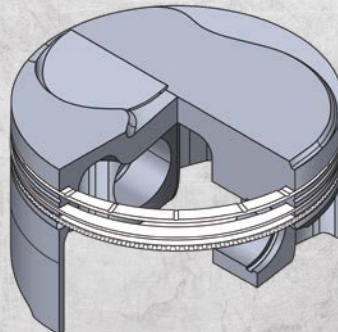
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sportsman racers in addition to select custom work. “We’re really good at doing shelf stock and custom private label programs. One of our strengths is we’ll work with specific customers, create some platforms and custom work for them,” explained Trip Manley. “In our small block Chevy offerings, we’ve got two-barrel and four-barrel pistons for dirt tracks, we’ve got some big block pistons, but we don’t have a Brodix SR20 piston. We don’t have pistons for the massive amount of different cylinder heads that are out there for big blocks. That’s not our wheelhouse.”

What’s in the Manley wheelhouse is a 2618 piston with a competitive skirt design for many of the sportsman applications.

“I like to say that we’re really good at developing pistons that may not be the lightest, but they provide a great combination of features,” added Manley. “We don’t go after the crazy lightest piston. We’re really all about making power and having durability.”

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For more info: uempistons.com



NEWER MATERIALS

The topic of lighter weight pistons revolves around both design and new materials, the latter having manufacturers working with suppliers to evaluate new alloys. The choice between 2618 and 4032 aluminum has served the racing market well in both performance and price point. However, as other industries, such as aerospace, develop new alloys that are lighter and stronger, racers will be attracted to them.

"We have been testing a lot of new materials," said DiBlasi. "I can't specify the alloy, but the name of the game is: How do we get a product that has the durability of 2618, but has the wearability of 4032?"

JE is working with a college that is using a federal grant to test alloys with Materion, an engineering firm with considerable experience in advanced materials.

"Some of them are good, but some of them are just out of the price point of most

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companies altogether," noted DiBlasi. "We're talking 25 times the cost for the material. But it has the properties we're looking for. At some point, though, you can change the

pistons five times and it's still cheaper."

On the exotic side, pistons are made from metal matrix composites (MMC), but most sanctioning bodies have banned

WHAT'S NEW IN THE MANUFACTURING PLANT?

Automation and streamlining are two buzzwords often heard when discussing piston manufacturing. Due to the high standards of precision required to produce pistons for racing applications, suppliers are taking steps to ensure critical tolerances are met while meeting turnaround deadlines that never seem to keep up with engine builder demands.

"We have been working for the better part of the year to implement various stages of automation during our production process. This will allow us to streamline different operations during the manufacturing process," said Nick Diaz of CP-Carrillo, Irvine, California, noting that automation will free up time needed for other hands-on procedures in custom work while allowing larger runs of shelf items.

CP-Carrillo's manufacturing process has roots in the design software used to create both custom and shelf pistons. "As the design is completed, the data is uploaded directly into the system, which verifies the information is correct and then launches G-code from our automation server to the machines on the floor," explained Bryan Moreland. "When features deviate from our automation, it flags the job and puts the job in a queue for custom programming. As the programmers finalize their portion of the job, they then launch it into the CAM system, which has all the tools to produce the part designed."

The system is flexible enough to allow the sales staff to pull up



CP-Carrillo is automating much of its piston production. Along with the greater precision it brings, automation allows larger runs of shelf stock and frees time for hands-on procedures in custom work.

any piston design on their computers while talking to customers and make changes as requested. A CMM file is created for every piston, which then allows the production team to validate measurements at any time during or after the manufacturing is complete.

"The files are automatically stored on the network under the job number and accessible at a moment's notice," added Moreland.

that material. Another composite that is undergoing testing in the hopes of being approved by racing organizations is offered by AWA Composites in Rolling Hills Estates, California. This “forged” composite material was first seen as a connecting rod a few years ago at the PRI Trade Show. Last December the company showed off a composite piston that featured titanium ring grooves. AWA is currently testing the piston and rod with a leading Top Fuel team in addition to building a KB500 engine for dyno testing. Even though such a piston would be quite expensive up front, Bryan Gill of AWA believes it will withstand an entire season of racing.

“We’re in probably the last stage of testing. We’ve run them on alcohol and a small percentage of nitro,” said Gill. “The next test will be to run on a full complement of 85% nitro. We’re very encouraged with what we’ve seen this far. We feel like we have something

“The programs used by the CMM are customized by the design of the piston and use our custom design interface to determine what styli are needed to get into the narrow ring grooves and other features of the piston. Base alignment is established from basic features that hold the piston in the cylinder, so the data correlates with the customer’s installation in the engine.”

Ross Racing Pistons in El Segundo, California, is another company that has been streamlining manufacturing to help ensure accuracy. It developed advanced fixtures that stay with the piston longer to reduce the frequency of changing fixtures for different machining operations.

“Every time you change that piston and you put it in a different fixture, it gets a little harder to maintain that accuracy, because you get tolerance stacking,” said Chris Madsen. “We’re working on a balance between multiple machines and more operations in one machine. The secret to us is our fixturing.” —Mike Magda

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PISTONS

that's disruptive in its technology."

The goal is to validate the piston's durability and complete a cost-versus-benefit analysis using the composite piston in place of a traditional aluminum piston designed for nitro engines. Gill has said his piston conceivably could run a full schedule of NHRA events compared to the current pistons lasting only two or three weekends.

"We can't make claims of durability if they've run only two or three passes on our pistons. We just need more laps before we can conclusively say," claimed Gill, adding that his pistons are 40% lighter than standard models. "Once the data is complete, then AWA can present a viability argument to NHRA for consideration."

FORGING ADVANCES

Regardless of the material used, piston manufacturers still need raw forgings to machine into the final product. Some companies will machine one-off piston designs from billet stock; however, most racing manufacturers will source their forgings from large, independent suppliers, such as Performance Forge.

Based in Montebello, California, Performance Forge works with piston manufacturers to develop tooling, which itself is undergoing a transition of its own.

"The design of the tooling itself; that is, how we go about making the tooling in order to make it live longer and maintain dimensional tolerances, has changed in the past five years," said Wayne Ramay. "We've changed the materials that we make the tooling out of and the designs that we use. It still will yield the same piston, but we just make the tooling different."

Another significant change at Performance Forge is the oven used to preheat the metal to a malleable temperature. "We've come up with a new oven that heats up the raw material more efficiently and quickly. This helps us with a lot of things but mainly the grain," said Ramay. "Grain size is a real key. You can think of large grains like a blob of curds in cottage cheese, and that's not very strong. Smaller, tighter grains that are more compressed will flow with the forging and make it stronger. These ovens help make

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Still, piston designers keep coming up with demands that can't always be delivered. “Right now, they are asking for some crazy stuff that you wouldn't even be able to get the tooling out of the part,” said Ramay. “They're asking for undercuts to be forged into the part, and we've not been able to figure it out. But I've had people ask me about it.” **PRI**

SOURCES

Arias Pistons

arias Pistons.com

AWA Composites

awacomposites.com

CP-Carrillo

cp-carrillo.com

Diamond Pistons

diamondracing.net

Howards Cams

howardscams.com

JE Pistons

jepistons.com

MAHLE Motorsport

us.mahle.com/mahlemotorsports/

Manley Performance Products

manleyperformance.com

NPR of America

npramerica.com

Performance Forge

performance-forge.com

RaceTec Pistons

racetecpistons.com

Ross Racing Pistons

rosspistons.com

Total Seal

totalseal.com

UEM Pistons

uem Pistons.com

Wiseco Performance Products

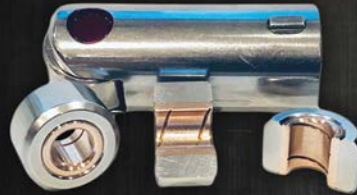
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THROUGH THICK AND THIN

We asked suppliers to identify their best coatings for specific race engine components, what goes into them, and why they're so effective. Their answers could mean the difference between victory and defeat.

—
By David Bellm

*Headers before and after being coated with
CermaKrome from Tech Line Coatings*



We've all heard the expression, "Winning by a razor-thin margin." Yet for coating suppliers, the thickness of a razor blade is massive. For them, victory can be a matter of just a few microns of coating—less than 1/100th the thickness of that oh-so-slender shaving device.

That tiny layer of protection can easily mean the difference between grenading an engine in the final lap or hammering it home to take the checkers. "People tell us all the time, 'I lost oil pressure, but we finished the race,'" said Gary Huffman of Calico Coatings, Denver, North Carolina. "It survived because of the coatings."

For many years, coatings had their doubters and detractors. It was one of those advantages that maybe just seemed too good to be true. Now the industry has matured and gained mainstream acceptance. Coatings have become a necessary ingredient to be competitive in many forms of motorsports.

In a recent article, we detailed this highly specialized, deeply technical field, what these processes can do for racers, and how to benefit from them (see *PRI Magazine*, October 2021). Here we're taking that a step further, asking those same top sources to discuss their best coatings for individual components and why they recommend them.

The examples they gave us are a wide array of clear, proven products that racers can choose from to boost power, increase longevity, and sometimes even improve the looks of their engine.

PISTONS

Of all the components in an engine, pistons arguably take the most abuse. They face the full brunt of the combustion process while dealing with side loads from the swinging crankshaft and riding on just a thin film of oil between the rings and the cylinder wall. For this reason, pistons receive considerable attention from the coatings industry.

PolyDyn Performance Coatings in Houston, Texas, is a pioneer in piston coatings, with origins that stretch back to NASA's mid-1960s Gemini space program. Armed with lessons he learned from the brutal forces of rocket motors and space flight, company founder Carl Benton then brought his developments to other fields—first, the rough and rugged world of oil drilling, then the punishing ranks of NASCAR Cup competition.

PolyDyn now offers a number of different coatings for piston skirts and piston domes. The company's RP piston skirt coating was the first product PolyDyn offered, and it was developed directly from Benton's work with NASA. "It's highly enriched with a polymer called FEP [fluorinated ethylene propylene]," he explained. "This material is unique in that it attracts oil to itself. So it holds the oil on the skirt of the piston much better than the bare metal itself. But piston slap on a cylinder wall can really put the hurt on the piston skirt. So we added another very similar coating. We figured out that if we sprayed that right on top, wet-on-wet, and then baked it, the performance increases are rather significant."



PolyDyn Performance Coatings draws on its experience with NASA to develop piston coatings, such as its HS Gold formula, seen here on the top of a diesel piston. "It uses a particle called yttrium zirconium oxide, which is often used on rocket nozzles," said our source at PolyDyn.

For those who need additional protection on piston skirts, the company offers its PD-14 coating, which uses a unique resin system related to nylon. For even more extreme applications, PolyDyn created its 52-G coating formulation.

"Our 52-G coating was developed for David Reher of the Reher-Morrison drag racing team," said Benton. "I had worked with them a lot during their Pro Stock days. Then they started building these huge-cubic-inch Pro Mod motors. Because they're

big stroker motors, the piston moves rather violently in the cylinders. Our original RP coating did well with that, but it wasn't as good as we were hoping for. That's when I went to the drawing board and a couple of the chemists that I always rely on."

On the recommendation of those chemists, PolyDyn came up with a coating that uses a unique dry film lubricant, with graphite and other materials added. The result was PolyDyn's 52-G coating, the company's top-line piston-skirt coating, designed to handle extreme abuse.

The skirt isn't the only part of a piston that gets punished. The top of the piston takes the full force of extreme heat and pressure dealt by high boost, heavy nitrous loads, and exotic fuel blends. To help mitigate these forces, PolyDyn developed several

proprietary coatings for piston domes.

"To protect the top of the piston and keep it from burning, I started working with a company that had a unique technology called synthetic polymeric ceramics," explained Benton. "We started putting different materials into the resin system to create PolyDyn HS Gold. It uses a particle called yttrium zirconium oxide, which is often used on rocket nozzles."

Over time, the company found that an even more robust coating was needed for extreme applications such as diesel pulling and high-strung, pushed-to-the-limit Japanese-engine drag cars. For those intense uses, the company developed its top-of-the-line HS Titanium piston dome coating.

"HS Titanium uses a material called boron nitride," said Benton. "Boron nitride is actually a lubricating ceramic, and it's stable to 3,200 degrees Fahrenheit. At first, I didn't think I could actually get it to blend into the resin system. But my chemist buddies figured out how to do that. Once we got it to where it would stay suspended, then off to the races we went."

Like most coaters, PolyDyn does all the work for the customer, including prep, application, and any necessary final finishing. There are DIY piston coating alternatives for racers who are more inclined to handle the job themselves.

Tech Line Coatings in Rutledge, Tennessee, offers a range of user-applied coatings for piston crowns, formulated to protect the surface and control heat. "Our CBC-1 water-based thermal barrier coating is for lower-compression engines, up to about 11.5:1," said Rick Williams. "This coating helps to spread heat out over the piston to prevent hot spots, and it's a thermal barrier for the piston itself to help everything run cooler."

"Our CBC-2 piston coating is in the same family, but it's cured after it's sprayed on," continued Williams. "All of these cure at 300 degrees because we're dealing with aluminum, and you don't want to get it too hot. Once it's cured, you can polish it and have almost a chrome-like finish. Then our CBX-1 piston coating is what I call the 'mack daddy' of piston-crown coatings. That's the top performer. It can handle anything—nitro, turbo, supercharged, diesel."

While some racers may not initially feel confident taking on the job of coating pistons,

Tech Line Coatings' CBC-1 water-based thermal barrier coating is formulated to prevent hot spots by more evenly distributing heat, while acting as a thermal barrier for additional protection.



Williams explained that the process isn't beyond the abilities of anyone with good basic shop skills. By doing so, racers can reduce the cost of coating parts significantly, he said. "Applying these coatings is pretty simple and straightforward. It does take a little bit of time when you're prepping every piston, but it can save a lot of money. A small bottle of coating from us can spray, on average, at least 20 pistons. I think most shops charge more to spray one piston top than what the whole bottle of our coatings cost."

VALVES

All parts of the valvetrain face their own unique forms of punishment in a race engine, which can sap performance and significantly reduce longevity. This has made them fertile territory for coating suppliers, who apply their magic to valves and other components to give them increased efficiency and longer life.

One such supplier is Calico Coatings, which, among other things, specializes in diamond-like carbon (DLC) coatings for valves. "DLC coatings are extremely hard," said Huffman. "They're extremely thin, too—typically only two to three microns in thickness. At the same time, their hardness is off the Rockwell scale, so they're very wear resistant. They also have a very high lubricity rating.

"A lot of engine builders specify DLC for coatings, but they don't necessarily understand that DLC comes in a lot of flavors," continued Huffman. "You have to be very specific about the application. You may put a DLC on a wrist pin, but it might not be the best DLC formula for valvetrain components such as the valve itself."

In general, DLC coatings are difficult to apply, making them typically more expensive than other coating technologies used on valves, such as chrome nitride. Nonetheless, DLC coatings offer a number of advantages that can justify the higher cost.

"If you want to run tight clearances, you really need a good lubricity film," said Huffman. "A DLC is a very good option that allows you to go there. When you put it on the face of a softer material, like a titanium valve, it's a big advantage because valves rotate. Every time they hit the seat, with whatever the spring pressure is, it's hitting at a rotation angle, and it's coming off at a rotation. That can be a problem without good lubricity.

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Calico Coatings' diamond-like carbon (DLC) coatings for valves are engineered to increase valvetrain longevity by improving the lubricity of surfaces. According to a company source, this is especially beneficial with softer metals such as titanium.

"That wasn't an issue when there were leaded fuels," continued Huffman, "because the sulfur in lead is a lubricant. Without it, you start beating up the face of the valve, because there's no lubrication between the seat and the face. But coating them with a DLC puts the lubrication back in between those two mating surfaces and toughens the face of the valves, so they last longer."

BEARINGS

Other components on the list of most abused engine parts are bearings, many of which have to sustain the massive energy transferred from the pistons and connecting rods. Accordingly, engine bearings of all types are the subject of much attention from coaters.

Line2Line Coatings in Clarkston, Michigan, is best known for its abrasion-resistant graphite coatings that are used to minimize running clearances and protect everything from pistons to oil pumps. After considerable development and research, the company recently expanded its offerings to bearing coatings.

"For years, customers have been coming



to us to coat pistons and other parts," said Andy Suman. "They kept asking if we did bearings. We didn't back then because there were some things we needed to develop further. Now we've put in the research to develop a great product that provides improved lubricity and offers a big margin of insurance against damage from oil starvation in bearings."

Like the company's other coatings, Line2Line's bearing coatings can be applied with its unique powder-coating process. This offers the advantage of allowing them to build up much thicker coatings than other coaters can. "Most shops have to do multiple coats to get the thickness that we can," explained Suman. "That can cause issues with layers peeling off later. Powder coating allows us to build up thick coatings in a single application, so we don't have that problem. We can ultimately go much thicker with our coatings, too."

These thicker coats can be used to take up clearances in parts. When components are assembled and run initially, the coating then wears itself to an optimum clearance, harmlessly shedding the excess in tiny particles that drain out with the engine oil.

In addition to applying coatings in powder form to build up clearances, Line2Line can also apply its bearing coatings in liquid form. This is done to achieve a thin coat of extremely uniform thickness to preserve oil wedge set-up and provide insurance in case journals contact the bearings. "Even a split

Line2Line Coatings has introduced new bearing coatings applied with a dry-powder process, allowing thick, single-layer applications that can be used to tailor clearances as needed.

second of oil starvation can ruin bearings," said Suman. "The lubricity of this coating protects the bearing if that happens."

For the most part, bearing manufacturers don't apply coatings to their bearings—it's something the customer typically initiates. But some bearing suppliers, such as Precision Products Performance Center in Arden, North Carolina, believe so strongly in the value of coatings for racing engines that they sell bearings with the appropriate coatings already applied. "It started with an engine builder named Nick Ramey at Yates Racing, before it became Roush Yates Racing," recalled Debbie Jackson at Precision Products Performance Center. "We built titanium pins for him and used a Casidium DLC coating from Anatech [now IHC coatings]. Using a DLC coating enabled engine builders to use materials they once couldn't even consider, like titanium and C350 Vascomax.

"Coating resolved galling issues and other incompatibilities," continued Jackson. "On standard wrist-pin materials that didn't require coatings, it improved wear, reduced friction, and some engine builders even saw gains in horsepower by being able to restrict oil."

The success of these offerings made believers out of Precision Products Performance Center, helping to popularize coated bearings, while creating rapid growth for the company and its suppliers. "The market for this grew so rapidly that Anatech moved its facility to North Carolina to be closer to us and other racing facilities," said Jackson. "Precision Products also built the first rub test fixture to test these coatings. To date, there are numerous DLC coating facilities, and nothing has surpassed their coatings on our rub test."

EXHAUST

While most coatings do their work inside the engine, far away from what can be witnessed with the naked eye, exhaust components are out in the open where they can be seen—and all too often felt. The latter effect can result in burned hands when working on engines, or heat-induced component failure for other parts in the engine compartment.

To help minimize such issues, Swain Tech Coatings in Scottsville, New York, specializes in hard coatings designed to contain heat.

Unlike paint-based coatings with ceramic material added, Swain Tech's coatings are an actual ceramic, which requires a unique application process. "As a true ceramic, they start out as solid materials," explained Richard Tucker. "Those solid materials are fed into a high-energy gun that changes them from a solid to a molten state. The material is sprayed or blown onto the part at near supersonic speeds, where it impacts and bonds to the part."

These ceramic coatings provide significantly higher heat insulation than paint or powder coating, according to Tucker. There is one very noticeable downside—Swain Tech's Coatings aren't visually attractive in the traditional sense. "We affectionately call it an ugly coating because it looks like white sandpaper when it's freshly applied," said Tucker. "Then that white will mark or scratch in normal shipping, handling, and installation. It doesn't really damage the coating. It just shows blemishes on the surface. Then when it sees heat, it might discolor."

The upside of this relatively low visual appeal is its effectiveness as an insulator. "Results vary, but our coatings typically reduce radiant temperature by about 30%," said Tucker. At typical exhaust-system temperatures, that percentage works out to be a 100-degree or more drop in heat.

"The main things people seek us out for is that they either have too much heat in the engine bay, too much heat in the cockpit, or there might be sensitive electronics in proximity to where they have to route the exhaust," explained Tucker. "Or in a type of vehicle where you have to wrench on it pretty frequently, like in drag racing. With our coating, adjustments can be done without as much fear of getting burned. The part can be touched relatively quickly after the engine is shut down."

Not everyone demands that kind of intense heat insulation. And with the hottest components in an exhaust system typically sprawling out in the open, many racers still seek a more visually appealing coating, even if it doesn't insulate quite as well. For this, Tech Line Coatings offers a wide range of user-applied spray-on coatings for exhaust systems, along with other coatings formulated for chemical resistance, thermal management, lubrication, and more.



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Swain Tech Coatings specializes in true ceramic coatings to insulate high-heat components such as exhaust headers. According to a company representative, these coatings typically reduce radiant temperature by about 30%.

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Although these coatings do insulate to some degree, and they can improve performance by trapping heat and thereby accelerating exhaust flow, their primary selling point for many customers is the visual appeal they can add to components.

One of the company's most popular exhaust coatings is its CermaKrome line, which has a silvery, almost chrome-like appearance. "CermaKrome is an aluminum ceramic," said Rick Williams of Tech Line. "It's an appearance coating, but it's definitely just as functional as all of the rest of our exhaust coatings. It's chemical resistant, corrosion resistant, and rust resistant." Williams reported that some users have gone as long as 16 years without significant wear or failure of the coating.

Along with the CermaKrome line, the company offers a rainbow of hues, in various product lines formulated for different specialized uses. Yet even with the vast choices offered, Tech Line Coatings' second most popular color is far less flashy. "Right behind CermaKrome, our most popular colors are black, black, black, black, and black," said Williams. "I say that because we offer about five different types of blacks. And we have a different family name or series for our blacks. They were formulated over the years for slightly different purposes, but

each one of them provides pretty much the same performance."

To dispel any notions that these are purely cosmetic coatings, Williams shared one particular black-colored coating's history, a rather 'out of this world' project from the company's early days. "Our BHK line was one of those original black formulas," said Williams. "It's good up to 2,000 degrees F on the metal itself. It actually was used in experimentation for NASA's X-30 Space Plane project years ago." **PRI**

SOURCES

Calico Coatings
calicocoatings.com

Line2Line Coatings
line2linecoatings.com

PolyDyn Performance Coatings
polydyn.com

Precision Products Performance Center
pppcenter.com

Swain Tech Coatings
swaintech.com

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techlinecoatings.com

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TECH WITHIN REACH



From gauges to pull-down rigs, it's the gear that's bringing more sophisticated setup capabilities to budget-minded teams.

By Bradley Iger



As rule sets have evolved to put a greater emphasis on chassis setups across many motorsports disciplines in recent years, the related equipment has become an increasingly vital element of racers' programs.

"Back in the day everybody built their own cars, and that was a big factor in a team's success," said Keith Berner of Accu-Force Dynos & Testers, Millersburg, Ohio. "Now these cars are using many more common components, so it's more about making sure that the car is set up and adjusted appropriately. If I've got the same mouse trap as you, I've got to make sure my spring is going to work better at this track. And a lot of that comes down to the equipment you have access to. We used to be looking for tenths; these days we're looking for thousandths."

Although most of these tools have been around in one form or another for some time now, much of it has been relegated to professional or semi pro-level teams with substantial financial backing. But that's starting to change.

"Some of the technology that was beyond the reach of most teams a decade ago is now much more attainable," said Linnie Doughton of DRP Performance Products, Rocky Mount, Virginia. "The price points have come down enough that even teams at the short track level can access it."

And with that in mind, we're looking at some of the most popular pieces of chassis setup equipment that are designed for racers who don't have a blank check to work with.

MAXWELL INDUSTRIES

"This year, in particular, I've noticed that a lot more of the weekly guys are buying shock dynos and getting more involved in the technical aspects of suspension components," said Steve Watt of Maxwell Industries, Ventura, California. "The tech has trickled down to the local Saturday night racers—they have to have it because they can't really be competitive without it. If one local guy gets their hands on the equipment, it's only a matter of time before it becomes almost obligatory, and these younger guys are much more tech-savvy than the generation before them."

Watt said that among the various pieces of chassis setup equipment available on the market, shock dynos are going to be the most valuable tool for budget-minded competitors.

"That dictates most of the adjustment that you're going to do on a race car," he explained. "A torsion bar or a coil spring is a spring rate, so that's going to tell you how much the car is going to move. Meanwhile the shock absorbers are all timing—that tells you how fast they're going to get to those points in the suspension travel. So that's going to be a more important tool than a spring or torsion bar dyno. Once you know your spring rate it's pretty straight-forward, but because of how advanced shocks are now, you can adjust the compression and rebound almost infinitely on all four corners. So you need to know exactly what you're adjusting it to, and what the value is when you get there."

And Watt said because of that, more shock dynos are being designed with the intent of keeping costs to a minimum without compromising functionality and accuracy. “Our two-horsepower shock dyno is a good example. This is our most popular shock dyno—I would say probably 99% of the World of Outlaws teams have one in their trailer. It’s really popular with the dirt modifieds, USAC sprint cars, and Outlaw sprint cars in part because it basically provides the most bang for the buck.”

Beyond keeping the costs down, Watt noted that their primary focus was to make these shock dynos as intuitive to use for the customer as they could, in turn minimizing the amount of time racers would need to

spend on the dyno so they can get to work in the shop.

“You punch in the name and serial number of your shock and you’re up and running—it’s all in the database,” he explained.

“And we wanted to make it as foolproof as possible, so everything’s automatically saved and you can’t delete a file without confirming, like, four times. It’s made for someone like me who tends to be click-happy. When they wrote the software, they used me as the guinea pig. For a mechanically focused guy like me, it’s perfect.”

INTERCOMP

Intercomp in Medina, Minnesota, continues to improve racers’ chassis

setup experience with its wireless group of products, including its recently released RFX wireless suspension load stick.

The company’s RFX Wireless Weighing Technology eliminates the cabled indicator found on most current load sticks and allows anywhere from one to four load sticks to be read on one RFX Wireless Handheld Indicator. “Without a cable to mind, our load stick allows racers to concentrate on obtaining the correct measurement and less about breaking an indicator cable and rendering the tool useless,” said Aaron Van Heel. Individual load sticks are available without an indicator, he noted, which allows single- or dual-load stick systems to be expanded at a later time.

Van Heel explained that load sticks that are mounted on all four corners of a race car can provide a picture of a car’s load distribution in different chassis attitudes. “This allows racers to determine the exact spring rates needed to get the car into the dynamic ride heights needed to carry maximum speed and momentum through a turn. The two-load stick system allows a racer to collect dynamic load data at left-side, right-side, or opposing corners of the car. These can be critical measurements that can mean the difference between a fast or slow car in dirt and paved oval racing,” he said.

Each Intercomp load stick features an industrial-strength 3,000-pound capacity load cell and can span shock mounting points 15–25.25 inches apart, using three interchangeable bodies, while the actual bodies are made from hex-shaped billet aluminum, with high-quality spherical rod ends with low-friction PTFE inserts. A single load stick and indicator allows for use at one corner of the car, while the two- and four-piece systems allow for complex attitude adjustment.



Intercomp’s RFX wireless suspension load stick eliminates cabled indicators and allows one to four load sticks to be read on one handheld RFX indicator.

ACCU-FORCE DYNOS & TESTERS

Berner noted that while the most important tools in chassis setup are often dependent on what class a racer is running in and the rule set that's involved, there are some pieces of equipment that tend to be crucial across the board.

"For instance, you definitely have to have a front-end gauge to make sure that your caster and camber are set correctly," he said. "But these days we're getting to the point where you more or less need to have a spring smasher to be competitive in something like crate Late Model. It has changed the sport in a way—it's almost more important to a racer's competitiveness now than a set of scales was 20 years ago. Being able to understand a spring curve and make changes is really important because, at this point, the guy beside you probably does. And if you don't, he has a clear advantage."

With that in mind, he pointed to Accu-Force's standard manual spring smasher

With race cars increasingly using standard components, chassis setup is more critical than ever. "If I've got the same mousetrap as you, I've got to make sure my spring is going to work better at this track," said our source at Accu-Force Dynos & Testers.

as a piece of equipment that can even the playing field without breaking the bank. "It will give you center-to-center of your coilover spring, it gives you the weight, and you can do an off-set weight as well."

But he also said that in order for racers to get the most value out of this equipment, they really need a thorough understanding of its capabilities. "If we wanted to change the springs at the race track when we were using these very early on, as long as we knew what



that center-to-center was and we had the load information, you could put any spring you wanted in there and put that dimension back.




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You didn't have to scale it, you didn't have to get the tape measure out—you just did it. It made it really fast and easy to change out springs at the race track. And it would make you better. If the track slowed up two seconds, a lot of times you would need to change the spring in the right front. This made it easy.”

But once they started doing that, they soon realized that they often needed to change the spring curve as well. “That is where you're getting into spring rubbers, bump stops, and everything else,” he said. “We might lighten the spring up and then we knew that at full travel it was at, say, 2,100 pounds. So we knew we could use a lighter spring in it with those bump stops and spring rubbers to let it get there easier, and we've changed that curve to where it's still 2,100 pounds at 4 inches of travel. We started out doing that kind of tuning on the right front, but now we're doing that on every corner. And if the guy running beside you is smart enough to understand that and you don't, he's going to be a little bit quicker than you are. So to keep up you've got to be able to do that, too, and it's pretty hard to do without a spring smasher.”

PROFORM

While advanced setup gear like shock dynos and pull-down fixtures are becoming increasingly important to racers at the grassroots and sportsman levels, Dennis Grzebyk of PROFORM in Warren, Michigan, confirmed that the basics are still essential in order to provide a solid foundation for more sophisticated tuning.

“Each team is going to have a chassis setup in their head, percentage-wise, for every corner of the car, and it's going to be very difficult to get that without a set of scales. It's also going to tell you if your chassis isn't set up the way you want it, so you can adjust your bars, move the percentages around and get it wherever you want it to be. For track guys it's usually 40/60 front and rear, but the dirt and the modified racers tend to do each corner differently to their own specifications. Circle track guys generally need more pressure up front to get the bite going into the corner, but they need to finely balance that to make sure there's also enough grip coming out.”

He added that teams tend to do a lot of initial adjustment, but once they've found a formula that works, they'll want to ensure

that the car can be quickly and accurately set up to that formula according to the scale measurements. And with that in mind, PROFORM designed a corner scale system that's both simple and accessible to racers that need to keep costs out of the stratosphere.

PROFORM's scales were designed with the grassroots racer in mind. “Before this, you couldn't touch a set for less than two grand, and we released ours for under \$800,” said Grzebyk. “Aside from the cost, I think that another reason that they've been so popular for us is because we designed it so you can just drive up onto them without ramps. It's a low-profile pad that eliminates the need for those, and it also has a built-in support so it can't flip over when you're placing the car on them.”

While PROFORM offers these scales in both wired and wireless configurations, Grzebyk said that most racers opt to spend a little bit extra in order to ditch the cables. “The price gap between the two isn't very wide, and folks generally like to avoid having wires running all over the place so people won't trip on stuff and possibly damage the controller by knocking it over. Things can happen when you're focused on getting the car ready.”

PROFORM's scales are available in wired and wireless configurations, and feature a low-profile pad designed to be used without ramps. They also have a built-in support, so they can't flip over when placing the car on them.



DRP PERFORMANCE

Doughton said that the core basics like scales, camber/caster gauges, and tire barometers are essentially mandatory in order to perform accurate measurements at the track. “You need stuff like that to even be remotely competitive at this point. At the next level, you should be looking at setup struts and spring load machines, and pull-down fixtures would be the next step up from that.”

And although the cost of a typical pull-down rig is beyond the means of most budget-minded racers, DRP Performance offers a much more affordable option for those who're willing to put in a bit of elbow grease.

“We offer DIY component kits for a lot of our equipment, including our pull-down fixtures,” he explained. “The name said it all—this is for the guy who is willing to do a little bit of fabrication work in order to put together his own system, and the kit comes with all of the electronics sorted out. For around \$3,500 someone can put together a piece of equipment that normally would have cost them anywhere from \$12,000 to \$20,000. You



Pull-down rigs are becoming essential for competitive chassis setup, but they're often too pricey for grassroots racers. DRP Performance's DIY Pull Down Kit is designed as an affordable option for racers willing to do some fabrication work.

give up a few features with that savings, but for smart teams that are willing to put in the work, there are absolutely ways to get around spending that kind of money. And we're here to help them do that."

But he's also quick to point out that if a racer wants to utilize this kind of equipment to its full potential, education is absolutely key. "You've got to be willing to invest in that as well. There are ways to get around spending crazy amounts of money in this realm—the equipment just makes the job quicker and easier. If you can't afford to invest in that equipment, you've got to invest in the knowledge."

And in that regard, he pointed to DRP University as a low-cost option for racers who're willing to put in the time. "The site has dozens and dozens of training videos that can teach people things that would normally take a lifetime to learn in a matter of a few weeks or months," he said. "We're talking about topics like setup strategies, dynamic balance, dynamic wheel positions, and the

physics behind how it all works. There's also training that focuses on how to analyze what you're getting from data acquisition systems. Having the data is one thing; understanding what to do with it is another. It's our belief that the more knowledgeable race teams get, the more money they can save." **PRI**

SOURCES

Accu-Force Shock Dynos
accuforceshockdyno.com

DRP Performance Products
drpperformance.net

Intercomp
intercompracing.com

Maxwell Industries
maxwellindustries.com

PROFORM
proformparts.com

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HOLLEY GETS WIRED



By Jim Koscs

BORN AT THE DAWN OF THE ICE AGE, HOLLEY TODAY HAS 70 BRANDS THAT ALMOST EXCLUSIVELY CATER TO GAS PERFORMANCE AND RACING. WITH THE EV MARKET IN ITS SIGHTS, THOUGH, THE HOLLEY HIGH VOLTAGE EXPERIENCE SCHEDULED FOR JULY IS ATTRACTING SOME OF THE BIGGEST NAMES IN THE PERFORMANCE AND RACING INDUSTRY.

Holley began as a carmaker 120 years ago and then turned to supplying carburetors for OEMs before expanding into a leading provider of high-performance automotive aftermarket products for car and truck enthusiasts. The company's enthusiast-focused events, including LS Fest, are celebrations of high-octane fun. This July 9–10 at Sonoma Raceway in Sonoma, California, though, the only cars using fossil fuels will be in the parking lot. There will be, however, plenty of burning rubber.

The second annual Holley High Voltage Experience presented by eBay Motors is designed to build a community linking EV enthusiasts to each other and the performance aftermarket and OEMs, according to Holley events manager Blane Burnett.

"While the EV population is still relatively small in the United States, they're quickly becoming more common and many enthusiasts have taken notice of their performance," Burnett said. "That's evidenced by the volume of interest we're seeing through both Holley and our AEM EV brands."

The 2021 High Voltage event had great participation in its inaugural year and Burnett looks forward to growing the event for

2022. Burnett explained that Holley designed the High Voltage Experience around three main audiences: 1) owners of production EVs who want to do some track driving, participate in the car show, or meet like-minded enthusiasts; 2) tuners who are modifying EVs for higher performance or improved appearance, and 3) enthusiasts who are converting classic or modern ICE vehicles to EV powertrains.

The 2022 event will again offer car show classes, road course track lapping, autocross, drag racing, and more. Burnett said the event is also structured to attract aftermarket brands that are entering the EV field. The vendor midway features manufacturers, tuners, and OEMs. Last year the event saw participation from Ford Performance, Tesla, Simpson Racing, Summit Racing Equipment, Lingenfelter Performance Engineering, and others.

GRASSROOTS BUILDERS

Just as Holley components have long been used for engine swaps, the company sees business potential in the EV swap trend. The event will showcase EV conversions built using components from a variety

of Holley's brands, including the "Salvage to Savage" C10 pickup truck and a DeLorean that attended the 2021 High Voltage event.

"We'll also have 'Teslonda,'" a 1980s Honda Accord EV conversion using a Tesla engine with the stance of a 1960s era gasser, "as well as a Tesla-powered Porsche 935 from Bisimoto Engineering," Burnett said.

Through its Rekudo brand, Holley offers suspension products and custom steering wheels for Tesla vehicles. Events like this, Burnett explained, help build awareness.

"A lot of people in the EV world weren't as familiar with Holley before our first High Voltage Experience," he said. "High Voltage changed that for us. Events build a sense of community that excites passion for performance. It's a great opportunity for us to get to know each other."

Burnett told PRI that he sees no issues with Holley balancing its ICE and EV product lines. "We're in the business of going fast and having fun in cars and trucks no matter what powertrain turns the tires," he said. "We will continue to offer performance products for classic and late-model vehicles, whether they're ICE or EV powered."



The Holley High Voltage Experience offers an array of activities designed to showcase the performance potential of EVs. Road racing, autocross, and drag competition will be among the featured events. Photos courtesy of Holley.

A RETAILER'S PERSPECTIVE

Summit Racing Equipment in Tallmadge, Ohio, is going to the High Voltage Experience with a bullish view on the emerging EV performance market, according to Alan Rebescher of Summit.

"It's about being where EV enthusiasts are," he said. The retailer is walking the walk, too, by entering its own Tesla Model 3 Dual Motor test and development vehicle, "White Lightning," in all of the event's racing competitions.

"Racing our Tesla Model 3 gives us the opportunity to engage directly with racers and experience firsthand what it takes to compete with an EV," Rebescher said. "We learn about how folks are getting more performance out of their vehicles, and what they want to see in terms of parts."

Rebescher is particularly looking forward to seeing all the professional and DIY conversions. "Just like in the early days of hot rodding, it's the tinkerers and backyard inventors who are moving things forward," he explained. "If we can get tech-savvy enthusiasts to daydream about bigger electric motors, more powerful batteries, and enhanced control systems, the industry will continue to grow."

He expects the younger enthusiasts that EVs attract to play a major role in the company's plans. "We are in the beginning stages of EV performance," he said. "Younger enthusiasts are interested and appreciate the tech but don't yet have much experience with electric vehicles. It will take some time for EVs to become a bigger part of the vehicle mix and for people to be familiar with them."

Rebescher sees traditional performance enthusiasts as another potential audience. He compared the emergence of EVs with other major changes in the category's history, including the rapid transition from Ford flatheads to small block Chevys, and from carburetors to fuel injection.

"There was hesitation and a learning curve, but once people got familiar with the new technology and how much it improved performance, they embraced it," he said.

As with previous ICE performance trends, Rebescher said the growth of the EV performance aftermarket will be driven by

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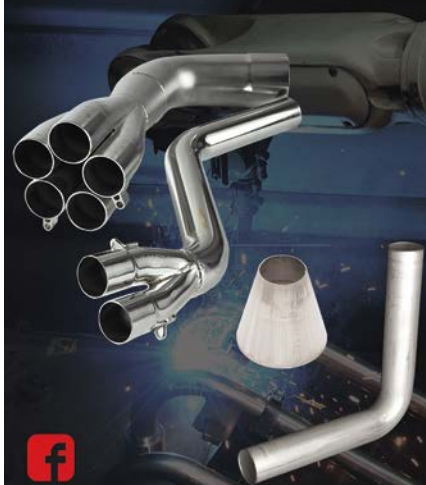
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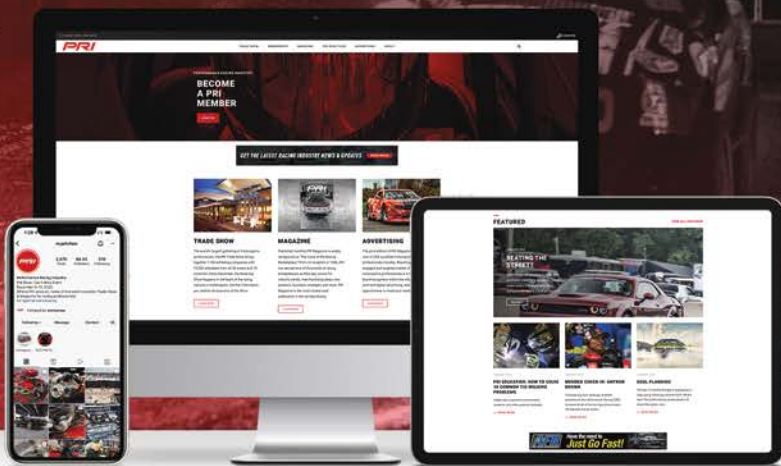
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Participating vendors include Forgeline, which has embraced the EV segment. "The electric car market is probably the fastest-growing market, as EVs are getting more accepted," reported a company source.

availability of cars and parts.

"As more electric vehicles show up on the used car market and in salvage yards, and enthusiasts get their hands on them, demand for performance parts will also grow, especially products that allow racers to unlock and modify their car's powertrain," he said.

Rebeschger also pointed out that many traditional product types are applicable to EVs, including safety gear, tires, brakes, and suspension. He said he did not see balancing ICE and EV business as "either/or," adding that the company treats EVs as it does any new market. "It's simply a matter of adding new applications," he said.

THE MANUFACTURER'S PERSPECTIVE

While kilowatt-boosting mods are inevitable for the EV aftermarket, manufacturers of universal-type parts, such as wheels, have plenty of opportunity.

"We're set for the EV market," said Dave Schardt of Forgeline, Dayton, Ohio, one of the sponsors of the Holley High Voltage Experience. "The electric car market is probably the fastest growing market, as EVs are getting more accepted."

Most customers right now, not surprisingly, are Tesla owners, and the reason is simply sheer volume. Tesla sold about 1 million vehicles worldwide in 2021, with around 352,000 estimated in the US, according to Cox Automotive. (Tesla does not break out US sales separately.)

Schardt confirmed for PRI that the company currently manufactures private-label wheels for a “very large” Tesla aftermarket distributor.

“I’ve seen people who weren’t car enthusiasts buy a Tesla and become car enthusiasts just because they love the car so much,” he said.

Schardt sees the Holley event as an opportunity to establish itself with EV owners at an early point in the market’s growth. “A lot of EV owners who were not necessarily car enthusiasts aren’t knowledgeable about wheel brands,” he observed. “They’re just learning who’s out there and what’s available and forming opinions on performance brands. It’s important to get in front of those people early.”

A WEIGHTY ISSUE

Another reason to sponsor events such as Holley High Voltage Experience, Schardt explained, is to educate customers. “EVs are heavier, so the wheels require a higher load rating,” he stated. “Tesla owners typically want the lightest possible wheel they can get. There are a lot of light wheels out there, but many EV owners may not realize that, while some may fit their vehicle, they might not be load-rated for it. We try to educate them about that.”

While the EV aftermarket seems Tesla-focused today, Schardt sees it expanding soon as more performance-oriented EVs come on the market. “We’ve done some Audi e-trons. I think the new electric Hummer will be popular for aftermarket wheels, and so will the Tesla Cybertruck, when it comes out. It’s only going to grow.” **PRI**

SOURCES

AEM EV
aemev.com

Forgeline
forgeline.com

Holley High Voltage Experience
holleyhighvoltage.com

Summit Racing Equipment
summitracing.com

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VP RACING FUELS

The expansion of VP-branded gas stations across the US, as well as continued development of renewable fuels, including blends distilled from food waste, are among top priorities for this San Antonio, Texas-based producer of performance fuels, lubricants, coolants, and additives.

By Jim Donnelly

Its stylized product logos and brightly colored pails of racing fuel are nearly as common to find at racing facilities as stacks of mounted tires.

That's part of VP Racing Fuels' deep footprint in the motorsports fuels market in North America and around the world. The San Antonio, Texas-based firm provides, through a network of 2,000-plus dealers, a line of more than 80 premium fuels that can feed everything from R/C models to an array of global racing series, plus diesel.

The general public now expects fuels for all vehicles, racing and otherwise, to be environmentally responsible. That's a global trend in the technology of racing fuel. Through its research and broad product base, VP pledges to occupy the tip of the spear when it comes to keeping racing fuels, and engines, acceptably clean.

"What we're seeing is a shift by some major series to incorporate more renewables



VP Racing Fuels has a rich history in motorsports, offering more than 80 premium fuels that can feed everything from R/C models to a variety of global racing series, plus diesel. With a focus on environmental responsibility, VP has developed more than 20 fuels containing a certain percentage of renewables.

in their fuel," VP Racing Fuels' Vice President of North American Sales Bruce Hendel explained. "A lot of people don't realize that VP has 20 or 23 fuels with a certain percentage of renewables already in them. With European series, especially those that run under FIA sanction, there's a bigger push for a higher percentage of renewables, and those fuels are more readily available now outside the United States."

In Hendel's estimation, the public demand for cleaner vehicles in the European Union has meant a quicker pace developing clean fuels than North America has experienced to date. No worries, Hendel said: VP already has an extensive presence in Europe, the Americas, and Asia, and is prepared to formulate fuels for North American racers as environmental and regulatory challenges continue to evolve.

"As things develop here stateside, we will incorporate more renewables into the fuels," Hendel said. "It just has to be economical. We could go out and buy up fuels overseas,

import them, spend all that money on transportation, but that kind of defeats the purpose of using renewables to begin with, because creating more greenhouse gases shipping it over here to blend with other fuels is ridiculous. We're also looking at possibly blending fuels outside of the US."

For many people, "renewable" and "ethanol" are used interchangeably, which, in Hendel's view, can be misleading. For example, VP sells a version of E85, but it's a long way from the fuel at the neighborhood pump. For the US mass market, renewable fuels can be called E85 even if their ethanol percentage is around 50%. As Hendel explained, "We're not selling a pump E85, but rather a performance E85. Those formulations from the gas pump can be anywhere from 50–85%, so it's not consistent. Our 15% is a high-quality, high-octane race fuel, as opposed to pump gas, so we're always consistent."

The number of fuel blends VP offers is dizzying, including versions of racing E85



Bruce Hendel



Designed to improve visibility, VP Racing Fuels has embarked on opening VP-branded gas stations across the United States, with approximately 370 so far, which will also sell competition-related fuels at the retail level. VP's goal is to reach 1,000 such outlets within five years.

blended with unleaded gasoline. Renewable formulation will be evolving in the future, possibly in line with the EU. Europe is increasingly relying on second-generation renewable fuel, which is distilled from food waste, as opposed to first-generation ethanol, primarily used in North America, which is refined from plant matter directly. "You're using byproducts instead of the plant with second-generation renewables," Hendel continued. "There's not too much of that here in the States just yet. It's the political environment (in Europe) that pushes that."

Product evolution at VP will continue as market conditions dictate, Hendel said. "The trend is slightly moving toward unleaded fuels, as opposed to leaded fuels, and we have a number of unleaded fuels that we already produce. But for those applications that do need a higher octane, it's very, very difficult to get to it without the use of tetraethyl lead. Drag racing would have to migrate to a totally different engine setup."

From its earliest days in drag racing, with Pro Stock immortals Bob Glidden and Warren Johnson as early customers, VP Racing Fuels now has a presence in a constellation of motorsports disciplines, series, and sanctions. And yet, as Hendel expressed it, people outside racing know little or nothing about the company. In recent years, the firm has embraced an ongoing strategy to make sure its visibility improves, permanently. VP has embarked on opening VP-branded gas stations across the United States, about 370 so far, which will also sell competition-related fuels at the retail level. VP hopes to have 1,000 such outlets within five years. **PRI**



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PRI MOTORSPORTS RETAIL BUSINESS SURVEY: GROWTH SECTORS

Our annual report on racing and performance retail companies identified many whose fastest-growing segments fall outside of their core market. Here's how several of those businesses are incorporating these additional profit-makers into their operations.

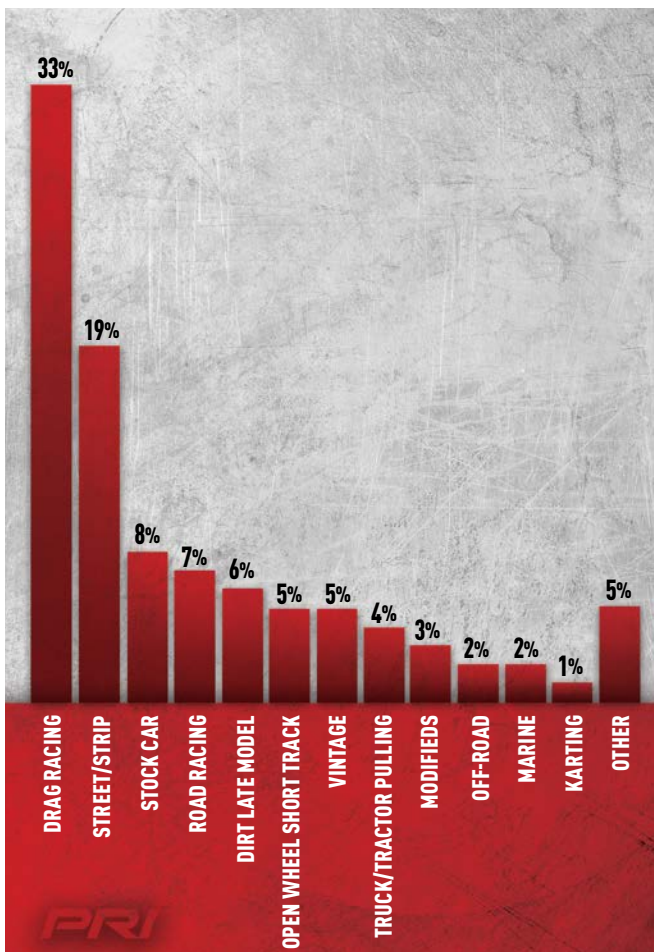
By Jim Koscs

Specialization can be the key to success for a racing business. When the opportunity arises to branch into other segments, some may view it as a welcome growth opportunity, while others, especially those with just a few employees or a work backlog, may be less interested.

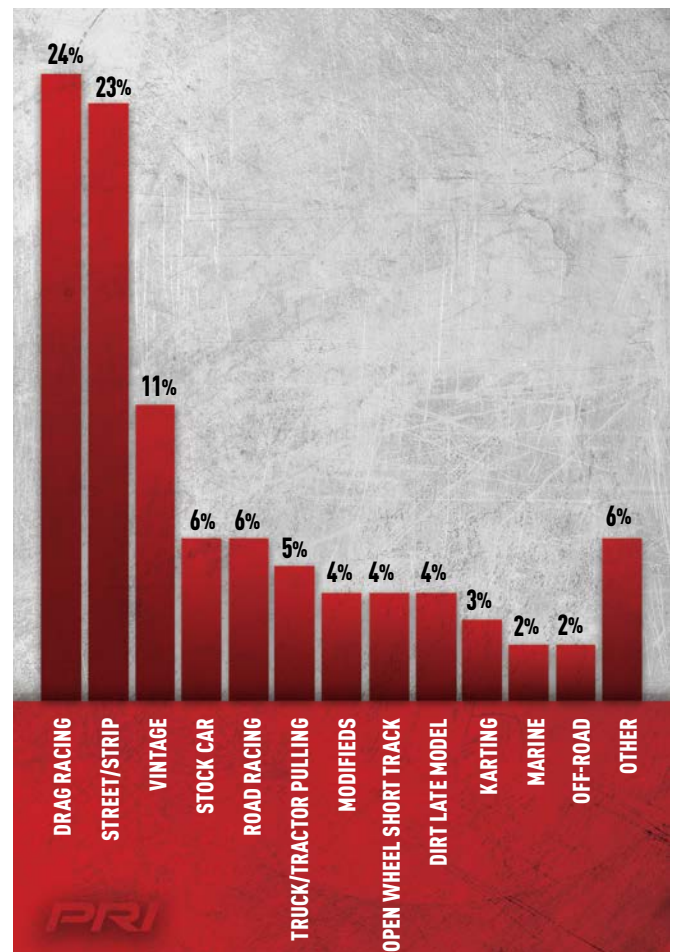
But what happens when demand from a new segment

basically walks through the door? Do they turn it away, or adapt and handle it? Stemming from our annual Motorsports Retail Business Survey, PRI talked to the owners and/or operators of six racing and performance shops who faced that question and took on the new work. Here's how they rose to the challenge.

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DIFFERENT, BUT SIMILAR

For some businesses, branching into a new racing segment is made easier by the fact that it's not that different from what they are already doing. Steve LeSueur's Fast Fuels in New Canton, Virginia, has traditionally focused on providing fuel for drag racers, yet the growing popularity of truck and tractor pulling in his area is shifting his customer mix.

"There's a smaller number of truck and tractor competitors, but these guys spend a lot of money on their trucks," LeSueur said. "We see more modified trucks using motors very similar to drag racers." The engines may be similar, but the usage isn't. "They don't go through as much fuel as drag racers."

Paul Gavenda's "one-man shop," Gavenda Engines in Batavia, New York, used to specialize in stock car engines. But with the reopening of local drag strips, and the popularity of Street Outlaw type of racing, he's shifted to doing more drag race engines. What do they have in common? "When racers see another car going faster, they find out who did the motor, and you get a ton of work out of it," he explained.

He and his son helped that along by building a drag car—a 1979 Malibu—of their own. "When customers saw it, they'd say, 'I didn't know you did drag racing stuff.' The next thing you know, we were swamped with work."



Modifieds are one of the fastest-growing segments in motorsports, opening new opportunities for shops that cater to it. "I'm now two months behind with work, in part because I'm working more with modifieds," said our source at Roxbury Racing Transmissions.

Gavenda still works alone and chooses the work he wants to do. He figures he has about 20 racers he builds engines for. "I'm always booked out about three months."

Gavenda does see a difference between the stock car and drag racers: "Drag racers spend more. When they do their first engine with us and see how well it runs, the next time they come in, they're not afraid to spend even more to go faster."

Like Gavenda, James Roxbury of Roxbury Racing Transmissions in Princeton, Minnesota, is a one-man shop that, for most of 20 years, specialized in stock car customers. Lately, though, modifieds have become the fastest growing part of his business, which

has changed the rhythm of his work.

"A few years ago, it would get slow during the wintertime in Minnesota because people weren't racing," he explained. "These days, there are many races throughout the country, year-round. I'm now two months behind with work, in part because I'm working more with modifieds."

Dirt late model is RaceDay Safety's main market, but Kevin Shaw said the Dallas, Georgia, company saw a need to equip young racers who were entering the sport through karting. "Karting has been growing, so we've increased our kart gear stock." Oval racing is more popular than road-course racing in his area, "but we do sell gear across the country, and that typically is for road-course karting."

Shaw welcomes a trend on both sides of the business. "Today, customers aren't looking for the cheapest helmet. They're willing to spend more for the graphic helmets now, because they want a little more pizzazz."

MAKING THE MOST OF THE MACHINERY

HPH Machine in Annandale, Virginia, builds engines and sells parts primarily for dirt track racers. "But street modifieds are my fastest growing business," said Frank Harris, and he has become a specialist in setting up distributors.

"Not many shops do distributors or have the machine for it, so I'm almost exclusive in the area," Harris said. "People send me distributors from all over." A popular job is



Karting remains a highly attractive—and still relatively affordable—entry point for young racers seeking to ascend the competition ladder. Its growth across certain parts of the country has prompted some retailers that specialize in full-size race cars to increase their kart gear inventory that includes helmets, gloves, suits, and shoes.



Like many motorsports businesses, Mike & Sons Machine Shop uses social media as a primary tool for bringing work into the shop. In fact, the shop has benefited by posting LS engine upgrades on its Facebook page.

converting a traditional points distributor to a PerTronix unit. “It’s a very good business for me. The street and muscle car guys love it, because it keeps the stock look but runs a lot better.”

Street modifieds are also a growing business for Mike & Sons Machine Shop, which machines parts and rebuilds engines in El Paso, Texas.

“I think the reason is because we’ve been investing in upgrading our machines,” said Allyson Palombo. “We’ve been getting a lot of LS engines that people are upgrading and modifying.”

MARKETING VIA FACEBOOK—OR NOT

Mike & Sons, like many of these small businesses, uses social media, in this case Facebook, to get the word out about its services. “We don’t invest in traditional advertising or marketing,” Palombo noted, other than allocating a small amount of


money for T-shirts given away with every engine rebuild.

Instead, the shop has received a lot of attention—and work—by posting LS engine upgrades on Facebook. “These customers are spending more on the machine work and parts,” Palombo said. “Thankfully, our customers spread the word so that we haven’t had to invest in marketing. Our customers and Facebook have been good to us.”

LeSueur also uses Facebook and Facebook Marketplace to post about new stock available at Fast Fuels, though he has noticed that his drag race customers, not the pullers, “are more receptive” to the effort. More powerful than social media for him is word-of-mouth. “Racers know I have inventories readily available from the larger race fuel manufacturers.”


Word-of-mouth also works for RaceDay Safety, Shaw said, though he also maintains a robust website and keeps tabs on

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Kevin Shaw of RaceDay Safety has noticed a significant rise in the popularity of karting. In addition, he said customers from all segments are spending more on graphic helmets. "They want a little more pizzaz."

Internet search results. "We concentrate on key words for Internet searches, and our website navigation is simple and user-friendly. We only use social media occasionally. Word has spread that we have product in stock and available. Typically, we list our inventory on our website, which has helped business. We've also added additional shelf space to accommodate our karting customers."

Roxbury said he "does some advertising" for his transmission business "but not much marketing because I'm so busy already." He does use Facebook, "but I don't post often because I'm swamped." His posts may be infrequent, but "Facebook brings me a lot of work," he said. "Recently, I posted a new manual that I compiled that I plan to send to all my customers. It got 1,100 views in one day."

For Gavenda, marketing his engine building business is "all word-of-mouth. I have never advertised in a magazine, or at a

track, and I don't use social media."

Harris said he's busy enough at HPH. "I'm 81. I don't do any advertising, and no social media." **PRI**

SOURCES

Fast Fuels

facebook.com/fast-fuels

Gavenda Engines

HPH Machine

hiper1.com

Mike & Sons

facebook.com/mikeandsonsmachineshop

RaceDay Safety

racedaysafety.com

Roxbury Racing Transmissions

facebook.com/roxbury-racing-transmissions-460097857380682

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RACE SENSOR CHOICE AND CARE

A data system is only as good as the sensor connected to it, so choose wisely.

By Rick Lawler

Choosing the proper sensor for a data system is as critical as selecting the proper camshaft for an engine. There are several considerations, beginning with the type of engine: two-stroke or four-stroke? Is a power adder, such as nitrous oxide, supercharger, or turbocharger used? Which fuel is being used, and at what rate is it being consumed? In this article, we will touch on all aspects for the race application and ensure that the crew chief or dyno shop can depend on smooth, accurate, and reliable information, because the data system is only as good as the sensor connected to it.

SENSOR SIZING

In the thermocouple world, the larger the diameter of the sensor, the longer it lives. The lifespan of a 1/4-inch sensor is about four times the life of a 1/8-inch sensor. So in the harshest environments, the larger sensor is recommended for the longest lifespan. But first note that there are three sizes common in most motorsports: the 1/8-

inch sensors, recommended for naturally aspirated engines that need extremely fast data like dynamometers or testing facilities; the 3/16-inch diameter sensors used in most powersports applications, such as snowmobiles, ATVs, and automobiles with lesser amounts of nitrous oxide; and the 1/4-inch sensors, which are suggested in anything that is supercharged or turbocharged, and for rotary engines since these are the harshest of environments.

CLOSED OR EXPOSED TIP

Closed-tip, ungrounded sensors can be used in street vehicles and diesel engines. Racers can also run open tips in these applications, but it is advised to only use them for short timeframes, as the sensor life will be greatly reduced in engines that use diesel or oils with sulfur, which can attack the exposed sensor tip and cause the wire to become brittle.

Grounded, Ungrounded, or Exposed Tip?
Never use a grounded sensor in

motorsports applications, as the sensor could pick up ignition noise and feed it to the data system. If you need an enclosed-tip sensor, make sure it's ungrounded, meaning the sensor wires internally do not touch the outer sheath. Exposed tips can work with all fuels and have an extremely fast reaction to temperature change found in a majority of motorsports applications.

SENSOR PLACEMENT

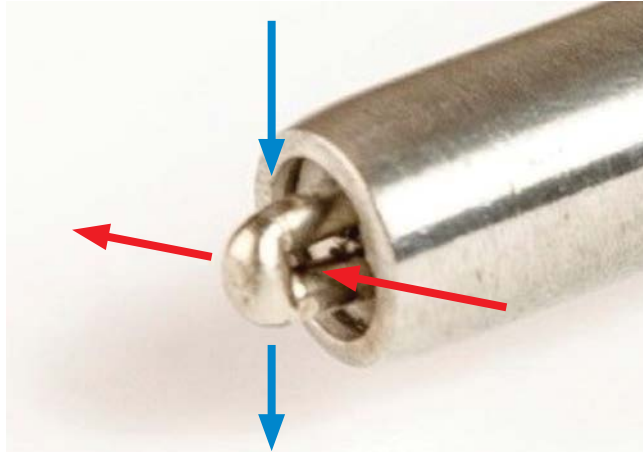
Recommended sensor placement on a four-stroke engine is four inches from the center of the exhaust valve, or two inches off the side of the head. For two-stroke engines, it's recommended to place the sensor 100 mm from the piston skirt, or what's recommended by the pipe manufacturer. Sensor insertion depth is standard at 1/4 inch to 3/8 inch into the exhaust stream.

SENSOR ORIENTATION

On exposed-junction sensors, it is critical that the sensor points in the correct direction



Proper sensor installation is critical to produce accurate readings. The sensors shown at far left are incorrectly installed with the exhaust flow, which results in hotter temperature readings than what is actually occurring. By contrast, the sensors at left are installed correctly. Note the sensor wire leads exiting the front or rear of the engine. This positions the sensor's tip so it streamlines the exhaust flow (sensors should only be installed 1/4-inch into the exhaust stream).



This detailed close-up of a sensor tip helps show proper exhaust flow direction: The correct flow would run down the tip vertically, from top to bottom, while an incorrect flow runs horizontally, or right to left.

“THE GOAL SHOULD BE TO TUNE JUST BELOW PEAK TEMPERATURES, AND TO BALANCE ALL CYLINDERS WITHIN 50 DEGREES FAHRENHEIT FROM EACH OTHER, FROM IDLE TO WIDE OPEN THROTTLE.”

to streamline the sensor tip. Check the end of the sensors to make sure the exhaust is not flowing through the center of the sensor tip, as this will show a hotter temperature than what is really occurring.

SENSOR CARE

Enclosed sensors are able to avoid moisture, but exposed-tip sensors will tend to wick moisture over time. If this occurs, the moisture will start to measure the temperature that is inside the sensor sheath instead of at the sensor's tip, called a secondary junction. While rare, this issue can be found in engines that use water injection, have excessive raw fuel down the pipe, or even get condensation from sitting in storage.

If you are unsure if there is moisture in a sensor, check the data. If that cylinder is colder by a few hundred degrees, or if there is an erratic reading, this could be the issue. Be sure to check with your engine builder first, but typically, the issue can be remedied by removing the affected sensors and putting the entire probe assembly in an oven for 24 to 48 hours at 275 degrees Fahrenheit to dry the sensor and return to like-new readings.

TUNING TIPS

Tuning with exhaust temperatures is like climbing a mountain: The temperature will climb until you reach the peak, then will start to drop, like going down the other side of a mountain. When the engine starts to detonate, exhaust gas temperature will drop, while water or cylinder head temperatures will climb. So pay close attention to your data! The goal should be to tune just below peak temperatures, and to balance all cylinders within 50 degrees Fahrenheit of each other, from idle to wide open throttle. Trust us, your engine will thank you! **PRI**

Rick Lawler has been the sales manager for Exhaust Gas Technologies (EGT) since 2006. Based in Chino, California, EGT specializes in high-performance thermocouples for motorsports and industrial applications. The company is world-renowned for developing the “Super X” EGT Sensor, which EGT calls the fastest and toughest sensor on the planet. In addition, Lawler is an avid drag racer and currently campaigns a 1964 Dodge Polara in Nostalgia Super Stock.

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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, D.C.-based advocacy team work continuously to protect tracks, sanctioning bodies, and motorsports businesses around the nation. This month we are tracking several initiatives, including opportunities for motorsports manufacturers to connect with their lawmakers, an update on California Gov. Gavin Newsom's executive order seeking to phase out new diesel- and gas-powered cars, a win for youth motorsports in Wisconsin, and more.

MOTORSPORTS BUSINESSES: TIME TO HOST YOUR LAWMAKERS

Do you want members of Congress to pass bills that protect motorsports and enable the racing parts industry to thrive? If the answer is yes, now is the time to get involved with PRI's efforts to connect industry businesses with their members of Congress.

Whether in Washington, D.C. or state capitals around the country, public policy battles are won by organized interests that have relationships with lawmakers. The organizations that shape public policy are comprised of businesses and individuals who

know their lawmakers. More importantly, their lawmakers know them.

Hosting members of the U.S. House of Representatives and Senators at your businesses is integral to developing meaningful relationships with lawmakers that help them understand the industry so they can advocate for policies that defend and grow it. If you would like to get to know your members of Congress, PRI is ready to help!

The first step in developing these relationships is to introduce yourself and invite them to your business. PRI staff will draft up an invitation, send it to your lawmakers, coordinate the visit by providing a briefing prior to the event, and manage day-of logistics in coordination with you and your company. The PRI government relations team is ready to do the heavy lifting! If you'd like to host your elected officials, please email Eric Snyder, PRI's Director of Congressional Affairs, at erics@sema.org.

PRI HELPS HONOR INDUSTRY LEADERS AT NCMA CEREMONY

The North Carolina Motorsports Association (NCMA) recently hosted its NC Motorsports Industry Ceremony presented by Fifth Third Bank. The event, held in Concord, North Carolina, honored NASCAR Hall of Fame championship team owner Joe Gibbs for his outstanding contributions to the sport with the Achievement in Motorsports Tribute Award.

Additional honorees included longtime Rockingham Dragway owner Steve Earwood; the Town of Mooresville, North Carolina; Speedway Children's Charities; and Toyota Racing Development. Larry McReynolds was also honored with the Jim Hunter Memorial Media Award.

PRI Track Ambassador Tom Deery was on hand to support the event, which took place at the Embassy Suites Charlotte-Concord Resort. PRI was joined by District Director Brett Keeter and Regional Director Will Bowen from the office of U.S. Representative Patrick McHenry (R-NC), who is the lead sponsor of the Recognizing the Protection of Motorsports (RPM) Act. Also attending the ceremony was former Governor Pat McCrory, who is running for the U.S. Senate.

"With NCMA focused on racing and high-performance applications in the state of North Carolina—which I put on par with Indiana in that we're highly dedicated to the industry—it's great to see PRI, which is on a national scale, take an active role in supporting our state. It gives significant weight to what we do," said NCMA Executive Director David Miller.

The ceremony also provided the opportunity to update the industry on the latest advocacy efforts affecting motorsports, including PRI Membership and the vital RPM Act. The RPM Act (H.R. 3281 and S. 2736) is common-sense, bipartisan legislation 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.

"There are several things we're working on with PRI, but the biggest might be the RPM Act. We are raising awareness of this bill throughout the state, and as a result of these efforts, several congressmen in the state of



U.S. Rep. Jake Ellzey (R-TX) is seen here during a recent visit to Summit Racing Equipment in Arlington, Texas.

North Carolina are co-sponsors of the RPM Act," Miller said.

SRI and Stock Car Steel & Aluminum President and owner Greg Fornelli—who is also a PRI Founding Member and NCMA Chairman—echoed Miller's sentiments and, during the ceremony, stressed the importance of passing the RPM Act to those in attendance.

CA PROPOSES BANNING SALE OF NEW ICE-POWERED CARS BY 2035

The California Air Resources Board (CARB) has issued a proposal to implement Governor Gavin Newsom's 2020 executive order to phase out the sale of new diesel- or gas-powered cars in the state by 2035. The proposal, summarized in the "initial statement of reasons" (ISOR), would require 35% of new cars, SUVs, and small trucks sold to be zero-emissions starting in 2026, increasing to 68% in 2030 and 100% in 2035. The proposal also sets first-time durability, warranty, and other provisions on zero-emissions vehicles.

If adopted, the regulations could pave the way for other states that have pledged to follow California's standard for previous clean-car rules to adopt similar proposals, including Colorado, Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Virginia, Washington, and Washington D.C.

"So far, Massachusetts, New Jersey, and Washington state have announced they will follow California's lead to ban gas-powered cars. Washington set a goal of 2030, while the others are consistent with 2035. However, these other states have not issued implementing and enforceable regulations to require this, as CARB has just done. So, for now, this doesn't impact enthusiasts out-of-state, although we will be closely monitoring this issue," said PRI/SEMA Legislative Analyst Caroline Fletcher.

The sale of used cars would not be affected under the proposal, and it would not force the current fleet of diesel- or gas-powered vehicles off the road. California manufacturers will still be able to make and sell components for internal combustion engines (ICE), as there is no prohibition on selling parts for these

vehicles, and no move to force the fleet of used-ICE vehicles off the road.

A public hearing will be held on June 9. CARB is expected to vote on the proposal in August.

PRI will continue to provide updates on this proposal. For more information, contact Caroline Fletcher at carolinef@sema.org.

WI SCHOOL DISTRICT RECOGNIZES AUTO RACING AS HIGH SCHOOL SPORT

The Melrose-Mindoro School Board has announced Melrose-Mindoro High School is the first school in Wisconsin to offer auto racing as a "letter-able" sport for students.

The announcement follows the formation of the High School Racing Association (HSRA), a combined effort between La Crosse Fairgrounds Speedway (West Salem, Wisconsin), Madison International Speedway (Oregon, Wisconsin), and Tomah-Sparta Speedway (Tomah, Wisconsin). The group's goal is to provide young adults with an economical way to enter stock car racing and keep younger generations interested in the sport.

In order to have the opportunity to receive a letter from the school district, students must be in good academic standing, race in a minimum of four HSRA events at an HSRA-sanctioned race track, and show good sportsmanship.

"This is a huge step forward for the High School Racing Association series," said HSRA Director Jonathan Eckelberg. "The race tracks currently participating in HSRA are eager to grow the sport by getting young talent interested and involved. I am having many conversations with local high schools and hope other districts will see the value in allowing their student race car drivers to letter as well."

The HSRA features American production six-cylinder sedans with various safety enhancements. Students entering their freshman year of high school (minimum age of 14), current high school students, as well as those just graduating from high school (maximum age of 19), are eligible to compete. Athletic Director Heather Young will serve as the HSRA advisor at Melrose-Mindoro. **PRI**

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INDUSTRY NEWS

PRI TRADE SHOW HOUSING OPENS JUNE 14

Hotel reservations for the 2022 Performance Racing Industry (PRI) Trade Show—December 8–10 in downtown Indianapolis, Indiana—will open online at performanceracing.com/hotel-travel/ reservations on June 14, at 10 a.m. EDT.

PRI is once again proud to team up with the Visit Indy Housing Bureau as the only official housing partner for the PRI Show.

For questions, contact Visit Indy Housing at prihousing@visitindy.com or 317-262-8191, available Monday through Thursday, 8:30 a.m. to 5 p.m. EDT.

RWB ACQUIRES TRANSMISSION BUSINESSES

Race Winning Brands (RWB), a portfolio company of MiddleGround Capital, has announced the acquisition of RevMax, TransGo, and Transmission Specialties, Inc. (TSI). The trio of transmission performance business acquisitions represents the 10th, 11th, and 12th add-ons for RWB.

Headquartered in Charlotte, North Carolina, RevMax specializes in performance aftermarket transmission products from standard street vehicles to high-performance diesel cars.

A 62-year veteran in the transmission industry, TransGo in El Monte, California, offers advanced automatic transmission solutions, proprietary valve body repair kits, valve body performance kits, and other specialty components, including its “Shift Kit.”

Based in Aston, Pennsylvania, TSI offers US-manufactured products for the high-performance transmission and converter industry.

Frank Kuperman will remain the president of RevMax, TransGo, and TSI, and the businesses will continue to operate from their respective locations.

MELLING ACQUIRES CASALANDRA METAL STAMPING

Jackson, Michigan-based Melling Engine Parts has announced the acquisition of Casalandra Metal Stamping, a manufacturer of expansion plugs in New Castle, Pennsylvania.

“Casalandra Metal Stamping...[has been] grateful to have served our customers for 70-plus years and have the utmost trust in Melling to continue this service. While passing on our family business was not an easy decision, it is one made with confidence in Melling's ability to continue business on a personal level,” said Merit Wish Phillips of Casalandra.

GM TO PRODUCE HYBRID, ELECTRIC CHEVROLET CORVETTES

General Motors (GM) in Detroit, Michigan, has announced plans for a hybrid Chevrolet Corvette sports car, followed by a fully electric model, GM President Mark Reuss announced. The hybrid Corvette is expected in 2023.

The fully electric Corvette will feature GM's Ultium-powered batteries. In addition, it will likely feature Ultium Platform's energy recovery system, a patented onboard system designed to take the heat generated by EV batteries to warm the cabin, create more efficient charging conditions, and increase vehicle acceleration.

Reuss stated that the new models would be produced in addition to the new Chevrolet Corvette Z06 and other gas-powered variants.

NEW OWNERS FOR MAPLE GROVE RACEWAY (PA)

Veteran NHRA racer Kenny Koretsky and his family, including his sons Kenny Jr. and current Pro Stock driver Kyle, have purchased Maple Grove Raceway.

Located near Reading, Pennsylvania, the track has hosted NHRA Camping World Drag Racing Series events for nearly four decades, and will host the opener to the NHRA Countdown to the Championship, the Pep Boys NHRA Nationals, on September 15–18. Maple Grove also hosts regional racing throughout the season.

CLIFF FLANNERY PURCHASES CRANDON INT'L RACEWAY (WI)

Crandon International Raceway management has announced that the historic

facility in Crandon, Wisconsin, and all of its assets have been purchased by Cliff Flannery, the track's longtime president.

The 400-plus-acre track has hosted some of the largest off-road races in the sport, including June's Forest County Potawatomi Brush Run, Labor Day's Polaris World Championship Off-Road Races, and Red Bull Crandon World Cup.

FORMULA E, FIA REVEAL ALL-ELECTRIC GEN3 RACE CAR

Formula E and the Fédération Internationale de l'Automobile (FIA) have unveiled the third-generation Formula E race car.

The Gen3 is the world's first race car designed and optimized specifically for street racing, Formula E stated, and will debut in Season 9 of the ABB FIA Formula E World Championship. Performance upgrades to the Gen3 will be delivered as software updates directly to the operating system built into the car.



The new Gen3 race car will debut in Season 9 of the ABB FIA Formula E World Championship in 2022–2023.

Seven OEMs have registered to race in Season 9: DS Automobiles (France), Jaguar (UK), Mahindra Racing (India), Maserati (Italy), NIO 333 (UK/China), Nissan (Japan), and Porsche (Germany).

NASCAR ANNOUNCES 2023 HALL OF FAME CLASS

NASCAR has announced its inductees into the NASCAR Hall of Fame Class of 2023. The three-person group—the 13th since the inception of the NASCAR Hall of Fame in 2010—consists of two Modern-Era inductees, Matt Kenseth and Kirk Shelmerdine, and one Pioneer inductee, Hershel McGriff. In addition, Mike Helton was named the recipient

of the Landmark Award for Outstanding Contributions to NASCAR.

For the first time since 2019, members of the NASCAR Hall of Fame Voting Panel—comprised of NASCAR representatives, Hall of Fame inductees, track owners, media members, and more—met in an in-person closed session to vote on the nominees.

Results for the NASCAR.com Fan Vote were AJ Foyt (Pioneer), Matt Kenseth (Modern Era), and Harry Gant (Modern Era).

The ceremony is set for January 20, 2023, at the NASCAR Hall of Fame and Charlotte Convention Center in Charlotte, North Carolina.

MOTORSPORTS HALL OF FAME OF AMERICA NAMES 2023 CLASS

The Motorsports Hall of Fame of America (MSHFA) has announced its 2023 induction class, which will be honored during the 35th Motorsports Hall of Fame of America Induction Celebration presented by Toyota Racing, in Daytona Beach, Florida, March 6–7, 2023.

The Class of 2023 includes the “Father of the Corvette and Corvette racing,” the late Zora Arkus-Duntov (Sports Cars); longtime USAC official and safety pioneer, the late Henry Banks (Historic); America’s enduro racer, Dick Bursleson (Motorcycles); Air pilot racer, the late Art Chester (Aviation); one of NASCAR’s most innovative crew chiefs, Ray Evernham (Stock Cars); early NASCAR fan favorite, the late Fonty Flock (Historic); one of the NHRA’s “50 Greatest All-Time Drivers,” Darrell Gwynn (Drag Racing); land speed record-setter, the late Ab Jenkins (Speed Records); and two men who revolutionized race track emergency services, Dr. Stephen Olvey and Dr. Terry Trammell (Open Wheel).

ELDORA SPEEDWAY (OH) NAMES NEW GM

Eldora Speedway—the 1/2-mile clay dirt oval in Rossburg, Ohio, owned by three-time NASCAR Cup Series champion Tony Stewart—has named veteran motorsports executive Jerry Gappens as its new general manager. Gappens succeeds Roger Slack, who has decided to “take a sabbatical from the industry.”

Gappens comes to Eldora from Indiana’s Gas City I-69 Speedway, where he has been the promotor of the 1/4-mile dirt oval since 2018.

ST. JAMES, PARETTA LAUNCH WOMEN IN MOTORSPORTS NORTH AMERICA

Seven-time Indy 500 starter and Automotive Hall of Fame inductee Lyn St. James and current IndyCar team owner Beth Paretta have announced the launch of the Women in Motorsports North America (WIMNA) organization.

WIMNA is a 501 (c)(3) nonprofit charity “that looks to foster mentorship, advocacy, education, and growth to help ensure a successful and effective future for women in professional motorsports roles.”

Resources include best practices at the race track, job listings, and a recommended reading list. The WIMNA Mentorship Matters Program, meantime, is a monthly, fireside chat-style virtual discussion for industry members to interact with mentors and moderators.

BRIAN ROWLAND JOINS JEGS AS CEO

Arkansas native Brian Rowland has been appointed as chief executive officer (CEO) of JEGS High Performance Parts, the aftermarket auto parts mail-order retailer founded in 1960 by the Coughlin family.

In his new position, Rowland will help oversee the company, which features a 10,000-square-foot retail store and 225,000-square-foot warehouse and corporate headquarters in Delaware, Ohio.

Rowland comes to JEGS from Walmart eCommerce, where he served as the vice president/general manager of the Automotive, Tires, and Powersports division. Prior, he was with Nissan Motor Corporation as the director of Marketing and Technology.

SPEEDWAY MOTORSPORTS NAMES NEW VP OF BUSINESS DEVELOPMENT

Senior business executive and sales professional Devron Jeffers has returned to Speedway Motorsports as vice president of

Business Development for the company’s national sales team. He will be based in the Dallas-Fort Worth area and focus on national sales opportunities for companies headquartered in the central United States.

From 1997 to 2017, Jeffers held a variety of sales positions at Texas Motor Speedway. Most recently, he served as the chief revenue officer with the East Coast Hockey League’s Allen Americans.

WORLD PRODUCTS APPOINTS NEW DIRECTOR OF OPERATIONS

World Products in Louisville, Kentucky, has appointed Lance Stillwell as the company’s director of operations. In this role, Stillwell will oversee the development and manufacturing of



Lance Stillwell

World Products’ engine blocks and cylinder heads, and interact with customers.

In 1997, Stillwell founded the parts provider and engine builder Motorsports Unlimited in Terra Haute, Indiana.

PFC BRAKES NAMES NEW DIRECTOR OF GLOBAL MOTORSPORTS

PFC Brakes, the brakes manufacturer based in Clover, South Carolina, has announced the promotion of Luis Maurel to the role of director of global motorsports.

Maurel will manage the company’s race department and help expand into sports cars and other professional motorsports segments around the world, a company source said. He will also manage PFC Brakes’ involvement as providers for series, including the NTT IndyCar Series, Superstar Racing Experience (SRX), and Renault Sport Series.

For all the latest motorsports industry news, visit primag.com/industrynews.

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SOCIAL STATUS

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

Engagement, which incorporates the likes, comments, and shares on a post is typically a high priority on social media; it's also a common metric for evaluating performance.

Recently, however, social media engagement has taken a turn, according to our industry sources. "In 2022, I have seen an extreme decline in engagement, specifically on Instagram," said Jack Reusch, whose Reusch Racing manages social media for several motorsports-related accounts including Magnuson Superchargers, Sonoma Drift, DEVSPEED Motorsports, and more.

"I try to stay up to date on algorithm changes week by week, and from what I've learned, there are many different algorithms on Instagram that distribute content to followers/non-followers," Reusch explained. "Instagram has been trying to compete with TikTok, so for the past several months they have been pushing Reels heavily. Therefore, I've been creating more Reels to share."

A Reel is a short video clip, typically shot vertically from a smartphone. When posted within the Instagram app, there are creative tools that can be used for editing, adding audio and other special effects, and more;

TikTok is basically the same thing but with a few editing differences.

"At first, we were able to generate 2.8-plus million views a week consistently (on the Magnuson Superchargers account)," he added, "but even that has been slowly dropping week by week."

Many other companies have seen this type of decline, too, and are trying different tactics to rebuild their engagement. For starters, "I have tried to increase the quality of the content provided," Reusch said. And for Reels and TikTok, "by using shorter video clips, text, and audio that is not popular, we have seen more engagement.

"A short video of 5–20 seconds is optimal," he added. "It needs to be entertaining, informational, and/or engaging. You can utilize music and text to your advantage as well. With having text on the video, the viewer will read it, spending more time on that Reel, which benefits the algorithm. Having shorter clips with action provides a hook for the viewer. You have less than 1.5 seconds to capture their attention."

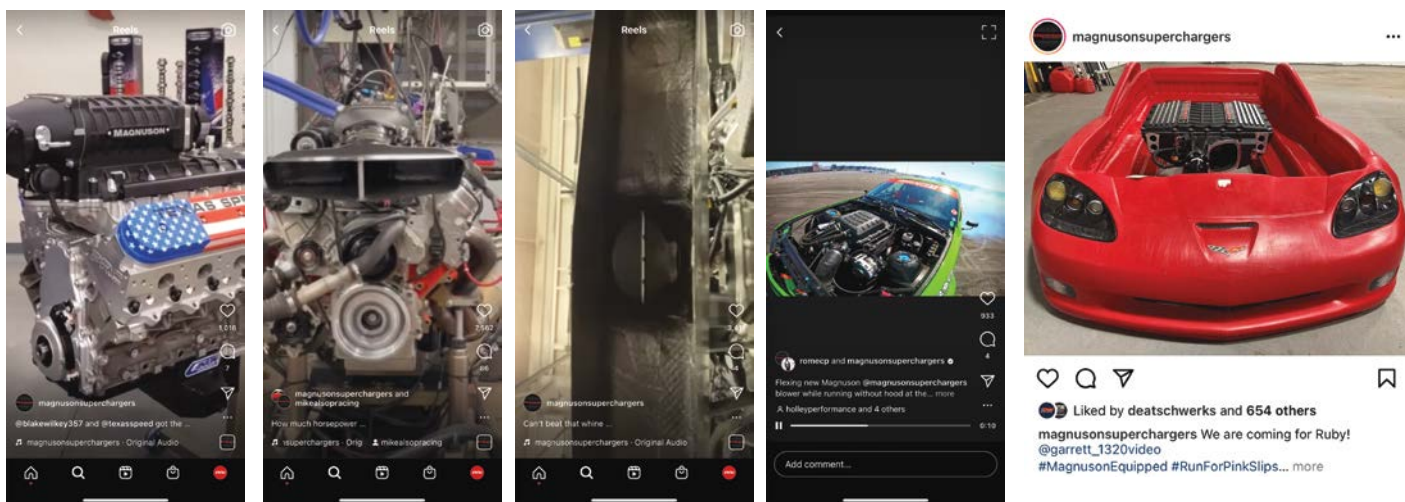
Videos can be filmed with a smartphone (in 4k 60 FPS for higher quality), and they should be cropped properly for the platform they're being shared on. Another

important factor for increased engagement is consistency. "Not every video will go viral, but creating more content often gives you more opportunities for engagement. Try different things often," Reusch advised.

TikTok and Instagram Reels have some of the highest engagement rates across social media at the moment. And the algorithm distributes content to a larger audience, including many non-followers, giving you the opportunity for a bigger following. "If you have 1,000 followers, you can create a Reel [or TikTok video] that gets 100,000 views in two days...for free! You just need a little bit of time and an idea," Reusch said.

Some tricks that may have worked in the past, though, appear to be unsuccessful now, or certainly less impactful. "A recent Instagram study has shown hashtags to be completely ineffective. And, reusing someone else's content will result in 'spam,' which then gets your post in front of fewer eyes," Reusch explained.

What we can tell you is that engagement will fluctuate as algorithms and users' demands change. So, to keep engagement up, stay up to date with algorithms, don't rely on old tricks, continue to try new things, and post more Reels and TikTok videos! **PRI**



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