

# PRI

PERFORMANCE RACING INDUSTRY MAGAZINE

## HOT RODS

INSIDE THE ENDLESS PURSUIT OF STRONGER,  
LONGER-LASTING COMPONENTS

### PRI TRADE SHOW

All roads lead to Indianapolis  
when the motorsports industry  
reunites in December

### RPM ACT UPDATE

Congress takes up the fight to  
save our race cars

### LIVESTREAMING

Do the benefits outweigh the costs  
for tracks, racers, and fans?





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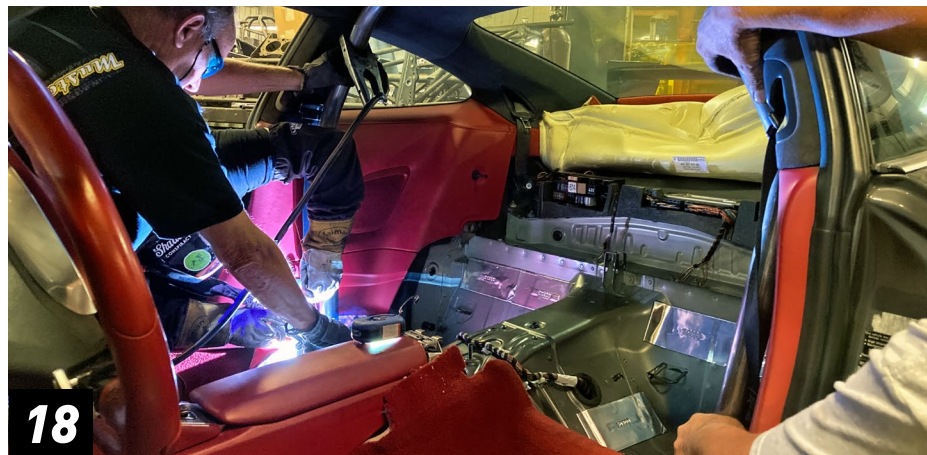
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# CONTENTS

JULY 2021 | VOLUME 36, NUMBER 7

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18

## From the President ..... 8

Dr. Jamie Meyer calls out the existential threat facing motorsports business owners and individual racers alike.

## From the Editor ..... 10

From pent-up demand for live events—and motorsports parts and services—to insiders' perspectives on opportunities for women in racing.

## Lead Position ..... 18

Roll cage selection and installation must factor in type of vehicle, sanctioning body rulebook, and the fabricator's skill level.

## All Roads Leading To Indianapolis For PRI 2021 ..... 20

The PRI Trade Show's host city, in concert with the Indiana Convention Center, has set the foundation for the industry's annual celebration of all things racing.

## PRI Membership: Forging Effective Government Relations ..... 22

One of PRI's Founding Members opens its doors to a state representative to discuss challenges, opportunities, and economic benefits to the local economy.

## COLUMNS

## Race Team Confidential ..... 26

This budget-minded Spec Miata racer is tackling some of the nation's most iconic race tracks, including Watkins Glen and Lime Rock Park.

## Ask the Experts ..... 28

Consider material, application, and whether a kit or custom solution is optimal when choosing and prepping this crucial piece of vehicle safety equipment.



30



36

## Tech Update ..... 30

A closer look—including troubleshooting strategies—at three of the most commonly occurring challenges presented by diesel fuel, regardless of application.

## Problem Solvers ..... 32

One leading motorsports manufacturer explains how an effective minimum advertised price (MAP) policy can both protect and benefit your business.

## Editors' Choice ..... 34

Introducing our top product picks for the month of July from Advanced Clutch Technology, JRI Shocks, and Wilson Manifolds.

## Make the Case ..... 36

Livestreaming can be a lucrative revenue source for race tracks, but the logistics and monetary considerations may be red flags for some promoters.

## Stop Doing That...Do This Instead..38

Improper grounding and poor wire connections are just a couple of the pitfalls to avoid when installing race gauges.

## Newly Appointed ..... 40

Berlin Raceway's new track manager shares his plans to keep this West Michigan pillar positioned as one of NASCAR's premier short track venues.

## Industry Insights ..... 42

As the new leader of GM's motorsports program, Mark Stielow tells us "there is going to be some exciting stuff going on in motorsports in the next few years" as he addresses electrification in motorsports, why internal combustion engines aren't yet ready to leave race tracks anytime soon, and the future of the Pro Touring movement.

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# CONTENTS

JULY 2021 | VOLUME 36, NUMBER 7

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## FEATURES

### Momentum Building For Reintroduced RPM Act .....58

The bill would safeguard motorsports from government overreach and overregulation. Here's why its passage is critical to your business.

### Special Report: Women in Motorsports .....62

A panel of accomplished female professionals discuss equality and expectations, and where there's still room for improvement in a traditionally male-dominated field.

### DIESEL MOTORSPORTS COVERAGE

#### Alive & Growing ..... 72

With participation—and power numbers—rising and ETs falling, diesel is one of the hottest forms of motorsports today.

#### Wound Up .....84

The diesel racing market remains cautiously optimistic for expansion as “getting back on track” and embracing new technologies stand out among stakeholders’ top priorities.

### Business Profile: Freedom Racing Engines ..... 90

This Indiana-based diesel shop's focus on perfecting its recipe has given rise to a brand that's as much about forging relationships as it is building race-winning power plants.

### Sealing the Deal..... 98

Manufacturers of gaskets and sealants caution users against “old habits” as products and technologies have evolved to meet the demands of both modern and vintage race cars.

### Racing's Heavy Act ..... 108

Connecting rod suppliers are taking note of the tremendous power levels generated when engines are boosted and tuned to the ragged edge. Here's how product development is following suit.

### Time Shavers ..... 116

Racers relying on seat-of-the-pants feedback are putting themselves at a disadvantage against those who leverage the precision of the latest chassis setup equipment. Learn why these tools are becoming more of a necessity as racers move up the competition ladder.

## DEPARTMENTS

Industry News.....122

Advocacy Corner.....124

Race Shop.....126

Catalogs .....130

Manufacturers Reps .....131

Advertisers Index.....133

Social Status .....134



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# FROM THE PRESIDENT

With the amazing growth our industry has enjoyed over the last 18 months, you might think racing is untouchable. Many established, old-school brands are up 50% to 100% in revenue over this time period. And while they are dealing with massive back orders and staffing issues, the racing industry is on a heater the likes of which we have never seen before.

Venture capitalists describe the motorsports parts manufacturing industry as "COVID-resistant," although "COVID-proof" seems more accurate. It's almost as if there is nothing stopping us.

But the reality is that there is a threat out there that has already rocked several companies in our industry.

Government overreach, specifically in the form of the US Environmental Protection Agency's misinterpretation of the Clean Air Act—and their subsequent raids and fines on race parts manufacturers—has put many of us on high alert. PRI's and SEMA's response to this activity has been our efforts to pass the RPM Act. This bill would allow for a very clear interpretation of the Clean Air Act: It would provide certainty that street cars can be modified into race cars and protect the manufacturing of race parts for just such activities. If you are just tuning in, you might realize that the street car-to-race car path represents the vast majority of our industry.

This has been a five-year battle to gain attention in Washington, DC, and align ourselves with lawmakers who support racing.

Although there were previous versions, the RPM Act that was recently reintroduced in the 2021–2022 Congress is different this time around. For one, the racing community has already sent 1.25 million letters to lawmakers urging its passage. And nearly 60 Representatives (as of press time) have cosponsored the bill. A Senate version of the RPM Act will be introduced by the time you read this.

We simply have to get attention for this bill amongst the other 10,000 pieces of legislation this Congress will see during

its term. Here's why: If we do not get the RPM Act passed, we will continue to be victimized by EPA agents and their individual interpretation of the Clean Air Act. And that is unacceptable.

Racers are a tough breed. We pull together when threatened. And I cannot think of a bigger threat to small business owners or individual racers than the one we now face.

These are important times for the racing industry, and we need to keep our collective eye on the future. Do your part by contacting your lawmakers in Washington at [www.saveourracecars.com](http://www.saveourracecars.com). I ask that you send our form letter, then send a personal letter, then send a picture of your company and your employees, then send a picture of your race car, then send a picture of your children learning life lessons at the race track. This is going to be a long campaign, and we need you in this fight until we win it.

Stay tuned to *PRI Magazine*, as well as our digital and social media platforms, for updates on the RPM Act, along with daily updates on our progress.

## INDIANAPOLIS 500 TAKEAWAY

The 105th running of the Indy 500 was a big deal—and not just because the race itself was pretty phenomenal. Indianapolis is leading the nation back to a normal state of person-to-person interaction.

This year was my first time attending this "spectacle of racing," and it was exactly that, with parades, national pride, and colorful pageantry. Racing, celebrated for its pure excess, was put in the spotlight as it has been for over a century. It was an almost religious glorification of speed, and I was completely taken in by the 135,000 other fanatics in attendance.

In fact, the 2021 Indy 500 was the largest sporting event to be held in the United States since the pandemic was first identified in March of last year. Again, as I have written in this column before, the motorsports industry is leading all other sports back to "normal." Congratulations





**DR. JAMIE MEYER**  
[jamiem@performanceracing.com](mailto:jamiem@performanceracing.com)

to the Penske team, IndyCar, the sport of racing, and the city of Indianapolis.

Of course, all of this plays to your advantage as you make plans to attend the PRI Trade Show on December 9–11. Get your hotel arrangements in order early, because it's going to be a really big Show! **PRI**

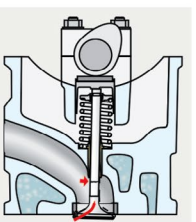
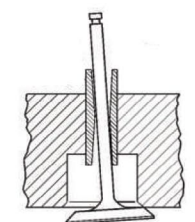
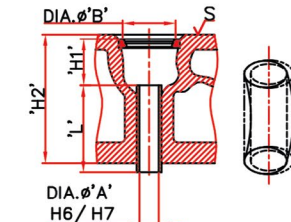
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## 'UNDERSTANDING GUIDES & SEATS TOLERANCES'

(Specifications most O.E.M'S use)



### Standard Valve Stem To Guide Clearance

Valve Stem Diameter	Intake Valves	Exhaust Valves
5 - 7mm	10 - 40 µm	25 - 55 µm
>7 - 9mm	20 - 50 µm	35 - 65 µm
>9 - 12mm	40 - 70 µm	55 - 85 µm

In case of air-cooled cylinder heads and high-performance engines, due to the higher thermal load - the upper range of the clearance tolerance is aimed for.

- Worn valve guides will damage valve stem & valve seat sealing.
- Valve seats - "accuracy & finish" - depend on valve guide precise tolerance.

### 'Valve Guide Machining Tolerances'

Dia. Ø 'A'	SURFACE FINISH	CIRCULARITY (Roundness)	CYLINDRICITY (Straightness & Roundness)
GUIDE BORE TOLERANCE (Ø 6-10 mm) H6 Ø 'A'-0.000 +0.009 mm (0.00035") or H7 Ø 'A'-0.000 +0.015 mm (0.0006")	0.5 Ra µm • 20 Ra µm • 3.8 Rz ISO	0.006 mm (0.00025")	0.005 mm / 50 mm L (0.0002" / 2" L)

### Valve Seats achievable accuracy on Robins Seat & Guide Machines (Plateau honed guides & seats)

'Fixed-pilot' axis & guide axis remain same while cutting seats. 'Rotate pilot in guide to check concen'	Concentricity & total run out < 0.005 mm. (0.0002")	Roundness < 0.003 mm (0.0001")	Surface Finish < 0.4 Ra µm
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New

### Technical Tip:

- Valve Seat surface finish & concen depend on:  
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### Inspection Gages / precision measuring devices to check:-

- Guide bore & taper within 0.002mm.
- Circularity below 0.002mm.
- Cylindricity 0.002mm / 50mm 'L'.
- Valve stem to valve guide exact clearance.
- Perpendicularity of guide axis w.r.t. top surface.
- Also -
- Seat Angle master gages, Air Gages & Surface finish measuring devices..

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# FROM THE EDITOR

Couple of things I think while arranging my TV viewing schedule around this month's Cup Series races in Wisconsin, Georgia, and New Hampshire:

## 1) I THINK THIS YEAR'S PERFORMANCE

Racing Industry (PRI) Trade Show is shaping up to be one of our best ever...for a few reasons. First, our host city of Indianapolis has proven to be an out-and-out trailblazer in the return to in-person events. As noted in our PRI Show update piece beginning on page 20, Indy's provided venues for numerous sports tournaments and professional conferences dating back to last year, with "many [of those] coming in from other states that wouldn't permit large gatherings," noted Sherry Seiwert, the president of Downtown Indy, Inc. That momentum has continued into 2021; you'll recall Indianapolis successfully hosted the entire NCAA Men's Division I Basketball Tournament (go Baylor!) along with an Indianapolis 500 (go Helio!) that played out brilliantly before 135,000 fans. Rest assured the city will be ready when PRI arrives in December. Meantime, demand for motorsports parts and equipment is absolutely off the charts. I've honestly never seen as steep or widespread a sales surge as the one manufacturers and service providers are currently experiencing. Plus, race tracks are now back to running full or nearly full schedules, and many are reporting healthy car counts in key series and classes. We all know these competitors are hungry for new products, knowledge, and solutions. And we can't wait to see our exhibitors "feed the beast" from the aisles of the Indiana Convention Center and Lucas Oil Stadium. So, while virtual alternatives may be OK for some, they'll never hold a candle to the value or excitement of a live event. You simply can't simulate the opportunities for sales, networking, education, and more that PRI offers racers year after year. Get ready, because the 2021 Show will be here, in a big way, before you know it!

## 2) I THINK THE RACING INDUSTRY

is making positive strides as a career destination for women. That's not just my



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opinion—it's based on feedback from the highly accomplished female motorsports professionals we spoke with for this month's Special Report, which begins on page 62. While women have found their place atop podiums for decades, the overarching question we had is whether those in non-driver roles face the same obstacles today as they did 30, 20, or even 10 years ago. Are the standards equal for a female vs. male CEO, track president, or engineer, or do they feel like more is expected of them? Is there more pressure to perform, or to "prove themselves" in a traditionally male-dominate field? Are there additional responsibilities, like being an advocate or mentor to other women in racing, that come with the job? Conversely, we also wanted to see where progress was being made. Were there barriers-to-entry for earlier generations of women that no longer exist? Are there more resources today that can help guide or encourage women to pursue motorsports as a profession? Are we, as an industry, becoming more inclusive? How so? Without giving away the farm, I did really like how Cara Adams, director of Race Tire Engineering and Manufacturing, and chief engineer of Motorsports at Bridgestone Americas, bottom-lined the relationship between her gender and chosen profession: "That's the beautiful thing about motorsports," she told us. "It's all about results. If I develop a tire that everyone loves, nobody cares if a man or woman designed it." **PRI**

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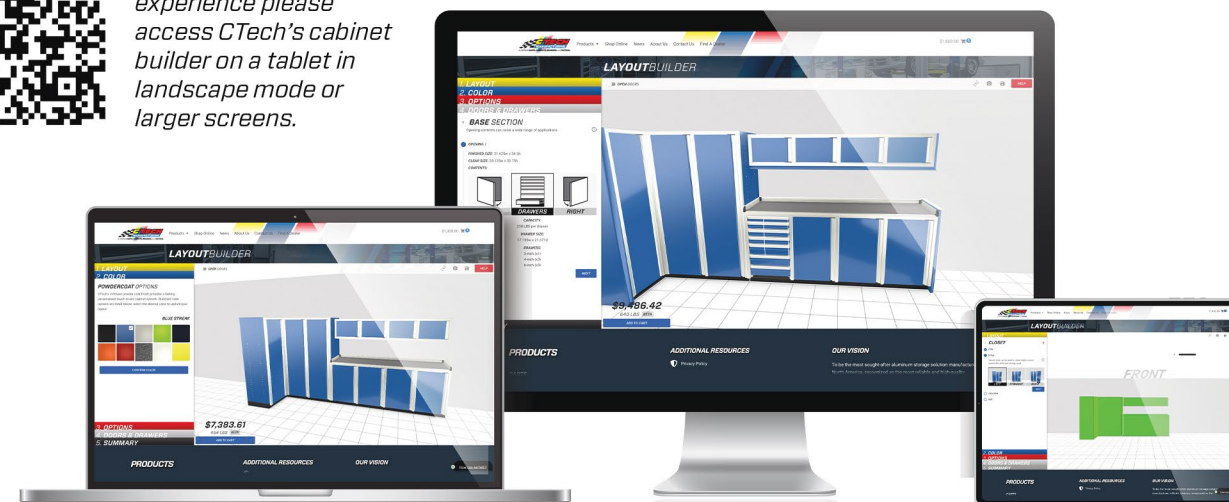


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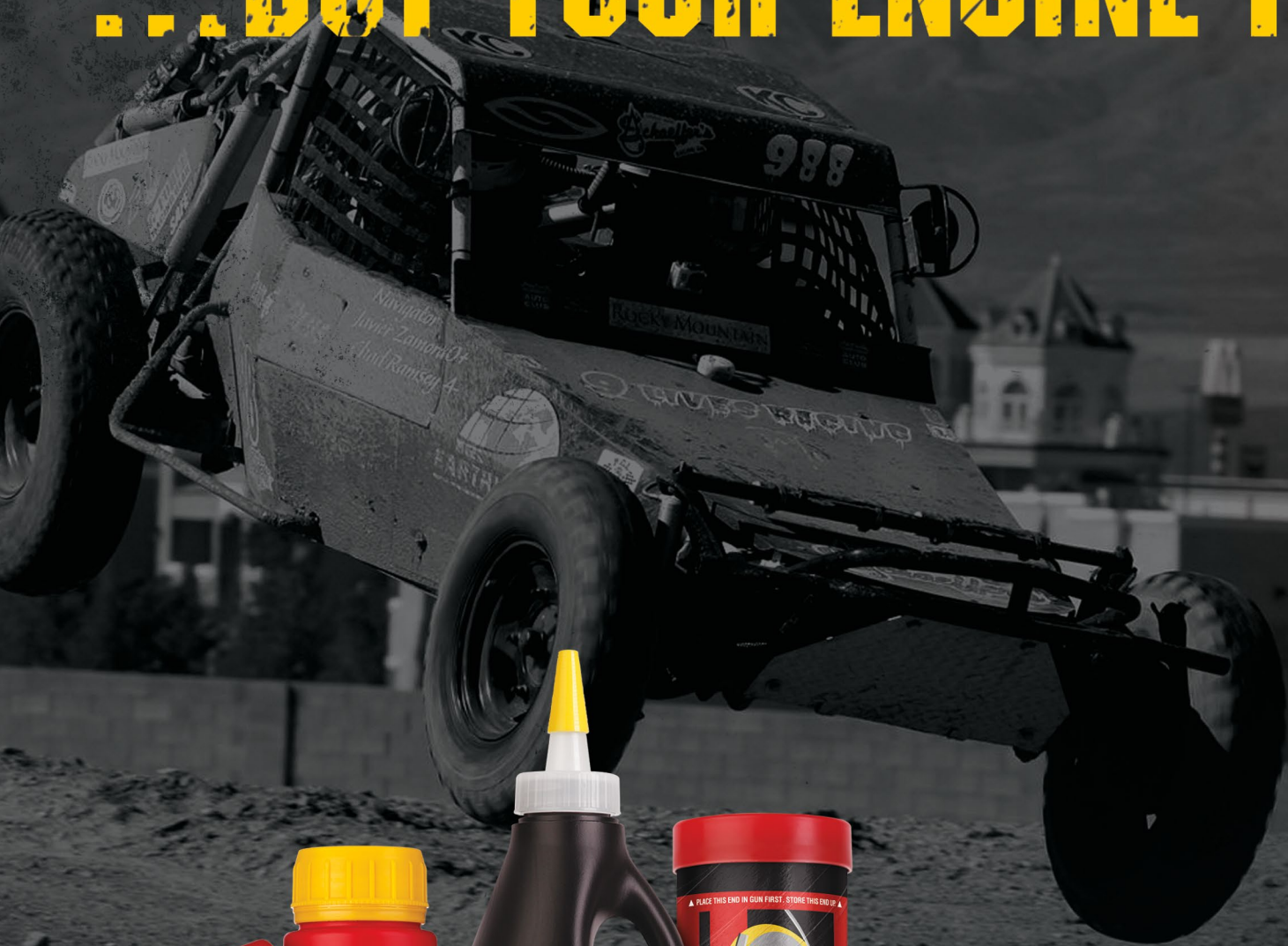
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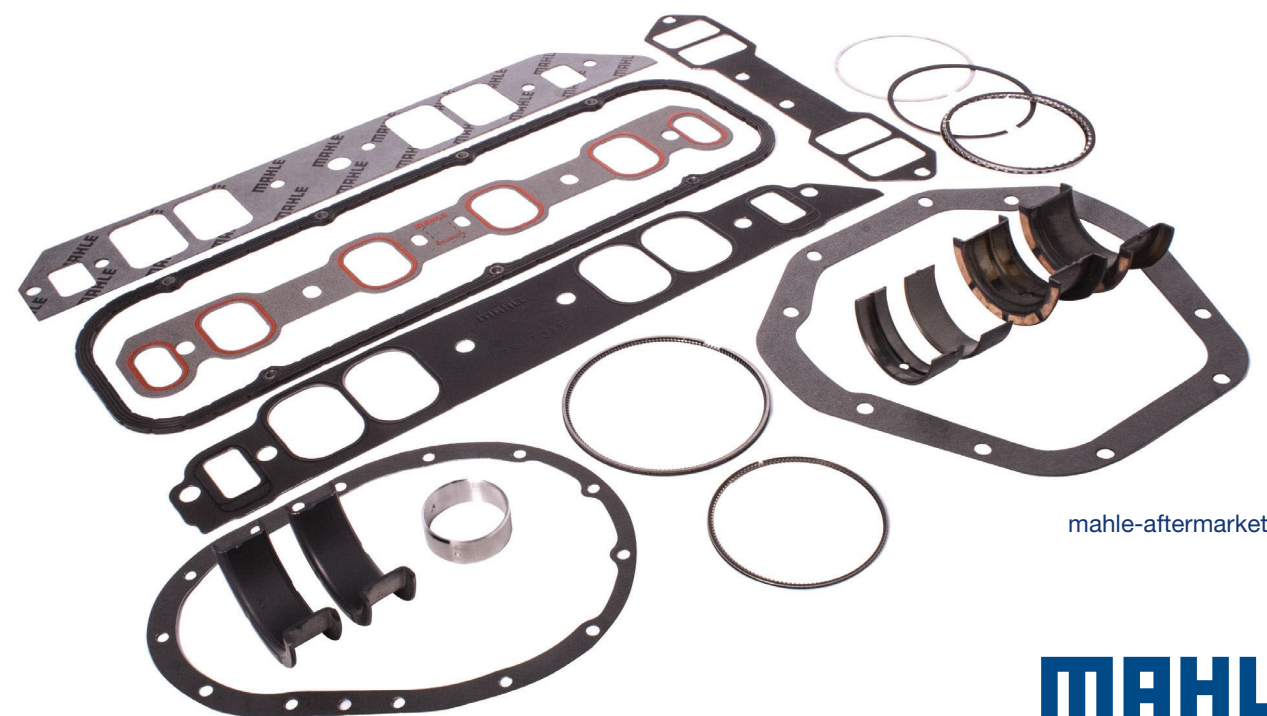
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## LEAD POSITION

Roll cage fabrication is no simple task. Even when they come pre-packaged as kits, these units require considerable skill and precision to install. Of course, before choosing a cage you'll want to consider the type of vehicle it's going into, as well as the application—road racing, circle track, drag, etc.—and sanctioning body whose rulebook must be followed. But there are also subtle, and sometimes not-so-subtle, differences in material options. And there's always that question of kit or custom, and how much additional work (i.e., welding) may still be required if you opt for the former. Which is why we called on the experts from leading suppliers Competition Engineering, Speedway Motors, and S&W Performance Group (pictured) to help steer car builders and racers in the right direction. Full coverage begins on page 28.





The motorsports industry's premier Trade Show, set for December 9–11, is back with a vengeance, fueled by “pent-up demand” and a host city that's leading the return of in-person events.

From PRI Staff

Dating back to the early 20th century—before there were bricks, when men like Louis Chevrolet were racing Sunbeams and Frontenacs—Indianapolis has been known as the motorsports capital of the world. So it's no wonder the world's premier event for racing professionals, the Performance Racing Industry (PRI) Trade Show, calls the Circle City home.

After a year of turmoil marked by a pandemic, industries shuttered, jobs lost, riots, a contentious national election, and more riots, the country, and more specifically the motorsports industry, is getting back to business in a big way. And Indy is leading the charge.

“We're excited to see Indianapolis keeping people safe as its convention business quickly returns to normal,” said PRI President Dr. Jamie Meyer. “Thanks to the city's actions, PRI will be back this December offering the racing community a productive face-to-face experience that promises to

help them build their business.”

It took months to develop following the initial spring 2020 lockdown, but using a pragmatic, focused approach, Indianapolis started holding in-person events again back in summer 2020. Our host city—working hand-in-glove with the Indiana Convention Center and local business leaders—launched a workable solution that has set the foundation for PRI's annual celebration of everything racing.

“It was a one-two punch (COVID-19

and civil unrest),” recalled Sherry Seiwert, president of Downtown Indy Inc. “...The turning point for us in having to figure out how we would put solutions in place. We brought a number of downtown stakeholders together, and it was a big undertaking. In July 2020, the city landed multiple large sports tournaments, many coming in from other states that wouldn't permit large gatherings. These events helped the city get back on the racing line.”

News spread quickly that Indianapolis not



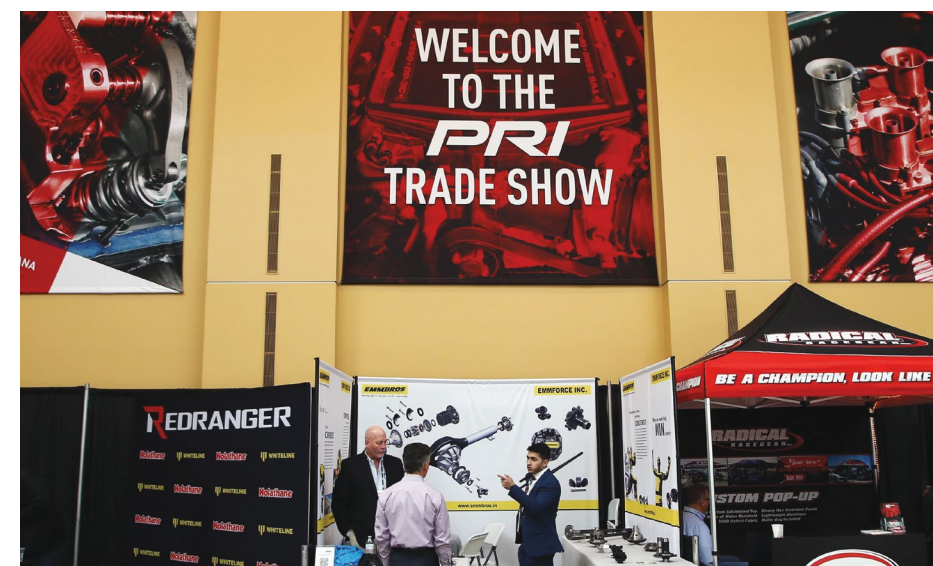
The city of Indianapolis quickly developed safety plans that have paved the way for in-person events and set the stage for PRI's return in 2021. Photo courtesy of Visit Indy.

only could, but was hosting events safely, and the bookings increased through 2020 and into '21. The Indy Eleven soccer squad was the first professional team to return to the field, followed by the NFL's Colts, the Indy Fuel minor league hockey team, and the NBA's Pacers.

Additional major event wins for the city include May's running of the 105th Indianapolis 500 (135,000 fans) and myriad trade shows as diverse as the “Sweet & Snacks Expo,” “FDIC International,” and “Die Casting Congress & Exposition.” By the time the PRI Show floor opens to visitors in December, Indy will have already hosted an estimated 500,000 race fans and conventioners.

To further safeguard indoor gatherings, the Indiana Convention Center has spent some \$7 million in health and safety upgrades, including improvements to the HVAC and air filtration systems; plus, it installed new touch-less features, and implemented a state-of-the-art deep cleaning system that regularly sanitizes high-touch areas.

“We've hosted some major events already this year, including the entire NCAA Men's Basketball tournament,” confirmed Nicole Perry, senior national sales manager for Visit Indy. “Pent-up demand for in-person events is clearly evident.”



Indianapolis officials have worked tirelessly to bring live trade and consumer events back to the American public. “We are looking forward to a very productive show in December,” said PRI President Dr. Jamie Meyer, “where the racing community will come together and plan the future of the business of racing.”

Serving as PRI's host city is no small task. After all, the Trade Show typically draws upwards of 1,100 exhibitors and tens of thousands of attendees from all 50 states and 70 countries. And this year, it's clear that Indy is more than ready to oblige.

“Indianapolis has been a great partner to PRI, and we are thrilled to see their progress

with bringing trade shows back to the American public,” Dr. Meyer added. “We are looking forward to a very productive show in December where the racing community will come together and plan the future of the business of racing.”

For more on the 2021 PRI Trade Show, visit [pri2021.com](http://pri2021.com). **PRI**

## REMEMBER WHEN—PRI SHOW EDITION

Anyone who's been to a PRI Trade Show no doubt has a favorite memory or meaningful experience or two that stands out from the rest. As it's been for 30-plus years, whether you're a racer, distributor, engine builder, fabricator, manufacturer, track owner, or otherwise call the motorsports industry home, PRI stands alone—an event like no other. But don't take our word for it...

**Name:** Carrie Enders, VP Marketing, RE Suspension

**# of PRI Trade Shows Attended:** 6

**What The PRI Trade Show Means To Me:** “The PRI Show is all of racing in one great location. All of our racers, our customers, our vendors—this is the one time of year we get to see everyone. It means ideas, innovations, goals, and successes.”

**Favorite PRI Trade Show Memory:** “I was 12 the first time I came to PRI with my dad, a NASCAR crew chief at the time. Twenty-five years later, to walk into that packed hall and see our booth, with our logo, and our products, and evidence of our years of hard work... it was amazing!”

**Name:** Bob Davis, Global Communications Manager, Sunnen Products Company

**# of PRI Trade Shows Attended:** 30

**What The PRI Trade Show Means To Me:** “The main purpose for attending PRI is business, but to me the best part is the friendships I have made, and being able to give back to the racing community. Through the annual Sunnen Engine Charity Sweepstakes, I have been part of a team that over the years has raised close to \$1 million for various charities such as the Petty family's Victory Junction camp for kids with serious medical issues. The opportunity to help others has meant a lot to me, and it would not have happened without the help and support of Sunnen and PRI!”

**Favorite PRI Trade Show Memory:** “PRI has always made sure the Show is a combination of business and fun, including racing-themed events such as go-kart races in the parking lot, the Twin 25 races at a local track, and even slot car races at the all-industry cocktail reception. But my all-time favorite was the year they had the Pit Stop Challenge during the cocktail reception. One minute I was standing there with a drink in my hand and the next minute I was changing the tires on a NASCAR race car trying to beat the other teams.”



# PRI MEMBERSHIP: FORGING EFFECTIVE GOVERNMENT RELATIONS

PRI Founding Member Forgeline Motorsports welcomes State Rep. Andrea White to its facility to discuss challenges, opportunities, and economic benefits to the region.

By PRI Staff

PRI's Government Affairs officer Christian Robinson wryly noted, "For PRI members who run businesses, it's always better to have good relationships with your lawmakers before you need them." This truth is especially important today. We in the racing business must often face off against overreaches in government regulation while at the same time working to partner with legislators—local, state, and federal—to foster economic growth in their districts. Good relationships help facilitate good outcomes.

The team at Forgeline Motorsports—a PRI Founding Member—recognizes the importance of having allies in government. Company owners David and Steven Schardt recently welcomed their State House Representative Andrea White to their Dayton, Ohio, factory.

White is a first-term rep for Ohio's District 41 that includes the area around Forgeline's factory in Dayton, and she saw the value in visiting the facility to better understand the company's current challenges, as well as its economic benefits to the region. Forgeline has been in business for more than 25 years making aftermarket and OEM alloy performance racing wheels for cars and light trucks. This past year the company has seen a significant increase in national and international sales.

White's visit deepened her understanding of the Dayton area's offerings in the global automotive, military, and aerospace industries. These economic sectors are key for the region's long-term success, but there are challenges that were discussed as she toured the facility. "The high level of quality, customization, and precision that goes into every wheel built by Forgeline's workforce was evident at every turn during my visit. Ohio's workforce development and support are key factors in helping our specialized manufacturers like Forgeline continue to meet the demands of their customers while balancing today's business challenges. I appreciated the opportunity to hear more about industry needs during my time at Forgeline," White told PRI.

Mary Miller of the University of Dayton Research Institute (UDRI) accompanied Representative White to further UDRI's long-standing relationship with Forgeline. Miller commented, "It was a great visit. It is important for our representatives to take an interest in local businesses."

Forgeline, like many companies with complex machining and manufacturing operations, is facing an acute shortage of qualified CNC operators and applicants skilled in Computer Aided Design. Good paying jobs are unfilled due to the shortage. "Dayton, being an engineering and manufacturing hub—filling these skilled positions of CNC operators as we continue expanding has proven difficult," noted Forgeline President David Schardt.

The group also discussed the burden of healthcare costs, and the practical issues related to out-of-pocket deductible expenses employees face even after they're covered by Forgeline's plan.

The success of Representative White's visit encouraged the Forgeline team to have Ohio Congressman Mike Turner visit their facility. If all goes as planned, they'll work to earn Turner's support for the RPM Act, a bill that protects Americans' right to convert street

vehicles into dedicated race cars, as well as the motorsports parts industry's ability to sell products that allow racers to compete.

PRI's Robinson works in Washington, DC, to help our members like Forgeline get their voices heard. The PRI team in DC can also be your company's starting point to access lawmakers and regulators. Robinson explained, "Our team can help your business get on legislative calendars, arrange official visits, develop talking points—these are critical, and you want them fully developed beforehand—all to help those in government understand the importance of the racing industry, and the economic impact of your business in your community."

Washington needs to know the positive economic impact of our racing community, and they need to know about the unreasonable burdens and unintended consequences certain regulations and laws cause for our industry. Meeting one-on-one is a great way to make this happen by building constructive relationships with those in power.

Robinson concluded, "When legislators get to meet their constituents, a light bulb really comes on. Legislators remember these interactions, and it makes a difference when laws or regulations are being drafted. These visits are a great way for our industry to be heard."

## FRONT-RUNNERS: PART TWO

Following is the second installment of our PRI Founding Member Front-Runners series. PRI exists because we—together—are strongest when we're united. The companies featured in this series illustrate the interwoven complexity of the racing industry. For example, this edition features a race track, an insurance provider, and two major performance parts makers. One can imagine a scenario where competitors and fans attend an event, and if any one of these categories of business is missing, the green flag can't drop.

By taking on Founding Member status, these companies are sending a clear message that they stand for our industry's today and tomorrow. And they're showing they stand with you, with the knowledge that our industry's collective political voice and economic power carries more punch than any one company's attempt to navigate today's legislative and economic challenges.

PRI Founding Member status remains available for a limited time for \$25,000 (with a payment option of \$2,500 per year over 10 years). In other words, for the cost of a modest Google display ad campaign, your company could position itself at the forefront of the racing industry. And Founding Member status also comes with practical bottom-line benefits, including invitations to officially organized networking events with other industry leaders. The first official Founding Member's event will be held at this year's PRI Trade Show in Indianapolis in December.

As you read more from your own industry's leaders, consider the membership option that's right for you or your company. Your involvement with PRI allows us to continue to build, promote, and protect your livelihood, as well as the prosperity of the entire racing and aftermarket community.



As Ernest Hemingway famously quipped, "There are only three sports: bullfighting, motor racing, and mountaineering; all the rest are merely games." This quote notes the inherent risk we take on, for example, as drivers, crew members, and track operators. Trusting luck is risky, and while we all roll the dice every so often, it's best to (literally) have insurance, and that's where Sports Insurance Specialists, LLC (SIS) of Fort Wayne, Indiana, comes in.

Insurance is not considered a favorite subject, but the reality is that we all recognize the need for it in our personal and professional lives. In the business of motorsports, it's important to partner with an insurance provider that understands the space.

*"IT'S IMPORTANT TO KEEP THE MOTORSPORTS INDUSTRY CONNECTED, RELEVANT, AND RACING. PRI IS NOT ONLY A KEY RESOURCE FOR RACING ENTITIES AND FANS, IT'S A CATALYST THAT PROMOTES OUR COLLECTIVE INTERESTS IN THIS AMAZING SPORT."*

—JEFF LADD, PRESIDENT, SPORTS INSURANCE SPECIALISTS, LLC



When racing's top teams go looking for a partner, who's on the short list for cranks, connecting rods, camshafts, and other key engine components? For the Detroit Three, as well as numerous imports, Mullins Performance, Pat Musi Racing Engines, Kalitta Motorsports, and many others, the choice is Callies Performance Products, Inc.

Working from their headquarters in Fostoria, Ohio, Callies pushes the envelope of technology and manufacturing with state-of-the-art design and production techniques. You've likely seen the cars running

*"THE TWO GOALS OF OUR INVESTMENT AS A PRI FOUNDING MEMBER ARE LIMITING GOVERNMENT OVERREACH AND GROWING OUR CUSTOMER BASE."*

—HEATH W. NORTON, VICE PRESIDENT, CALLIES PERFORMANCE PRODUCTS INC.



SIS's heritage is rooted in motorsports, and even today that passion remains the driving force behind the team's growth and technology-fueled innovation to help sanctioning bodies, track staff, drivers, and crews understand the significance of having the right kind and right amount of coverage. As a safety net, insurance is only as strong as its provider and policy to capably support the insured. SIS approaches this task daily to help educate and ensure every participant—every person—is covered in case the unexpected happens. Lucky streaks don't last forever.

Together, SIS is here to help ensure that the motorsports community meets challenges head-on so that future generations have the opportunity to share in our passion for all things motorsports.



their products at IMSA events, at dirt tracks, and on drag strips. Their catalog includes hundreds of part numbers that suit the needs of racers around the world.

Callies Performance Products opened in 1989 and forged a longtime presence in the PRI community. The move to become a Founding Member was the company's way to formalize its status and provide material support to counterbalance government overreach that restricts markets and drives up prices. The company took this membership step to invest in the future of racing by making the community stronger.





Vado Speedway Park is strategically located between Las Cruces, New Mexico, and El Paso, Texas. This state-of-the-art dirt racing facility serves both markets as well as Juarez, Mexico, to the south. It is a testament to how much track President and CEO Royal Jones loves racing and getting people into the sport.

Jones told PRI, "I thought if the wife is comfortable at the track, it's easier for the husband and kids to get to go more often. And showing other premium sports programming on property gives fans a

*"OUR GOAL IS TO KEEP MOTORSPORTS ALIVE, AND TO BRING IN NEW FAMILIES THAT HAVEN'T BEEN EXPOSED, OR EVEN EVER CONSIDERED GOING TO A RACE OF ANY KIND."*

—ROYAL JONES, PRESIDENT/CEO, VADO SPEEDWAY PARK



spectacular experience." Vado is not your father's dirt track, and that's a good thing for racing.

Jones has a rich history in dirt racing and carries many long-standing partnerships with other local racers and regional government agencies. These relationships helped Jones open the new facility that boasts 16 high-end trackside suites, pristine bathrooms, and big-screen TVs broadcasting a variety of premium sports programming in the concession areas.

The team at PRI helped Vado Speedway Park press New Mexico's governor to allow the track to reopen in the waning days of the pandemic. PRI also helped those in power recognize the economic impact the speedway and racers have on the economies of two important cities. As a PRI Founding Member, Jones is happy to be part of the network that supports the sport he cares so much about.



Edelbrock Group was created last year with the merger of two performance aftermarket legends, Edelbrock and COMP Performance Group. The companies represent nearly 130 years of business experience that has provided some of the world's best parts to countless racers.

Headquartered in Olive Branch, Mississippi, Edelbrock Group includes five power brands and several subsidiary brands with manufacturing facilities stretching across the United States. Thanks to this combination of resources and some of the world's most dedicated and passionate people, brands like Edelbrock, COMP Cams, FAST (Fuel Air Spark Technology), TCI, and Russell Performance continue to dominate the automotive aftermarket with exceptional valvetrain, drivetrain, superchargers, electronic fuel injection, intake manifolds,



carburetors, cylinder heads, and specialty tools products.

PRI Founding Member status demonstrates that Edelbrock Group is not resting on its legacy, but is in fact ready to fight for the motorsports community. **PRI**

It's 1967, the year of the very first SEMA Show. A few dozen booths are situated in the concourse of LA's Dodger Stadium; all forming the foundation for the racing industry. Vic Edelbrock was there.

More than half a century later, Edelbrock Group remains a key member of the performance aftermarket, and the PRI family.

*"WE KNOW THAT OUR FOUNDING MEMBER STATUS WILL HELP ENSURE THAT MOTORSPORTS IS PROPERLY RECOGNIZED AS BEING A PRODUCTIVE CONTRIBUTOR TO THE ECONOMY AND THE AMERICAN WAY OF LIFE. BY DOING SO, WE WILL ATTRACT THE NEXT GENERATION OF PARTICIPANTS, BUSINESS OWNERS AND FANS."*

—CHRIS DOUGLAS, CHIEF COMMERCIAL OFFICER, EDELBRICK GROUP

# #IAMPRI

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We build, promote, and protect the racing community.

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[performanceracing.com/membership](http://performanceracing.com/membership)



# RACE TEAM CONFIDENTIAL

## NO MONEY MOTORSPORTS—JIM TRAMONTANO

FLEMINGTON, NEW JERSEY

This Spec Miata competitor has discovered that it really is possible to compete on some of America's most iconic race tracks while closely following something unheard of in motorsports—a budget.

**M**y team is No Money Motorsports, and I compete in Spec Miata, running on tracks like Lime Rock Park, Watkins Glen, and New Jersey Motorsports Park with NASA's Northeast region. I focus on getting out on the track and remaining competitive but doing it while sticking to a very tight budget.

My team is really just a solo effort, but the Spec Miata group is super friendly off the track and we often work together to help keep each other's stuff together and tuned if needed. It's no fun beating someone just because they couldn't get their car running in time. We all work together to make sure everybody is ready to battle it out on the track.

The team is not only my hobby, but also a test bed for the techniques, strategies, parts, and gear featured on my blog (NoMoneyMotorsports.com). While Spec Miata has a reputation of requiring \$50,000 cars, a trailer full of tires, and a team of engineers, I am running a regional effort by myself with a cheap car, borrowed truck, and open deck trailer.

Most of this past offseason was focused on standard preventative maintenance like repacking hubs and greasing suspension components. My home-built alignment jig got a workout during the offseason as we were shooting for a different alignment strategy with some completely new alignment specs.

For the 2021 season, I am finally able to run on a fresh set of tires. Because of the many uncertainties of 2020, I ended up running the entire season on various old scrub tires. The Toyo RR is an impressive tire, capable of quick lap times well into the double-digit heat cycles, but they become

slightly less forgiving and harder to drive as they age. When most of the field is separated by barely a second, every bit of confidence and consistency makes a big difference.

I usually make a set of stickers last a whole season. Two sets would really be ideal, but on a budget, one does just fine—especially with two visits to Watkins Glen this year where more scrubbed rubber actually seems to go quicker. Tire life is where Toyo RR shines. I usually stop counting past 10 or so, but some of my practice sets see upwards of 30 heat cycles before they cord or are otherwise retired.

Also for 2021, I am finally embracing using data to improve my driving. Having been convinced that the benefits of data can make a real change in my driving, I picked up an AiM Solo 2 and hope to see if it can help me pick up any time left on the table. Initial impressions from the Solo's inaugural event are good; sector splits are a very nice feature and certainly help with some on-the-fly decision making.

Round 1 at Watkins Glen was a blast. Traditionally, our NASA region of Spec Miata would have about 10 cars in our race. But, a few of us have been putting in some serious work to try and grow the class. Between fostering fresh rookies to join and encouraging crossover from other clubs, we had the region's biggest Spec Miata race with 23 starters. Racing was ultra-competitive as always, (mostly) impressively clean, and with the usual great battles all around that make Spec Miata such a great racing class. The extra competition in the region is really encouraging.

I did pretty well in Round 1—a strong



top-10 finish on Saturday and a mid-pack showing on Sunday. The car itself ran great. Much of the beauty of Spec Miata is that these cars are famously easy on themselves no matter how hard you drive them. Some of the top drivers in the class are certainly going over every nut and bolt between races, but I usually just crawl under the car to check if the alignment bolts moved, make sure the hubs aren't cracked and bearings are still tight. And the car gets an oil change after every two events.

At Watkins Glen, an old alignment bolt slipped at some point in the event, so aside from replacing that and resetting my standard alignment, the car is an oil change away from being ready for the next event at New Jersey Motorsports Park (at press time).

I love racing on all of our region tracks for various reasons, but I think I enjoy racing at New Jersey Motorsports Park the most. While it lacks the iconic elevation changes and flow of Watkins Glen and Lime Rock Park, both NJMP's Lightning and Thunderbolt tracks are designed with great racing in mind. There are a lot of places where you can really push the car with relatively minimal risk, which makes for more exciting, less stressful, and more enjoyable racing. **PRI**



# CONNECTING RODS

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- » ARP2000 bolt upgrade available

## STOCK REPLACEMENT



- » Single rib cap design for added strength and bearing support
- » Lightweight I-Beam design for increased strength and quicker RPMs
- » Press pin or bushed
- » Comes standard with 3/8" ARP Wave-Loc Bolts

“ We have been using SCAT products since the early 1990s and have yet to have one break or fail in any way! The customer service is incredible and the technical knowledge Tom Lieb (owner of SCAT) has to offer is priceless! Having purchased hundreds of cranks and sets of rods and punishing them in extreme environments (Bonneville, Off Shore Marine, Baja, Hot Rod Drag Week and more), I have been so impressed with the reliability that they are standard in almost all our engine packages. **SCAT products are hands down the best bang for the buck available!**

Beck Racing Engines

”



# ASK THE EXPERTS

## ROLL CAGES

Consider material, application, and whether a kit or custom solution is optimal when choosing and prepping this critical piece of safety equipment.

By Drew Hardin

While the type of racing—and/or the sanctioning body and its rulebook—will dictate the configuration and construction of a roll cage, there are variables to consider when fabricating this important piece of safety equipment.

### How Cages Differ

Thor Schroeder of Competition Engineering in Guilford, Connecticut, provided an apples-to-apples comparison of how cage requirements vary depending on racing type. His examples were for a hypothetical 1984 Camaro that was being turned into a race car.

For drag racing, the type of cage varies depending on the car's ET. "Based on NHRA Sportsman rules, the Camaro would be required to have a roll bar if its quarter-mile ET was between 11.00 and 11.49 seconds," he said. "If it ran 10.99 or quicker, or exceeded 135 mph, it would need a roll cage."

For circle track racing, "the Camaro would be required to have a full roll cage that is tight to the roof, and, depending on the rules, could be tight to the door pillars on

both sides or just the driver's side," Schroeder explained. Additional supports "could go through the firewall into the front suspension strut towers and integrate into the subframe connectors that go from the rear subframe to the front subframe." Driver and passenger door bars "extend into the area taken up by the door glass and door panels."

A full cage for road racing the Camaro would be similar: "Tight to the roof and door pillars on both sides, could go through the firewall into the front suspension strut towers, integrate into the subframe connectors that go from the rear subframe to the front subframe, and could require driver and passenger door bars that extend into the area taken up by the door glass and door panels. Open track or autocross events could require a

A roll cage kit is sometimes seen as a simpler option, but these products aren't always turnkey. The tubes in a kit, like this one from Speedway Motors, are typically pre-cut and notched, but some extra notching and trimming may be needed to suit a particular car's design.



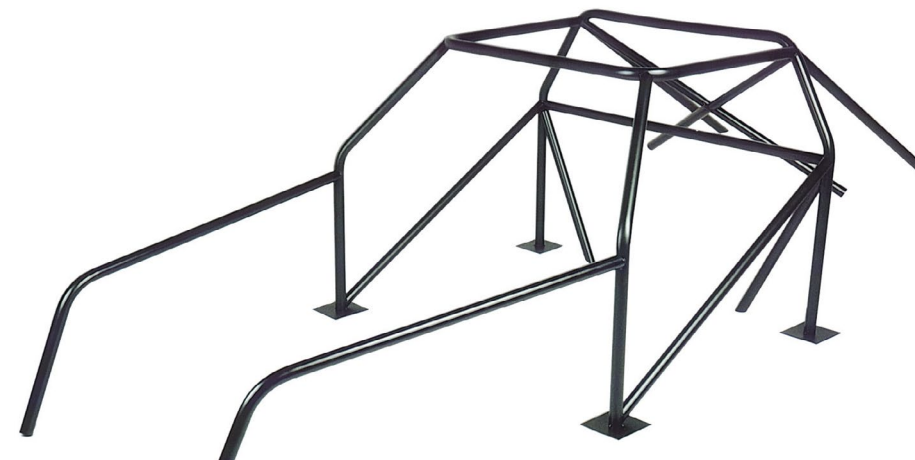
road-race roll cage or just a roll bar that is mounted in four places," he added.

Racers who have any questions about cage requirements should turn to their sanctioning body's rulebook, advised Dave Wallace of Speedway Motors, Lincoln, Nebraska. "Almost any sanctioning body, whether it's World of Outlaws, ASCS sprint car racing, any of the Late Models, even local tracks, will give guidance on how they feel cages should be built," he said.

Wallace also recommended checking out the cages in the cars of local winners and talking to the racers or the cars' builders. "Any time you look at the top five or 10 people in any form of racing, they're doing things right. Or they did it wrong and have already been through the pitfalls. Doing research before you start the project might save you a lot of time, money, and headaches."

### Cage Materials

The materials used for cage construction fall into two basic types: mild steel and chromoly. Within the mild steel family are EWS (electric welded seam), HREW (hot rolled electric welded), and DOM (drawn over mandrel) tubing. All are welded tubes; DOM is sometimes referred to as seamless



Several factors must be considered when constructing a roll cage, including rulebook requirements, the type of metal used, whether the cage is custom or available as a kit, and the fabricating and welding skills of the person installing the cage. Pictured above is a 12-point cage from Competition Engineering.

because the seam is almost invisible after the mandrel drawing process. The DOM process gives the tube higher yield and tensile strength than EWS or HREW tube.

Chromoly, made from steel that contains chromium and molybdenum, is often considered lighter than mild steel. But according to information from S&W Performance in Spring City, Pennsylvania, "chromoly steel and mild steel weigh exactly the same if the tube has the same wall thickness." Chromoly cages are generally lighter because of "the higher strength of moly tubing, which allows the use of a thinner wall thickness." S&W makes its roll bars and cages from 0.134-inch-wall mild steel and 0.083-inch-wall chromoly. "Since the wall thickness can be 38% thinner with no sacrifice in strength, it is therefore 38% lighter. In simpler terms, a roll bar that weighs 100 pounds in mild steel will weigh 62 pounds in chromoly."

From a price standpoint, "HREW is going to be the cheapest per foot," said Wallace, with chromoly the most expensive of the three. "Any time your tensile and yield go up, your price goes up."

Also, chromoly must be TIG welded, whereas mild steel can be MIG welded. That makes the mild steel materials easier to weld. Plus, "there's greater emphasis on fit-up with chromoly," said Wallace. "The tubes have to have the least amount of gap where they fit because you're TIG welding. The root of the weld is smaller compared to MIG welding."

### Kit or Custom?

All three of our source companies offer roll bar kits for racers or shops wanting to build their own. S&W, for example, lists more than 2,800 roll bars and cages in its catalog.

The kit approach is certainly more cost-effective than having a fabricator custom-build a cage, "and they're a great option if a roll cage builder isn't local," said Schroeder.

Roll cage kits aren't always turnkey, however. The tubes in a kit are pre-cut and notched, but some extra notching and trimming may be needed to suit a particular car's design. And the person attempting the job "needs to be honest with themselves about how good their fabrication and welding skills are," said Wallace. "Can they do the job up to the safety level it needs to be? Hopefully, you won't have to test the cage, and maybe you never will the whole time you race. But the one time you wreck, if the cage is sub-par, you're going to wish it were built to a higher standard." **PRI**

## SOURCES

**Competition Engineering**  
moroso.com/c-e-shop-browse

**S&W Performance Group**  
swracecars.com

**Speedway Motors**  
speedwaymotors.com



When choosing roll bars and cages, it's important to consider type of racing, naturally, as well as sanctioning body standards. Pictured here is a 4-Point Street-Track Day Bar with optional Main Hoop Diagonal by S&W Race Cars.

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## TECH UPDATE

### TROUBLESHOOTING DIESEL

How to identify and address the top three problems associated with diesel fuel regardless of the application.

By Kyle Fischer

Whether we are talking about a 400-horsepower street truck or a 3,000-horsepower race truck, they each deal with similar problems associated with diesel fuel. And that holds true no matter what kind of diesel fuel they run, whether it is standard Ultra-Low Sulfur Diesel (ULSD), biodiesel, premium diesel, off-road diesel, or diesel race fuel. Sure, these diesel fuels do differ in some regard—cetane rating, sulfur content, color, etc.—but the challenges they all present are relatively uniform.

In racing, the top three problems associated with diesel, regardless of the kind of diesel used, are lubricity, deposit control, and combustion efficiency. Let's take a closer look at all three.

#### LUBRICITY

To better understand diesel fuel lubricity and its impact, we should first consider how it is measured. There are many standardized test methods to determine diesel fuel lubricity, but the most common is the ASTM D6079 HFRR (High Frequency Reciprocating Rig) test method. The test consists of submerging a contact point between a steel ball and a flat steel disc into a sample amount of fuel. Under a controlled environment, the temperature is set to approximately 140 degrees F and the ball is placed under a light load, then it moves back and forth at a set frequency for 75 minutes. After 75 minutes, the wear scar is measured both parallel and perpendicular to the sliding direction, and the average

Shown here is a worn CP4 fuel injection pump cam caused by a lack of fuel lubricity. Fuel acts as a lubricant in most fuel pumps, but over time lubricity lessens, which leads to excessive wear and ultimately causes the pump to seize and fail.

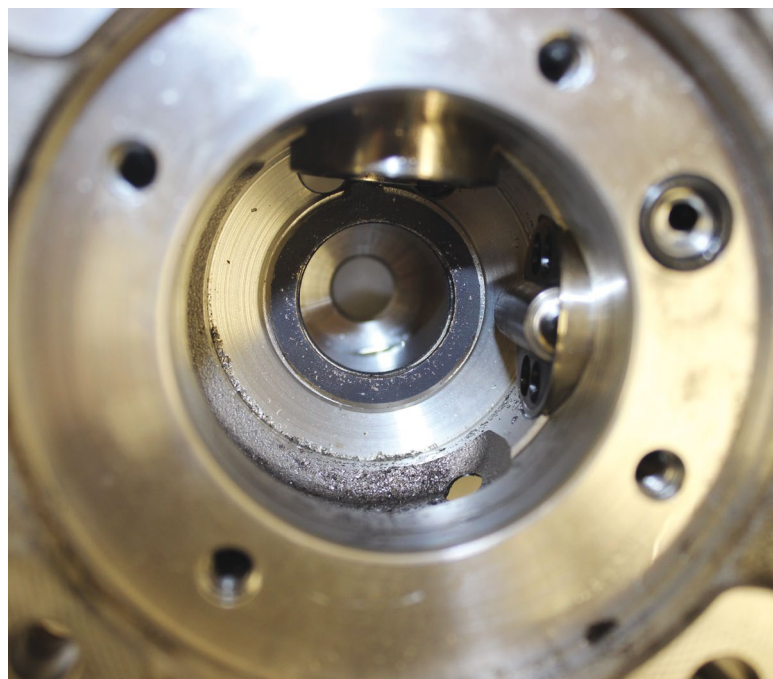


wear scar is recorded. The results are measured in  $\mu\text{m}$  (microns). The larger the number, the more wear that has occurred. For reference, the ASTM D975 (Standard for US Ultra-Low Sulfur Diesel, or ULSD) specification calls for a wear scar no greater than  $520\mu\text{m}$ , while the Truck and Engine Manufacturers Association (EMA) recommends a stricter  $460\mu\text{m}$  wear scar maximum.

#### LUBRICITY IS SO CRITICAL BECAUSE OF ITS ROLE IN CONTROLLING FUEL-PUMP AND INJECTOR WEAR.

If you use a diesel tow rig, you should take note that today's ULSD does not contain the lubricity needed to fully protect our vehicles. Consider: The Bosch CP4 fuel pump

Insufficient fuel lubricity has caused this CP4 fuel injection pump to fail. Note the debris present as well. Cam erosion causes metal particles to enter fuel injectors, which are then recirculated throughout the fuel system.



#### DIESEL FUELS DO DIFFER IN SOME REGARD—CETANE RATING, SULFUR CONTENT, COLOR, ETC.—BUT THE CHALLENGES THEY ALL PRESENT ARE RELATIVELY UNIFORM.

has an unusually high failure rate in the US, upwards of 7%, when compared to a 1% failure rate in Europe. The European EN-590 Diesel has a  $490\mu\text{m}$  wear scar specification, while in the US the base is 520-micron in ASTM US D-975. Therefore, the failure is caused by the lack of lubricity in ultra-low sulfur fuel in the US.

Lubricity is so critical because of its role in controlling fuel-pump and injector wear. This is even more the case when talking about high-horsepower, high-torque diesel applications with aftermarket performance upgrades.

At Hot Shot's Secret, we recently tested an industry-leading diesel race fuel in the HFRR test method, and it came back well below the recommended level of lubricity, recording a wear scar of  $590.5\mu\text{m}$ . Drivers beware, because this lack of lubricity can lead to very expensive mechanical failures. Fortunately, we were able to treat this diesel race fuel with an additive and lower the wear scar to  $461.5\mu\text{m}$ —a much safer level of lubricity. We recommend doing a fuel analysis that measures lubricity if you consistently use the same diesel race fuel and ensure you are getting enough protection for your hard parts.

#### DEPOSIT CONTROL

Another common problem with diesel fuels is their ability to control injector deposits. Coking deposits forming on injector tips have been an issue for years. These deposits form both in, on, and around the injector nozzle holes, which can cause spray pattern issues. A relatively new problem with high-pressure common rail fuel injectors is the formation of internal diesel injector deposits (IDIDs). Unlike traditional coking deposits, these deposits form on the internal components of the injectors.

Diesel fuel contains something called

carboxylic salts (waxy, sticky deposits). These deposits used to be soluble in older, high-sulfur diesel fuel, but are not in today's ultra-low sulfur diesel. The salts make their way past the fuel filter and into the fuel injectors, depositing on the internal surfaces. Today's high-pressure common rail injectors have a very tight tolerance of 1–3 microns, so even the slightest deposit formation can cause serious problems, including sticking injectors, power loss, and fuel flow issues.

#### WE RECOMMEND DOING A FUEL ANALYSIS THAT MEASURES LUBRICITY IF YOU CONSISTENTLY USE THE SAME DIESEL RACE FUEL AND ENSURE YOU ARE GETTING ENOUGH PROTECTION FOR YOUR HARD PARTS.

Unfortunately, not all additives and detergents are able to remove IDIDs; they are much tougher to eliminate than traditional coking deposits. To remove IDIDs and prevent them from inhibiting performance, you must use an injector cleaner that is specifically formulated to combat IDIDs.

#### COMBUSTION EFFICIENCY

Combustion efficiency issues may not be as prevalent with diesel race fuel, but they can still be problematic at times. Cetane is a liquid hydrocarbon that, when available in higher volume in diesel fuel, improves the ignition of the fuel, resulting in improved performance and fuel economy, and decreased emissions.

Diesel fuel cetane rating can vary greatly from station to station, and from state to state. A 40 cetane is the minimum rating for

diesel fuel sold in the US, but some states have stricter requirements. California, for example, has its own cetane minimum of 53. This is because, generally, a higher cetane rating means the fuel will burn cleaner and produce less emissions. This is good news for the environment, but it also produces greater horsepower and torque numbers. Diesel motorsports applications generally seek greater cetane numbers for that reason—more power.

While most over-the-road diesel engines run best on fuel with a cetane rating of 47+, it is not always available. Running fuel with a poor cetane rating often results in rough operation, knocking, less power, and lower fuel economy. The challenging part is that you often do not know the cetane rating of the fuel you're running. This is where additives come in. Whether you want better

fuel combustion for on-road or off-road diesel applications, a cetane improver may be the answer. The industry standard to improve diesel fuel cetane is 2-ethyl hexyl nitrate. Keep this in mind as you do your research—be smart about what you add to your diesel engines and rely on a supplier's track record and reputation to give you the facts. **PRI**

Kyle Fischer is the director of branding and promotions for Lubrication Specialties Inc., manufacturer of Hot Shot's Secret. Fischer is a self-professed "gear head" with a passion for anything car-related. When he is not managing Hot Shot's Secret's busy event schedule, race sponsorships, and trade show marketing, you can find him testing new products on the dyno or track, or attending drag racing and car club events for fun.



# PROBLEM SOLVERS

A minimum pricing policy can work for or against you, so we asked a leading racing manufacturer to point out the potential pitfalls and map out the road to success.

By John F. Katz

**THE PROBLEM:** I'm concerned that a MAP (Minimum Advertised Price) policy will hurt my business in the long run.

**THE SOLUTION:** Devise a policy specific to your business needs, and everyone—including your resellers—will win.

Rich Barsamian of Advanced Clutch Technology in Lancaster, California, understands your quandary: "You've spent an incredible amount of time and money to bring your product to market." And now some retailers are letting it go for discount prices that "devalue your product, and your company, in the eyes of consumers." You've considered implementing a Minimum Advertised Price (MAP) policy, but you know that's a weapon that must be wielded with care. Potentially, it's a double-barrel shotgun with one barrel pointing back at you.

To disarm that second barrel, you need a MAP policy—perhaps a MAP strategy would be a better term—specifically designed for your company, your products, and your resellers. Get the details right, and everyone wins: You can protect your reputation, and at the same time assure your resellers the profits they

need to sustain their own success.

First, said Barsamian, let's clear up any confusion over terms Minimum Advertised Price (MAP) and Minimum Resale Price (MRP): "The price is the price is the price."

With that out of the way, the next step is to calculate the minimum retail price that will allow your customers to make the margins they need to give your product the support it deserves. In other words, they need to make a profit on your product so they can hire employees who can provide knowledgeable sales and technical support, in addition to excellent customer service after the sale.

Then, to enforce that price, you need what Barsamian calls a "sting"—but the sting has to hurt the reseller more than it hurts you. "You don't want to hurt your own business, but the reseller has to know you mean business. The worst mistake you can make is a



policy with penalties so strict that they impact not only the reseller's business, but your own business as well.

"Let's say your penalty for a first-time offense is 90 days that the reseller cannot buy your product." Can you survive a full quarter without those sales? "Your policy needs to be written as if you know your biggest customer is going to break it right out of the gate." You need a penalty that will allow you to weather the storm if that worst-case scenario comes to be.

Barsamian suggested a "three strikes" policy: "Strike One is a warning. Strike Two is a specific time on the Do Not Sell (DNS) list.

An effective MAP (Minimum Advertised Price) strategy can help manufacturers protect their reputation while at the same time guaranteeing resellers the margins they need to sustain their own businesses.

*"YOUR POLICY NEEDS TO BE WRITTEN AS IF YOU KNOW YOUR BIGGEST CUSTOMER IS GOING TO BREAK IT RIGHT OUT OF THE GATE."*

Strike Three, you're out!" But again, carefully consider the duration of that DNS period, and don't do this at all if it doesn't suit your business model.

Further, once you've decided on a policy, know that you must enforce it, with all of your resellers, equally. "First of all, you have to," Barsamian reminded us, "otherwise you could be subject to some antitrust issues." Second, "you will lose all respect from your resellers if you don't." The upside is that once your resellers realize that you are "dead serious, they will want to be compliant. They will want to sell your product, because your product will yield the margins necessary to sustain their business."

As difficult as enforcing a MAP policy may be, not enforcing one can lead to a "race to the bottom," where resellers compete on price alone, ultimately eliminating the margins that allow them to provide even acceptable levels of sales support and customer service (as they lay off the staff they can no longer pay). "Eventually," said Barsamian, "they won't even be able to pay you." And then no one wins, except perhaps the schlub running an Internet business out of some moldy basement.

On the other hand, Barsamian noted, "If you create a policy that fits your company, with a penalty phase that doesn't cripple your business—and you enforce the policy equally and evenly—the negative effect on your business will be minimized. Eventually, when your policy is established in the marketplace, your brand will no longer be devalued at the consumer level, and wholesalers will want to promote and sell your product." **PRI**

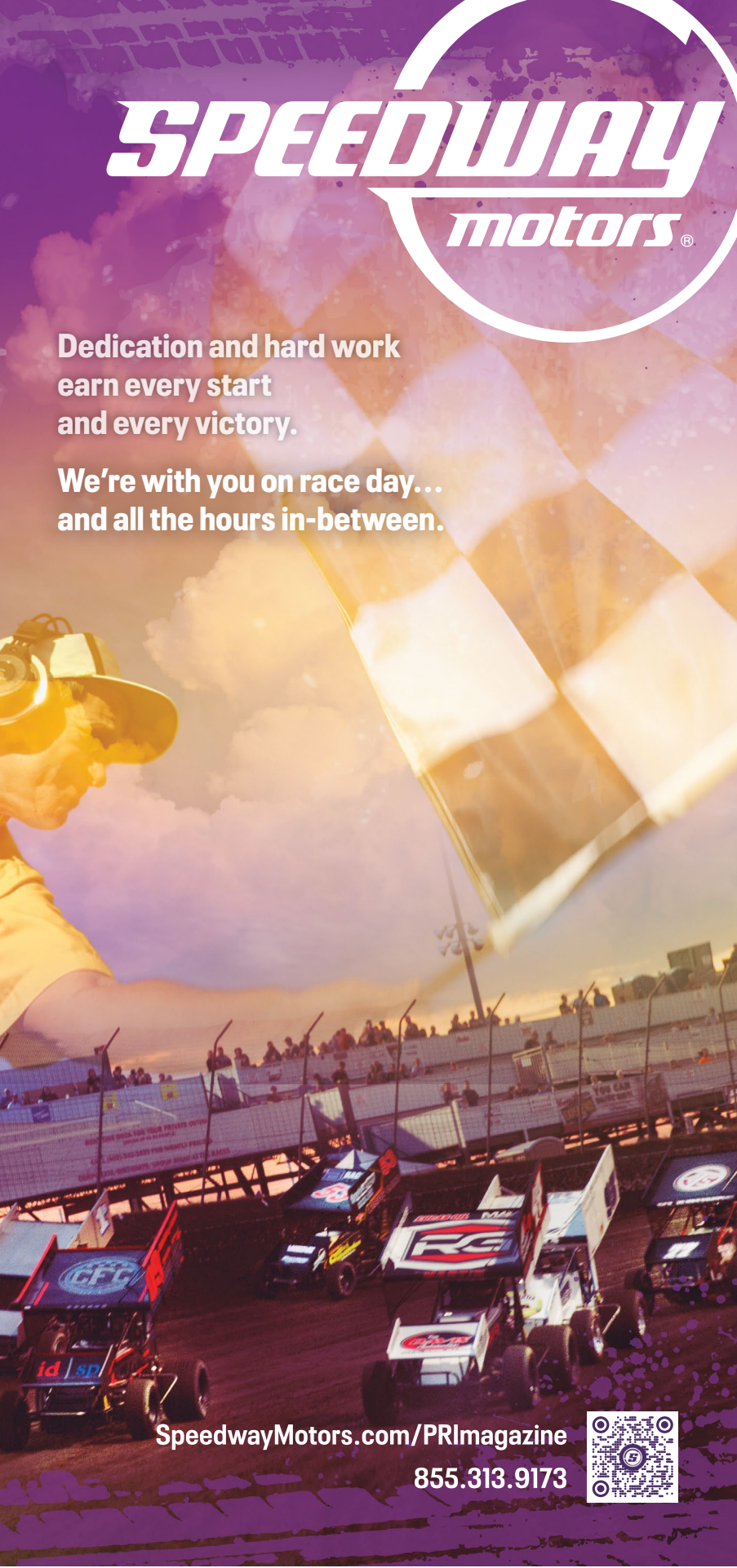
## SOURCE

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# EDITORS' CHOICE

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

## MOD-TWIN 225 CLUTCH KIT FOR SUBARU WRX STI

### ADVANCED CLUTCH TECHNOLOGY (ACT)

[advancedclutch.com](http://advancedclutch.com)

Thanks to its modular construction, the new Mod-Twin 225 clutch is available in one of 10 configurations for the Subaru WRX STI—including three different clamp loads—so it's well-suited for high-horsepower applications on the street, strip, or road course. The key component is a single mono-drive hub designed to reduce stress on the drivetrain.

"Turbo four-cylinder engines have a lot of torsional vibration and are notorious for being hard on clutches. They will strip out the splines and hubs," explained Rich Barsamian. "What's really needed is a sprung hub to dampen the torsional vibration."

There isn't much room to add springs to the hub, so ACT developed a mono-drive hub that's sprung and supports two discs. The clutch is also available in a rigid construction for street and race applications. Depending on the configuration, the Mod-Twin 225 will support between 700 and 1,340 lb-ft of engine torque.

"It's really designed for the gearhead making a ton of power," said Barsamian. "When people try it, they're impressed. They were expecting a heavy pedal feel. This clutch holds the power but is a treat to drive."

The clutch uses the factory pull-type design and simple installation. The kit includes chromoly flywheel, ARP clutch bolts, and an alignment tool. The kit also works with the Mitsubishi Evo engine. —Mike Magda



## SB/09 SHORT-TRACK SHOCK ABSORBER

### JRi SHOCKS

[jrishocks.com](http://jrishocks.com)

The new SB/09 short-track shock absorber from JRi Shocks is available in an aluminum body for short-track asphalt racing. It also comes in a steel body that is legal in dirt-track modified and other classes that don't allow alloy construction.

It's a small-bore shock with a .500-inch OD shaft. Multiple piston options are available, including linear, high-flow and linear digressive.

"With approximately 60 clicks of rebound, compression or bleed adjustment—depending on jetting—and a base valve design, the SB/09 is ideal for a wide range of short-track applications," said Candace Martin.

The shocks can be set up for coil-over operation with spring sizes ranging from 2.5- to 5-inch in diameter, and teams can order it with a stroke distance of 5 to 9 inches. JRi also offers a shim kit and SB/09-specific wrench to adjust the shocks for different track conditions. —Mike Magda



## 123-MM HIGH BOOST THROTTLE BODY

### WILSON MANIFOLDS

[wilsonmanifolds.com](http://wilsonmanifolds.com)

When Wilson Manifolds originally developed a 123-mm billet throttle body, boost pressures were in the 10- to 20-psi range. "Now they're running over 60 pounds," said Keith Wilson.

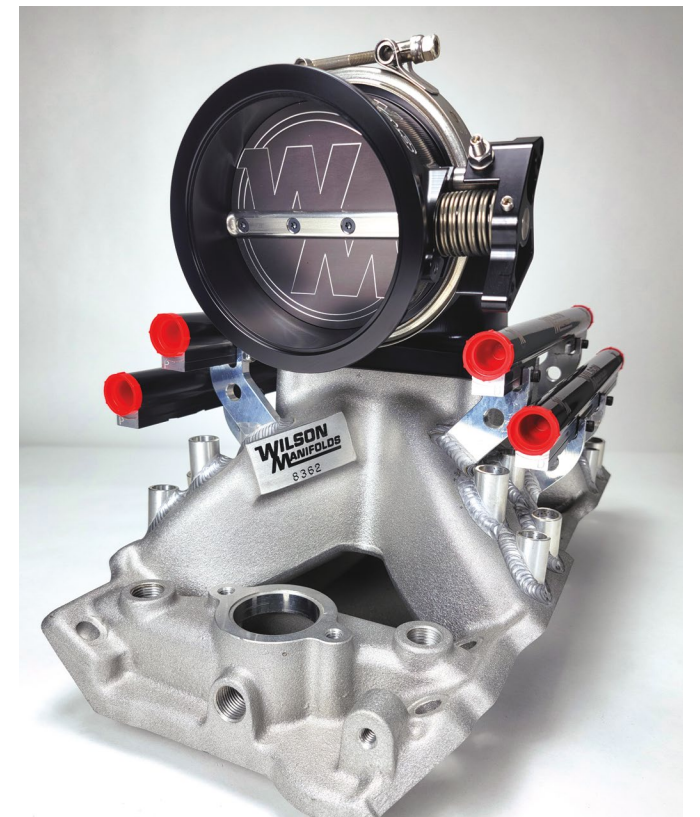
That prompted the company to design a much beefier model with the same dimensions that's an easy swap with the old model.

"We've gone to a double-sealed shaft that holds up to 100 pounds of pressure without leaking," noted Wilson. "Even though we went to a larger shaft and gained a lot of strength, we lost no flow."

The massive .625-inch stainless-steel shaft is aerodynamically shaped, and the blade is tapered to enhance airflow without giving up strength. The blade is fastened to the throttle shaft with aircraft quality hardware that is Loctited and peened to assure positive retention. The TPS engagement is precision fit and compatible with either Ford or MoTeC sensors. Finally, there's a two-way adjustable linkage system.

The 5-inch V-band inlet and outlet make the new throttle body a direct replacement to the original 123-mm throttle body.

"A lot of racers have gone to a crank-driven blower, and we wanted to make a throttle body that's as safe as possible," added Wilson, noting that this same design is also available in a 105-mm size. —Mike Magda





# MAKE THE CASE

## LIVESTREAMING RACES

Recent global events have prompted track organizers and promoters around the country to take a closer look at online video streaming as not only a stop-gap measure, but a new source of revenue in the long term. But while livestreaming offers benefits to fans and racers alike, the logistical and monetary considerations may have some folks thinking twice before jumping into the fray.

As told to Bradley Iger



**LIVESTREAMING  
OPPONENT:  
WAYNE DELMONTE,  
LEBANON VALLEY DRAGWAY**

*"ONE OF THE MAIN ISSUES WITH LIVESTREAMING IS THAT IT PROVIDES THE OPPORTUNITY FOR PEOPLE TO NOT COME TO YOUR TRACK AND BE AN IN-PERSON SPECTATOR WHO MIGHT BUY FROM YOUR MERCHANDISE BOOTH OR YOUR SNACK SHACK."*

I think that one of the main issues with livestreaming is that it provides the opportunity for people to not come to your track and be an in-person spectator who might buy from your merchandise booth or your snack shack, and it can negatively affect revenue in that way.

While it's convenient to watch from home, those fans aren't getting the same experience the ones in the stands are. You're watching the race through someone else's lens, and if you're lucky it's a shot of the starting line, mid-track, and the finish line. You might not see the whole race from start to finish in the way that you would want to, but ultimately you really have no choice in the matter.

There's also the intangible elements to consider—the smell of race fuel, the sound, the rumble of the ground during a pass. You can't replicate those things on a computer, and you also can't walk through the staging lanes and see what cool cars are there or talk to different racers at the event. You're watching curated clips of the events that are happening. That might be enough for someone who's really familiar with the sport

and just wants to keep up to date on what's going on, but if you're someone who's just getting into it, you're missing out on a huge part of the experience.

There are also some significant financial obstacles that have to be considered. If you don't spend the money to have a quality livestream with high-end cameras, professional production, and the required Internet bandwidth, you're asking for problems. You also have to consider the fact that you need crew members who're dedicated to specific roles in order to make it work—an unmanned live feed camera system probably isn't going to cut it.

It also needs to work well right off the bat or you risk tarnishing your track's reputation. If you've got people paying for access to the service and your livestream is terrible, that's just another way for the track to get a bad review or something like that. Nothing is worse than bad publicity on the Internet—it stays there forever. For us, the costs involved to get it off the ground and make it into a high-quality service would probably turn out to be a losing proposition.



**LIVESTREAMING  
ADVOCATE:  
JIMMY PHELPS,  
WEEDSPORT SPEEDWAY**

*"THE WORLD IS BECOMING SMALLER BECAUSE OF THIS TECHNOLOGY."*

A perfect example of that is Max McLaughlin, a North Carolina-based racer who has made a name for himself over the last three or four years up here in Central New York. When he comes out to our track, both our local fans and the ones in North Carolina want to watch him race, and livestreaming gives us the ability to provide that to folks near and far.

The decision to stream our 2021 events stemmed from the idea that if we had the ability to enhance our reach, it would offer a little more to our partners and sponsors. There is a fanbase of people out there who want to see what's going on at your track, and that fanbase doesn't necessarily have the ability to be there otherwise—they might be too far away to make the drive there on a given night, or maybe they want to watch a family member that lives across the country. The world is becoming smaller because of this technology.

Our fear going into it was that these people were not going to outweigh what we could potentially lose in the grandstand ticket sales, but we're slowly starting to see that broadening that fanbase has actually improved the bottom line. There are situations where some people just can't be there, and we've created a way for them to still be a part of it. That has proven to outweigh the situations where people could go out to the track but decide to stream it at home instead.

Fortunately for us, Weedsport Speedway's owner Al Heinke established an in-house

production team alongside the extensive renovations that began here back in 2013. As the property evolved, he was always looking for ways to enhance the entertainment value of the facility, and he decided that we needed a crew of people here that could create some professional, real-time productions to make the "show within the show." All of the MAVTV features from Weedsport Speedway are done in-house here—we send it to them more or less ready to air. So, since we were already filming and producing our own races anyway, livestreaming wasn't a big logistical leap for us.

That said, if tracks want to offer livestreaming, I think it's important that they put their best foot forward right out of the gate. There are definitely capability needs that need to be addressed in terms of bandwidth and the quality of the production itself. We've learned a lot over the course of the past few years with the American Flat Track races and other events that we've done—the need for fast, consistent upload speeds was a necessity that we were aware of and had already addressed previously.

The infrastructure needs to be right; it's something that any venue considering offering livestreaming services should thoroughly evaluate. Do you want one camera, or do you want six? Do you want in-car footage? That's where everybody is going to be doing things a little differently, and where stronger efforts are going to really stand out. **PRI**



# STOP DOING THAT...DO THIS INSTEAD

## GAUGE INSTALLATION

Instruments often malfunction due to improper grounding, excessive vibration, or flimsy wire connections. Here's how to avoid these common complications.

By Drew Hardin

**T**he number-one common issue" when installing gauges, according to Marc Erickson of Auto Meter Products, Sycamore, Illinois, "is grounding. Getting a good ground on the chassis, or the engine block or cylinder head, will rectify 90% of [installation] problems."

current running to it normally creates RF [radio frequency] noise. We've built our products to handle the RF noise, but if you don't have significant ground, it doesn't matter how good of a product you build. It's just not going to operate correctly."

Compounding the problem is the

*"GETTING A GOOD GROUND ON THE CHASSIS, OR THE ENGINE BLOCK OR CYLINDER HEAD, WILL RECTIFY 90% OF [INSTALLATION] PROBLEMS."*

This is an issue when putting gauges in any type of car, but it can be particularly problematic in a competition vehicle, Erickson explained. "There are so many electronics in today's race cars. Anything with any type of electronic

fact that "a lot of race car interiors are tin or aluminum," he pointed out. "People think they can take the ground from the tach or another gauge and just run it to a piece of tin in the vehicle. But a builder will often put silicone or something around

Today's race cars include "so many electronics" that naturally create RF noise, noted our source at Auto Meter Products, who explained that without significant ground "it doesn't matter how good of a product you build. It's just not going to operate correctly."

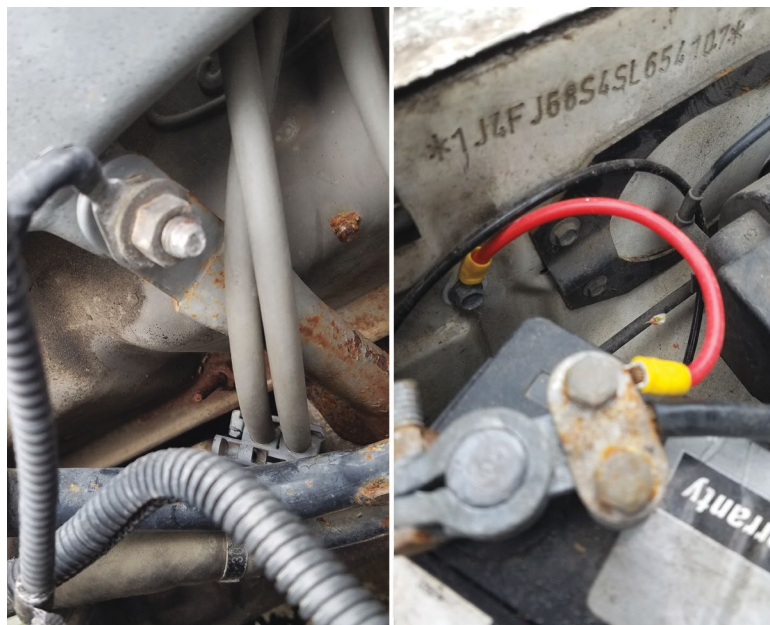


the outside of a metal floor to keep debris, water, or smoke out. When you put silicone on, it insulates the floor, and there's no ground path back to the battery."

RF noise can be particularly disruptive to the function of tachometers, Erickson said. "Tachs are based on pulse input, 12-volt square-wave inputs from the ignition system," he explained. "If you do not have it grounded correctly, the input wire, or even the power wire, will pick up RF noise. The tachometer will read the RF noise as pulses coming into the tachometer, and it will either start jumping all over the place or will read high."

Oil pressure and water temp gauges, on the other hand, "are based on resistance to ground. They're going to take the path of least resistance," he said. "The sending unit and oil pressure gauge are grounded in the block, or the head, and the other one doesn't have a significant ground if it's grounded to a piece of tin in the car. It then grounds through the actual sending unit, making the

The most common problem associated with gauge installation, according to our source, is improper grounding. To illustrate, the setup at far left shows the correct way to ground, while the photo at right has incorrect color wiring and no shrink wrap to supply strain relief.



*"DO YOUR RESEARCH BEFORE PURCHASING THE PRODUCT, AND PURCHASE THE PRODUCT THAT DOES WHAT YOU NEED IT TO DO."*

gauges read high. Relocating the ground to a good chassis ground or the block or the head will take care of these problems."

### BAD VIBES

Vibration can create problems with instruments, Erickson said, "especially on gauges, like oil pressure gauges, that have a large pressure sending unit. We've seen a racer mount a sending unit to the block and then can't understand why they're continually going through sending units. They don't consider the solid mounts on these cars. With the sending unit on the block, and everything mounted solid, the harmonics have to go someplace. They will vibrate a sending unit to pieces."

The solution is to "mount the sending unit on a steel-braided line, and then mount that on the firewall or an inner fenderwell if the car has them and isolate it a bit on a rubber pad."

Auto Meter also makes liquid-filled gauges "to help handle vibration if you're going to mount a gauge in a high-vibration area, like on the chassis, in the engine compartment or on the back of a supercharger," Erickson said. "It will also dampen the actual needle movement of the gauge itself, so it's not bouncing all over the place when you're trying to read the gauge."

### CONNECTIONS

Pay attention to wire connections, Erickson advised. "We've seen people use an inexpensive ring terminal with nothing on it—the bare wire coming out of the ring terminal—and as the car ran, you could see the wire move up and down. Especially if it's inexpensive wire, as it moves up and down it's going to break."

He recommended making those connections using "ring terminals that are crimped on with a good crimper, then after that use some sort of heat shrink with glue inside of it." Some suppliers call it marine heat shrink "because the glue makes it waterproof. When you heat the wrap, the glue comes out and holds everything together. That eliminates the movement of the wire in the ring terminal and gives it some strain relief." There are "ring terminals, butt connectors, and spade connectors that have the glue-type of shrink wrap built right into it," he added. "You crimp it on, hit it with a lighter or a heat gun, and it's already all there."

### BEFORE THE INSTALL

"Do your research before purchasing the product, and purchase the product that does what you need it to do," Erickson said. For example, Auto Meter sells "the most basic tach that will show just engine rpm's to ones that will record a run and let you download it so you can look at it on your PC. Or let's say you want an oil pressure gauge, but you also want a low-pressure sending unit and a warning light. You don't have to buy all that separately. We have those features built into one product. If you're looking for a gauge that you want to do something specific, contact us and make sure you're getting what you want." **PRI**

### SOURCE

Auto Meter Products  
autometer.com

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# NEWLY APPOINTED

JEFF STRIEGLE

Building on successful stints in race team management and motorsports broadcasting, this industry veteran now oversees the track that sparked his passion for racing.

By Jim Koscs

Berlin Raceway and Entertainment Complex in Marne, Michigan, opened its 71st season this year with a new general manager, Jeff Striegle. A NASCAR race announcer for Motor Racing Network (MRN) for the past 24 years, Striegle continues in that role as well.

Striegle witnessed his first auto race as a boy at this very track in the 1970s. That experience set him on a path to later running a race team that competed here for 12 years. It also led him to establish Racing Awareness, a non-profit organization that supports the Helen DeVos Children's Hospital in nearby Grand Rapids. From racing he moved to broadcasting, always keeping Berlin in his heart, though.

"My passion and love for the sport comes from all of that," Striegle told PRI.

And, as if a new leader wasn't reason enough to celebrate, the track recently pocketed \$50,000 after taking top honors in the Advance Auto Parts-backed "Advance My Track Challenge," a community-based program where fan voting decides the winner among 22 NASCAR-sanctioned short tracks across the US and Canada.

Amid the activity, Striegle recently shared plans, some already unfolding, to transform Berlin Raceway into a full entertainment experience similar to that of NASCAR's premier venues.

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

**Striegle:** Taking the track back to how it began. It should all be about the fan experience. Look at NASCAR tracks. Fifteen years ago, all they did was run a Cup race and an Xfinity race, and that was good enough. Today, the tracks boast 50 different things you can do on a given weekend besides watch a race. That gave me ideas to implement here.

**PRI:** What do you see as the biggest

challenges ahead of you?

**Striegle:** The sport is not at the same popularity peak as in 2006. Our challenge is to introduce racing to a younger generation and to people who have not experienced it. We have to do new and different things to attract new people to grow the fan base and the sport.

**PRI:** What are your top strategic goals for the next 12 months?

**Striegle:** By offering more experiences, we can raise revenue and profitability. We've already



JEFF STRIEGLE

**TITLE:**  
General Manager

**ORGANIZATION:**  
Berlin Raceway  
and Entertainment  
Complex

**HOMETOWN:**  
Grand Rapids,  
Michigan

**FAST FACT(S):**  
Berlin Raceway takes its name from the town's original name. After World War I, town leaders elected to change the name to Marne to honor soldiers who died in the Second Battle of Marne, France.

*"WE MOVED UP  
START TIMES SO WE  
FINISH RACING AT  
SEVEN."*

implemented some things with camping, and we've developed a new 2/10th-mile short track within our main track. This will let us add programs for younger racers, including mini cup cars, quarter midgets, mini wedges, Bandoleros, and Legends. We'll run those races on a different night. It's the same track, but a different experience.

**PRI:** How are you expanding on the "entertainment" component of the facility?

**Striegle:** When a family leaves the raceway, they should feel like they got their money's worth and more. We moved up start times, so we finish racing at seven. In addition to usual concession stands, we've added an outdoor grilling station on the main concourse. We've got a gourmet cheese and chips and margarita cantina. Our new Brickyard Lounge holds up to 250 customers. It's modeled after the best outdoor lounge in Key West (Florida) with a huge bar, stand-up tables, lights, sound, outdoor heaters, and a fire pit.

**PRI:** How are you marketing or promoting these changes at Berlin Raceway?

**Striegle:** We're using social media to announce the specials, the

schedule, and updates. We're not doing conventional advertising—no TV, radio, or billboards. Instead, we are strengthening relationships with the local ABC, NBC, and Fox affiliates and their sports programming. Their sports anchors are coming out during the week, taking part in practice sessions, interviewing drivers, and talking about upcoming events. Seeing race results, track highlights, and features on the news every week is helping introduce racing to new people.

**PRI:** What would you say makes Berlin Raceway such an important part of the community?

*"SEEING RACE RESULTS, TRACK HIGHLIGHTS AND  
FEATURES ON THE NEWS EVERY WEEK IS HELPING  
INTRODUCE RACING TO NEW PEOPLE."*

**Striegle:** People have grown up with this track. Many first dates and family reunions have been here. There's absolutely a community feeling about this place. We've done many things with the Helen DeVos Children's Hospital here for 15 years. We raise donations. We provide tickets and racing experiences for staff, families, and most importantly, the children. We've also done much to recognize our veterans and first responders.

**PRI:** What do you think is key to continuing the facility's momentum?

**Striegle:** Culture. The company I was with before, Gordon Foods Service in Grand Rapids, had a great culture. It taught me the importance of a team, working together, and always thinking about new ideas and clearing hurdles.

**PRI:** How do you think your MRN

broadcasting background will serve you in this role?

**Striegle:** Working with MRN has given me the opportunity to visit NASCAR and short tracks, to see firsthand what they are doing. That helps us adopt new ideas that we are already working on. The audience is changing, the cost of the sport is escalating, and we must recognize that what we do from competitor and fan standpoints is ever changing.

**PRI:** What's your most gratifying professional accomplishment?

**Striegle:** I've had amazing opportunities, but running the charity for the children's hospital

has been the most rewarding thing I have ever done.

**PRI:** Who inspires you, and why?

**Striegle:** My father was my biggest inspiration. He passed five years ago. I still carry him with me. When I have a question, I think I know how he would answer it. I'm also inspired by families of children with cancer. I see the strength of the parents and the children.

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

**Striegle:** The support of my wife, Julie, because I am on the road a lot, traveling with NASCAR for MRN, and when not doing that, working at Berlin Raceway. That schedule can be hard. She knows what we are trying to accomplish. She is part of Berlin Raceway, too. **PRI**



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# INDUSTRY INSIGHTS

MARK STIELOW

This self-described “hot rodder” who guides GM’s motorsports efforts and moonlights building “Pro Touring” Camaros explains why collaboration—even among competitors—is beneficial, why a new SUV would likely dust an old muscle car, and why internal combustion engines won’t leave racing anytime soon.

By Dave Argabright

**A**utomotive performance is not just a thing; it’s a state of mind, a culture, a way of life. That truth is self-evident with Mark Stielow, who this past October was named director of motorsports competition engineering at General Motors.

A native of Missouri, Stielow was inspired by a passion for engineering and performance at a young age. A graduate of Missouri University of Science and Technology, Stielow joined GM as a test engineer in 1991. It began a long and winding career that saw Stielow leave the automotive giant in 1994 before returning in 1999 and resuming his ascendancy within the company.

Stielow has shown a unique level of versatility, as he has managed what could be viewed as parallel careers over the past 30 years. While maintaining his influence and leadership at the corporate level, Stielow has also cultivated his interests in vintage performance cars. A pioneer in the field, Stielow coined the phrase “Pro Touring,” which describes the thriving field of equipping vintage muscle cars with modern suspension and engineering. Stielow’s many muscle car “builds” have fascinated enthusiasts and landed him—and his creations—on the cover of countless performance magazines.

Stielow’s leadership at GM comes at a pivotal time in automotive performance and manufacturing, as the industry navigates the tricky terrain of emerging technologies such as electric propulsion, and the impact of such technology on motorsports. Stielow recently sat down with PRI to discuss his role and the state of automotive performance.

*“I FEEL EXTREMELY LUCKY THAT I’VE BEEN ABLE TO PLAY A SMALL PART AND WRITE A LITTLE BIT OF HISTORY IN MOTORSPORTS AND PERFORMANCE IN THESE DIFFERENT ROLES.”*

**PRI:** I read a comment from you recently that said, “There is going to be some exciting stuff going on in motorsports in the next few years.” That’s an interesting statement. Give us a quick summary of the things that are coming that are especially exciting.

**Stielow:** What is definitely coming is that several programs will see hybridization, for example IndyCar. The whole industry is pivoting, and we’re definitely going to see more electrification in motorsports. So as our portfolio at GM maintains their classic IC (internal combustion) engine, we’re also doing a heavy pivot toward full electric on our motorsports side. In IndyCar we are definitely getting into the hybrid drive there, and with other series that utilize hybrid drives we are looking at that as well. We’ve been studying pretty hard.

Every sanctioning body that I deal with, they have approached us to ask us our ideas of full electric racing. We’ve had conversations with almost every form of racing, having discussions on what a full electric venue looks like. So there will be some interesting stuff going on, and we’re all going to have to sort out how we manage that and what it looks like. We’re currently kind of dipping our toe in the water with the Extreme E full-electric off-road race program working with Chip Ganassi Racing. We’re getting a little taste of that, trying to understand what it all means.

**PRI:** You took on your new role at GM last year, and I’m sure you hit the ground running. Looking back at the past few months, what’s been the most important thing you’ve tackled thus far?

**Stielow:** As we moved motorsports out from under Sales, Service, and Marketing to Engineering, we’re really trying to tie together the production side of our learnings and motorsports. I’ve spent a lot of time trying to transition learnings from what we do on the OE side to racing, and back and forth. That’s been the most challenging thing. The other thing is that we’re kinda laying out a strategy. I’ve always been a one-year, two-year, five-year plan kind of guy, so we’re trying to work with our marketing and our production people to tie those two things together. We’re into racing to build the brand, win races, and to help the identity of our

brands: Chevrolet, Cadillac, GMC. But also we want to do technology transfer between motorsports on the production side. And the third thing is to grow people. Racing is...they don’t move the Indianapolis 500; that’s a hard date out there and you have to hit it. Racing breeds a certain quick, problem-solving mentality in people and engineers. I started my career in motorsports in the 1990s, and that really drove the sense of urgency to get things done on a timeframe. So one of the things I want to do, more for our motorsports operation, is be able to do those three things.

**PRI:** What’s it like to work for GM President Mark Reuss?

**Stielow:** He’s awesome. I’ve known Reuss for a long time, and he is a true car guy. He gets it. I can go in and have any kind of conversation with Mark...technical, marketing, vision stuff. He’s got a great knack to have peripheral vision, a real gut sense of the right thing to do. So I’ve really liked working with Mark. My direct boss, Jim Hentschel, vice president on our Engineering side, he’s also a great leader and a great person to work with.

**PRI:** When you initially joined GM in 1991, the industry was on the cusp of a performance resurgence. Being very honest, those cars of the 1980s were not a lot to brag about in terms of performance. But by the mid-1990s we had some pretty good performance cars coming out of Detroit. Was that an exciting time?

**Stielow:** Yes, it was. When I was working for Herb Fishel in motorsports before I was doing Corvettes and Camaro Showroom Stock racing, those 305 TPI cars were...well, they were pitiful. But that’s what we were racing. NASCAR was going full-tilt, and engineering was just coming into that realm and making a difference. So yes, those were exciting days. We still had stock-block cars running at Indy; it was during that period when we still had the Buick program running at Indy. That was a fascinating time. Later on in my career when I was doing stuff at HPVO (GM High-Performance Vehicle Operations), I remember working on these little four-cylinder coupes and realizing that this four-cylinder Cobalt would kick the crap out of that 1988 Camaro we were racing back then. Even our lower cars today are much faster than what we thought were performance cars in the late 1980s and early 1990s.

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**PRI:** As an original muscle car guy, back in the day if you had 400 horsepower, you owned the street. Owned it! Today, 400 horsepower is very common.

**Stielow:** That's exactly right. Be careful lining up against that new SUV at the stoplight in your old muscle car, because the SUV will probably walk you!

**PRI:** Mark, you are obviously very passionate about performance and racing. How has that passion influenced the cars and trucks you've been involved with at GM? How has it inspired you?

**Stielow:** You know, I've been fortunate. Growing up in Missouri my dream was to work in the automotive industry. This is all I ever wanted to do. I feel extremely lucky that I've been able to play a small part and write a little bit of history in motorsports and performance in these different roles. There was always a drive to learn, and I love the technical aspects of these cars. I like digging into the details and doing reviews, getting into the nuts-and-bolts of things. At my core I'm a hot rodder, I build hot rods at home. I understand the full vehicle better than a lot of people because

Mark Stielow has managed parallel careers over three decades, as an engineer on the leading edge of performance technology for GM while also building vintage Camaros with the latest engine and chassis upgrades. In fact, he coined the term "Pro Touring."

I grew up in vehicle integration at General Motors. I've worked on a lot of different areas. I'm very interested in the vehicle systems and making them perform better. We're trying to win races and be in the hunt with our competitors, and that is rewarding. In motorsports you get your report card much more quickly than on the production side, but I really cut my teeth doing the production development work.

**PRI:** Touching on electric power a little bit more, it seems that we're seeing two distinct "flavors" of electric power in terms of performance: hybrid and full-electric technology. Do you have an opinion on which technology will become more prevalent in motorsports?

*"NO MATTER WHAT HAPPENS WITH ELECTRIC POWER,  
WE'RE STILL GOING TO HAVE INTERNAL COMBUSTION  
ENGINES BECAUSE WE LOVE THEM."*



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## INDUSTRY INSIGHTS

**Stielow:** It's hard to tell. There are a lot of straight-up physics involved. The amount of energy that a gallon of racing fuel holds versus how many kilowatt hours that converts to and how much battery you have to carry around to do that, for example. I've got a feeling there might be a huge technological jump (coming) that will help the storage of power on the electric side. But for the foreseeable future, in my opinion, for anything resembling endurance racing we are still going to have IC engines. The power density of fuel is so much greater than electricity at this point. But for things like sprint races, and Formula E where the races are shorter, electric power will be right in there. So as technology grows...I think we're going to learn a ton about batteries and battery controllers and motors as we push those components harder in motorsports. That technology will then trickle back to the production side.

*"THAT FEELING IN YOUR CHEST WHEN A FUEL CAR FIRES UP, YOU'RE NOT GOING TO REPLACE THAT WITH AN ELECTRIC VEHICLE."*

**PRI:** The automotive industry has always been about competition. Very intense competition among GM, Ford, and all the other players. When you have an emerging technology—such as electric—where everything is shifting rapidly, how do you stay in front? How do you maintain and hold a lead when technology is changing? It looks like that would be exceptionally difficult.

**Stielow:** I think back to the 1950s and 1960s, when the GM Research Labs developed a lot of new technologies that spread not only through GM but throughout the auto industry. We've been in the battery and electric vehicle space for a long time, and when GM focuses in on a program, we do a good job.

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We've got a lot of guys in the R&D space, developing new battery chemistries, and we're coming up with some different things. We're pulling at it full-tilt. I think we're going to be successful.

I think some of the other competitors out there got into the EV space because there are really no emissions requirements there; it's easy for a small manufacturer to get involved because you don't have the overhead of making sure things are emissions compliant. So a lot of those companies are using off-the-shelf technology in terms of batteries. All the OE's are going to be pushing hard to come up with a way to make our battery chemistry more effective, less reliant on precious metals, and make our battery packs more cost-effective, more efficient, and hopefully lighter as well.

**PRI:** You also mentioned in a previous interview that in a perfect world companies could share information that could accelerate the development of electric technology. But obviously in the hyper-competitive environment of automotive manufacturing, sharing information would become pretty complicated. Is that good or bad? Would it be better if companies collaborated, or is it better to foster a competitive environment?

**Stielow:** We've actually partnered with others on various projects, so it is definitely possible to collaborate. We've partnered with Honda to share some of the battery technologies, for example. It is capitalism at work, we're all trying to come up with the best system we can. When you partner you learn things from them, and they learn things from you. We've collaborated on other things as well. For example, Ford and GM worked together to develop the 10-speed transmission and it is shared between our two companies. Some things we share on, and some things we don't. It's an interesting time, for sure. GM is one of the largest auto manufacturers and we have developed a lot of technologies.

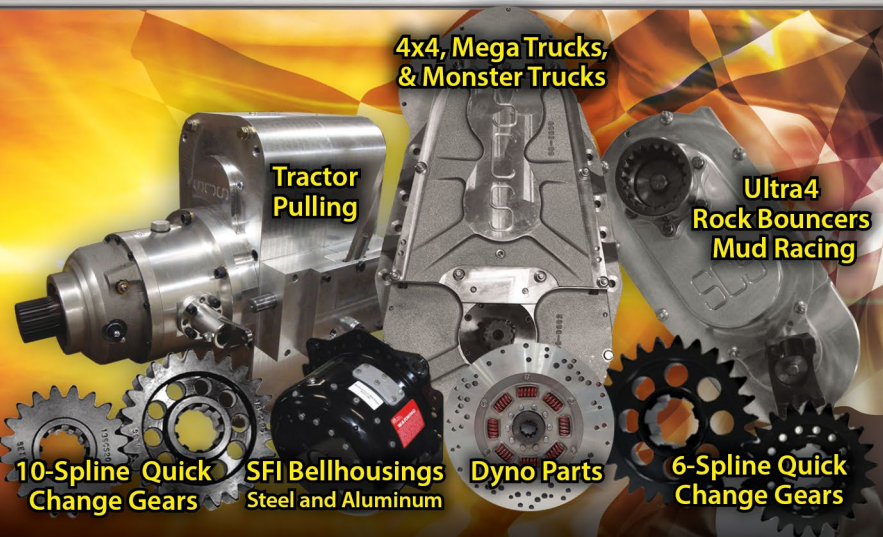
**PRI:** I'm curious about the future of the IC engine. Will we see a rapid transition and see the IC basically abandoned, or will there be a long-term place in motorsports for IC technology?

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**Stielow:** We're going to have IC technology in motorsports for a long time. The example I use all the time is a horse. There is no reason to have a horse in today's society, yet my wife owns one and she goes riding three times a week. There are events surrounding horses, and they still have the Kentucky Derby, steeplechase events...people still love horses. So no matter what happens with electric power, we're still going to have internal combustion engines because we love them. They don't make horses any smaller these days, so if you're going to haul a horse trailer across the country, the power density of diesel fuel and the ability to refill a heavy-duty truck with diesel versus recharging with electricity, in my lifetime I don't think we will see electric replace the diesel in that situation. There will still be internal combustion engines to do workhorse things.

And I think there will be internal combustion engines in racing, especially endurance racing and forms of motorsports where it just makes more sense. The fans like the sound, and the thrill of seeing a NASCAR machine go by at 200 mph, and seeing a Top Fuel car go down the strip at 300 mph. That is going to stay around because people love it. I love it, you love it, and we've spent our entire life

going to motorsports events. It's not just the speed, it's also the sound and the experience. That feeling in your chest when a Fuel car fires up, you're not going to replace that with an electric vehicle. That's my argument for the IC engines. But heck, you can still find guys who like to use steam tractors to pull things around. So the days of the IC engine are going to last for a long time yet to come. We've developed them to a fine level, and they are extremely efficient. They are great! I'm an old-school guy, too—I still like firing up a good small block Chevy and hearing that rumble.

**PRI:** The automotive business is driven by sales and profits, and not just by performance. As you develop various technologies at GM, how do the business realities influence your work? Do you always have an eye on how all of this can transfer to the cars we drive on the street?

**Stielow:** We try to. There are things we can experiment with. But unfortunately, the days of having a lot of discoveries in motorsports have been narrowed down by the sanctioning bodies. We've been kind of pushed into very tight corners on what we can and can't do. Definitely from the performance side, the things we learn in motorsports we apply to a car such as the Corvette, for example. We get farther into simulations that really help the production side. The best example is that (in motorsports) they've tried to cut down the amount of testing we can do, and with COVID-19 that has so drastically limited practice that you almost have to come off the transporter ready to race. Which means your SIM tools have to be really good. So a lot of work is being done with tire modeling, vehicle modeling, and driving simulators to really make the car good when it comes off the trailer.



COVID-19 restrictions "so drastically limited practice that you almost have to come off the transporter ready to race," said Mark Stielow (right) looking over the Mustang Sampling Cadillac DPi-V.R endurance racer of JDC-Miller MotorSports. "A lot of work is being done with tire modeling, vehicle modeling, and driving simulators to really make the car good when it comes off the trailer."



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## INDUSTRY INSIGHTS

On the production side, we want to get away from the expensive early-development vehicles and shorten our development cycle. We want to be able to go from an idea to a production car in a shorter period of time. That takes a similar kind of simulation tool. Vehicle modeling, tire models, engine models, those kinds of things. We can virtually integrate these cars along the same lines as motorsports, which really shortens our development cycle and shortens the amount of time we need to tune the pre-production vehicles before they go into production. The tightest linkage between motorsports and production is the gain in technology in the simulation space.

*“THE TIGHTEST  
LINKAGE BETWEEN  
MOTORSPORTS AND  
PRODUCTION IS THE  
GAIN IN TECHNOLOGY  
IN THE SIMULATION  
SPACE.”*

**PRI:** Let's shift gears a little bit. You're very unique, Mark, in that while you've maintained your career at GM, your interest in Pro Touring vintage Camaros has turned into a significant part of your life. How do you balance? How do you make the two interests co-exist?

**Stielow:** I don't watch football, I don't watch basketball, I don't play golf...my hobby is building hot rods. I relax by going out in the shop and working on my projects. I've done this since I was 16 years old, it's something I'm passionate about, something I like to do. I've always got one of those projects in the hopper, kind of messing around with it. Luckily, I've been fortunate and enjoyed a little bit of exposure out of it. When I was younger, the first time I was in *Hot Rod Magazine* or on the cover of *Car Craft*, I thought that was super cool. It's still fun to play with it and push the envelope. I learn things at work and I try to apply it to my hot rods. Over the years, each version has become a little bit nicer.

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"There is a nostalgia there, for the aesthetic of the old car," said Mark Stielow of his Pro Touring 1969 Camaros. "And then you really want it to perform more like a modern car."

**PRI:** I'm the proud owner of a 1969 Camaro myself, Mark, and I have to say, this is very interesting to me. Today's cars have tremendous performance characteristics, yet people are still fascinated with making a 50-year-old machine drive and race like a modern car. What drives that fascination?

**Stielow:** I think there is a nostalgia there, for the aesthetic of the old car. And then you really want it to perform more like a modern car. When I started working with these (vintage Camaros) back in the 1990s, I wanted to put some of the more modern technology into something that looked like a 1969 Camaro but I could drive cross-country, and could take to open track days. I started hardening the car and making it faster, and as I got a little older, I also wanted

air conditioning and a modern radio and more comfortable seats, which meant that my wife would go with me, right? And I'll enjoy cruising more. But I just enjoy the aesthetic and the look and feeling of driving around in an old '69 Camaro. Earlier generations hopped up '32 Fords, but our generation likes '69 Camaros. Because that was the car you either had in high school or aspired to have in high school. When you got older and could afford one, you bought one and discovered that it drove like crap! And then you proceed to try and fix it. At least that's what I did.

**PRI:** So bottom line—and I'm just having some fun here—can you make your '69

Camaro handle better than a C8 Corvette?  
**Stielow:** (Laughing.) No. I have this conversation with people all the time. It's just the simple laws of physics. A Corvette has better CG, better aerodynamics, better track width, and is better integrated. A C8 Corvette is a wonderful car and they drive great. They have a tremendous bang for the buck. You can buy almost any old muscle car, and the performance would not stand up to a new Corvette. They do everything better. It's just that they don't look like an old muscle car.

**PRI:** Your passion for performance has served you well in your career. When you look back, can you pinpoint the origins of that passion? Can you identify what turned you into a car guy?

**Stielow:** My dad was of the old school where we had to kind of keep our junk running. My dad also had a trash hauling company, and he would allow me to take things apart and put them back together. That's really what drove my mechanical fascination, he kept me occupied disassembling engines and different parts. I became enamored with mechanical things, and later came radio-controlled cars.

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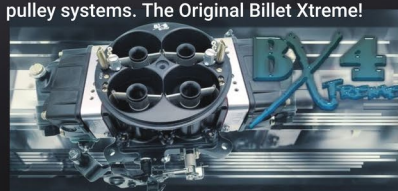


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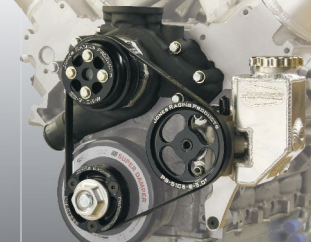
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**PRI:** We'll close with this, Mark. If you are approached by a young engineer who is interested in getting started with a factory performance car, what advice would you give that young engineer?

**Stielow:** I think the best bang for the buck is to get a C5 Corvette. That is a fantastic car. If you think about it, when you were younger you wished you could buy an all-aluminum small block Chevy, a six-speed transmission,

ABS brakes, independent front and rear suspension with aluminum upper and lower control arms, and 385- or 400-hp, stock. I mean, that's the stuff of legends. The C5 Corvette has all of those things. Think about that, if your Camaro back in 1969 had all that equipment it would have been a dream. I love those C5 Corvettes and I've got a super-soft spot in my heart for those things.

**PRI:** I appreciate you giving us some time, Mark. Thank you.

**Stielow:** Thank you, Dave. And we'll see you at PRI this year. **PRI**

Mark Stielow was recently named director of motorsports competition engineering at General Motors, assuming the post at a pivotal time in automotive performance and manufacturing. Here he confers with Laura Wontrop Klauser, at right, GM's sports car program manager, outside the Corvette C8.R garages at Daytona International Speedway.



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# MOMENTUM BUILDING FOR REINTRODUCED **RPM** **ACT**

The PRI/SEMA-backed Recognizing the Protection of Motorsports Act of 2021 is designed to safeguard the industry from government overreach and overregulation.

By PRI Staff

Fueled by a massive grassroots effort and bipartisan support among lawmakers, a bill critical to the future of racing is gaining momentum following its recent reintroduction in Congress.

The PRI/SEMA-backed Recognizing the Protection of Motorsports Act of 2021 (RPM Act), which was introduced in the House by US Representatives Patrick McHenry (R-NC) and Raul Ruiz (D-CA) on May 17, protects Americans' right to convert street vehicles into dedicated race cars, as well as the motorsports parts industry's ability to sell products that allow racers to compete. In doing so, it reverses the position of the US Environmental Protection Agency (EPA) that prohibits street car-to-race car conversions, along with the sale of parts that take a street vehicle out of compliance with broad-based emissions standards, even if that vehicle is track-only.

While the EPA points to the 50-year-old federal Clean Air Act (CAA) as the basis for its position, it was only in 2015 that officials began interpreting the law to include race car conversions.

That interpretation has sent a chill through the aftermarket, and it now has manufacturers, distributors, and retail businesses that sell parts for converted race cars fearing recrimination from federal regulators. Even manufacturers that market parts for dedicated, purpose-built race cars are worried that if their products make it onto an outlaw street vehicle, they could be subject to prosecution.

What's more, just last year the EPA specifically said it was

prioritizing "stopping aftermarket defeat devices for vehicles and engines" that override required emissions controls. Based on priorities of the current administration, enforcement actions are only expected to intensify.

"This is no way to treat a sector of the American economy that employs hundreds of thousands of people, generates billions of dollars in economic activity, and serves the needs of countless enthusiasts throughout the nation," said Daniel Ingber, PRI/SEMA Vice President of Government and Legal Affairs. "The RPM Act will provide the racing community with certainty and confidence in the face of an EPA interpretation of the Clean Air Act that threatens to devastate an American pastime and eliminate jobs in our communities. That is why Congress must pass the RPM Act—now!"

At press time, 58 members of the US House of Representatives, from both sides of the aisle, had joined as cosponsors to the RPM Act (H.R.3281). Among the first to sign on was Rep. Bill Posey (R-FL), a longtime racer/entrepreneur whose roots in motorsports date back to 1962, when he purchased his first stock car at age 15.

Having bought and sold race tracks across 35 states over three decades, Posey has a deep understanding and passion for motorsports. And, in an exclusive interview with PRI this summer, he expressed in no uncertain terms the very real dangers facing our industry.

"We know that our government has a tendency to over-

regulate, and more particularly to over-regulate the automotive field," he said. "And we know they tend to be dishonest about it, as evidenced by the threat the RPM Act was initiated to defeat. The bottom line there is, if you don't get interested in politics, you're probably going to be out of business."

Posey went on to explain that regulations, like those cited by the EPA, are enforceable as laws, even though they're "made by unelected, unaccountable bureaucrats. Obviously, they [the EPA] weren't authorized by any legislation to write that rule, but they did it anyway. And had it not been for SEMA, it would have been implemented.... The only thing we can do about a bad rule is pass legislation to counteract it."

Spurred by a growing army of motorsports professionals and enthusiasts, the RPM Act in early June had already gathered 41 Republican and 17 Democratic cosponsors. It is next scheduled to be taken up in the House Committee on Energy and Commerce. A similar Senate bill will be introduced by the time you read this.

While this year's version is not its first, the RPM Act of 2021 comes with unprecedented backing—some 1.25 million (and counting) letters sent to lawmakers urging its passage. The outpouring of support was made possible through coordinated efforts across the racing and performance industry to leverage all available reach and media.

PRI/SEMA will continue to keep the pressure on Congress to pass the RPM Act and encourage motorsports parts businesses and race tracks to support the effort to pass this bill into law. Individuals can help spread the word by including links on their websites, social media platforms, storefronts, and/or garages. Racing businesses can also rally their customers, employees, followers, and friends to act by using the assets found in SEMA's digital toolkit: [sema.org/rpmttools](https://sema.org/rpmttools). They are also encouraged to join the conversation on social media using the hashtag #SaveOurRacecars.



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In addition to turning up the volume on this critical issue, the goal has been to help educate legislators on the importance of shielding motorsports from government overreach.

"Look, there are threats to the racing industry, political threats to the racing way of life," explained PRI President Dr. Jamie Meyer, speaking recently of the need for continued advocacy on behalf of the RPM Act. "When you talk about economic impact, of people's lives that racing brings joy to, the American tradition of going out to the

races—those simple reminders are often all it takes to get a little bit of movement in a political stance."

While the RPM Act awaits its next steps in Congress, there are measures suppliers can take now to better protect themselves from EPA enforcement. PRI, in partnership with the SEMA Action Network, has put together the following guidance for companies that manufacture or sell parts for competition vehicles:

- Know your customer. Document as much as you can that the vehicles you

are manufacturing or selling for are race vehicles and have attributes such as roll bars, belong to a race team, or don't have license plates.

- Ensure the number of units manufactured or sold supports sales that are for race-use-only vehicles.
- Do not rely on "For Race Use Only" labeling alone; it will not protect you from EPA enforcement.
- If you manufacture or sell parts for purpose-built race vehicles, the EPA probably won't target you. Still, it is possible, if highly unlikely, that if one of your parts ends up on a street vehicle the EPA will come knocking. "Trust us" isn't good enough from the EPA: help pass

the RPM Act.

- Be cognizant of your advertisements and social media content. A viral video of a non-Clean Air Act complaint vehicle doing burnouts on the street or a truck off-roading and belching out black smoke is an evidentiary "gift" to enforcers.

In the meantime, PRI/SEMA will continue leading the fight against the EPA's overaggressive legal interpretations and enforcement tactics in the courts, legislatures, and regulatory agencies.

We are determined to pass the RPM Act to correct the EPA's misinterpretation

of the Clean Air Act and allow racers to modify street cars into racing machines. PRI/SEMA also has challenged the EPA in federal court on the assertion that a motor vehicle cannot be converted into a full-time race car. While the court did not address the issue directly, it did offer positive statements regarding the government's burden of proof in such cases. Absent passage of the RPM Act or the EPA changing its position, this first-of-its-kind legal challenge is likely not the last.

PRI/SEMA is leading the fight against overaggressive EPA enforcement, too. We

are asking the Office of Management and Budget, which oversees the regulatory process, to review and reign in the EPA's use of unannounced site visits, government agents making over-broad or threatening statements, onerous demands for information, extortionate settlement demands, and other fear tactics employed by the EPA.

PRI/SEMA will continue to oppose EPA overreach and protect the industry. But we need your help. Visit [semasan.com](http://semasan.com) today to learn more about how you can join the fight to save our race cars. **PRI**

The RPM Act of 2021 comes with unprecedented backing—some 1.25 million (and counting) letters sent to lawmakers urging its passage. "When you talk about economic impact, of people's lives that racing brings joy to," said PRI President Dr. Jamie Meyer, "the American tradition of going out to the races—those simple reminders are often all it takes to get a little bit of movement in a political stance."



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**SPECIAL REPORT:**

# WOMEN IN MOTORSPORTS

Our all-female panel of distinguished industry leaders offer candid perspectives on equity and expectations within the sport, what attracted them to racing, and where there's still room for improvement in a traditionally male-dominated field.

By Bradley Iger

Cara Adams  
Bridgestone Americas

Racing, and automotive performance in general, has traditionally been considered a masculine interest, but through the accomplishments of racers like Leah Pruett, Simona de Silvestro, and Natalie Decker, that perception is slowly starting to change. And as women continue to represent an increasingly stronger presence on the grid, they have the potential to inspire and influence the next generation of would-be competitors, in turn promoting a more diverse and inclusive environment overall.

*"THAT'S THE BEAUTIFUL THING ABOUT MOTORSPORTS: IT'S ALL ABOUT RESULTS. IF I DEVELOP A TIRE THAT EVERYONE LOVES, NOBODY CARES IF A MAN OR WOMAN DESIGNED IT."*

But while the headway made on track is often self-explanatory, advances behind the scenes of racing in fields like engineering, logistics, and management tend to be more difficult to quantify. With that in mind, we sought perspective from women whose career paths have followed that side of the equation. Through that perspective, the goal is to get a better understanding of where the inroads to this traditionally male-dominated industry are, what kind of progress is being made, and where there's still room for improvement. It's the kind of insight that can point the way toward better engagement with younger generations, and keep motorsports headed in the right direction.

Participating in our discussion are Cara Adams, Director, Race Tire Engineering and Manufacturing, Chief Engineer, Motorsports at Bridgestone Americas in Akron, Ohio; Kim Pendergast, CEO of Magnuson Products in Ventura, California; Jill Gregory, Executive Vice President and General Manager at Sonoma Raceway in Sonoma, California; Amy Faulk, CEO of Hypertech in Bartlett, Tennessee; Krista Elliott Riley, Partnership and Event Manager for Wayne Taylor Racing in Brownsburg, Indiana; and Rena Shanaman-Tenorio, Chevrolet Detroit Grand Prix Event

Director; Partner in Ball, Shanaman & Tenorio in Farmington Hills, Michigan.

**PRI:** What was it that led you to pursue a career in motorsports?

**Cara Adams:** My interest in motorsports developed through my interest in engineering. Growing up I had a passion for science, no doubt influenced by my mom, who was a science teacher, and my grandfather, who was an engineer at NASA.

While I was in engineering school, I was

invited to go check out the machine shop where they design and build Formula SAE race cars at the University of Akron. Aside from the time I'd spent helping my dad rebuild the carburetor in his Beetle, I didn't know much about tools or cars at that point. But I walked into this machine shop, started asking questions and learning about what they did, and realized that this stuff looked pretty fun. And after I got to ride in a Formula SAE car, I thought that if I could establish a career where I got to work with race cars, I'd have it made.

**Kim Pendergast:** My interest in motorsports came by way of a colleague of mine in another industry who was a big enthusiast. I invested with him and started going to the SEMA shows, and I realized that there were smaller companies within this industry that I could afford to acquire with my own money.

There are a lot of industries that you're just not going to be able to enter into that way; the scale is too big. I've been an entrepreneur for almost my entire life, and I wanted to own and run my own company, but I also felt like I could bring something to the party even if I hadn't been in the industry from the very beginning. My hard knocks were in other industries, but those lessons still apply in this one.



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Hypertech CEO Amy Faulk, who won the NHRA Super Stock championship in 1979, said that while she "loves winning, wins are a momentary thing. My accomplishments in business were more satisfying because they had a lasting impact."

**Jill Gregory:** I didn't necessarily set out to have a career in motorsports, but I've always been interested and involved in sports marketing. I've also always been a sports fan, and I've had a chance to work at a few agencies along the way that had brands with sports portfolios, and NASCAR ended up being one of those.

Growing up I wasn't a huge racing fan, but my cousin brought me to a few races and just the experience of it all really had an impact on me—nothing compares when you have the sights, sounds, and the scale of what we do right in front of you. Going to races is a very unique experience, and that part of it has always intrigued me. So when I had the opportunity to work with this industry on a deeper level, I actively pursued that.

**Amy Faulk:** It was almost by accident, really. When I was growing up we didn't have a lot of money—my mom worked and my dad had a radiator repair shop, and they couldn't afford a babysitter, so my brother and I stayed at my dad's garage. To keep us busy he would give us tasks to do, and I just learned a lot and got familiar with car parts. My mom was

a beautician, and when I got older I would go and stay with her and help around the salon, but I liked the garage—it was more fun than being in that beauty shop atmosphere.

When I started in college, I wasn't really sure what I wanted to do. But then I met my husband, who raced and was a mechanic at a Volkswagen dealership, and he was instrumental in me getting my first job at Racing Head Service (RHS) in Memphis, Tennessee. I was racing back then as well, and between that and my job at RHS I was able to form good relationships with people across the industry. It didn't hurt that the pay was better than my previous job as a medical assistant, either.

But I had a real turning point after the NHRA World Championship. *[Editor's note: Amy won the 1979 NHRA Super Stock championship.]* Everybody just expected me to take on a career in racing—go to Top Fuel or Funny Car, or something like that. But while I love winning, wins are a momentary thing, and my accomplishments in business were more satisfying because they had a lasting impact. I wanted to challenge myself beyond the race track.

**Krista Elliott Riley:** My initial connection with motorsports came about when I was working for three radio stations in Orlando, Florida. I was running a new business development team that was focused on finding new dollars from manufacturers, and to do that, we would design these promotions. While doing that, I formed a good relationship with the promotional director at Daytona International Speedway putting together giveaways and things like that, and I started working directly with teams to get prizing so that we develop these end-aisle displays that would help the manufacturers push product through.

That's how the initial connection to racing

Jill Gregory, Sonoma Raceway executive vice president and general manager, "wasn't a huge racing fan" while growing up, but going to a few races "really had an impact on me. Nothing compares when you have the sights, sounds, and the scale of what we do right in front of you."

was made, but the promotional director at one of those radio stations was also Wayne Taylor's next-door neighbor, and one day he explained to me that Wayne was looking for some help and that we should talk. That's how I ended up working with Wayne, and I learned everything from the ground up from there—activating PR, events, promotions, business tie-ins, and how to work with a race team.

**Rena Shanaman-Tenorio:** It was more by fate than design, really. I wanted to volunteer to work

on a jazz festival that takes place in downtown Detroit every year, and I decided to go to the promoter's office to express my interest.

This was a few months before the first Detroit Grand Prix and they were right in the middle of getting ready for this brand-new event, so they took my information and said that they would contact me later. The next day they called me and said that if I would be willing to help out at the race, they'd make sure I got a really good position at the jazz festival.



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"The pressure in this industry is less about your gender and more about being competent in your craft and authentically part of the club," said Magnuson Products CEO Kim Pendergast. "This industry values people who know and love their product."

of get the lay of the land.

They assigned me to coordinate all of the entertainment that was coming in and out of Hart Plaza—I never saw a race car that weekend as I was basically in an underground control center, but I really enjoyed working on the event. A few months after that I was asked to be part of a small committee to create a volunteer organization that would support the Grand Prix, and that's how I really got further involved in motorsports. At the start of my career I obviously delivered results, but I also feel very fortunate that one opportunity

progressively led to another as time went on.

**PRI:** Do you feel that there's more pressure on you as a woman in a traditionally male-dominated industry? Do you feel the standards are the same?

**Adams:** I've always put a lot of pressure on myself because I'm female; I always thought that I needed to go in and work twice as hard in order to prove myself. In certain cases with certain people you may have to work a little bit harder in order to do that, but in general, I don't think expectations of me were really different from anyone else. That's the beautiful thing about motorsports: It's all about results. If I develop a tire that everyone loves, nobody cares if a man or woman designed it.

**Shanaman-Tenorio:** I've always worked with the true professionals in this sport, and I think that the expectations to deliver have been the same. But there's also no question that early on in my career, as a woman in motorsports, I wasn't given as much inherent credibility as perhaps some people would have given a man in the same role. I think there would have been more assumptions

that I had the skills to do the job, whereas in my situation I had to demonstrate those abilities to some people—mostly at the lower management level—along the way to win that trust.

**Pendergast:** I think the pressure in this industry is less about your gender and more about being competent in your craft and authentically part of the club. This industry values people who know and love their product.

**PRI:** Do you feel that this industry is welcoming to women? Is it an attractive career path for young women?

**Gregory:** I don't think there's been a particular issue where I've had to overcome the sorts of obstacles that you might find in a number of other industries. The fact is, when we're in an auto manufacturer meeting, or we're in a meeting with some top marketing executives, there are many times when the women in the room are the obvious minority.

I think that the motorsports industry has been welcoming to me, and I would recommend it to any woman who likes sports. This is somewhere that I think you can be really successful.



In motorsports, "you're constantly shifting between challenges great and small," said Wayne Taylor Racing's Krista Elliott Riley. "If you're someone who wants to avoid being bored or pigeon-holed, it doesn't get any better than that."



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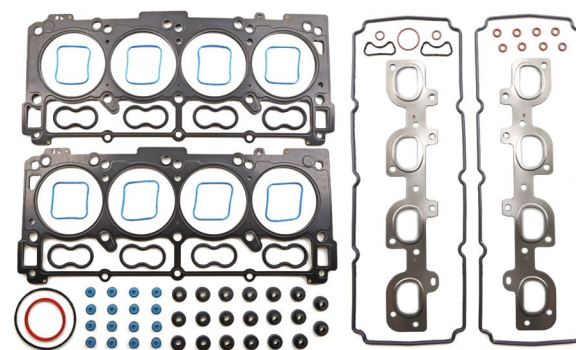
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**Faulk:** I definitely believe that there's great opportunity here, and more opportunity for women in this industry than there has been in the past. It comes down to preparation, and you have to have the passion for it. To

me, there's nothing better than the sound of a well-tuned engine with the right exhaust—that's just music to my ears.

There's going to be all kinds of challenges, but if you like it, you'll grow and learn from

those challenges.

**Riley:** I can only speak from my experience in sportscar series, but I think it is a welcoming environment. It's an industry with a very entrepreneurial spirit—you have to learn a lot, and you're constantly shifting between challenges great and small. One minute you might be handling a small issue for a driver, and the next minute you're in a boardroom as part of a multimillion-dollar negotiation. If you're someone who wants to avoid being bored or pigeon-holed, it doesn't get any better than that.

**PRI:** Are there areas where the industry could do better in that regard?

**Faulk:** The biggest issue I see is that you

"You control your own destiny," said Cara Adams, director of race tire engineering and manufacturing and chief engineer, motorsports, at Bridgestone Americas. "Don't let anyone tell you what you can or cannot do."



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go take on a job with a company, and sometimes you just get overlooked—some employers may not see that potential in you and may not give you the opportunity to participate. It's a situation where, for instance, a company picks a team to go to the SEMA Show, and all of the sales guys end up going while the women are kind of left behind; they're not even asked if they want to participate.

It's important for these women to have those face-to-face meetings. If they're not there, they're not networking and they're not getting the experience, and that prevents them from having the tools they need to succeed and move up the ladder. You might be the most qualified person for a given job, but if you're not in the heart of things, someone else might get picked over you just

because that potential employer knows that person from meeting them at a show, a race, or some other event.

**Adams:** I think we're making great strides right now, but, of course, there are areas where we can still improve. Situations like when I made the transition from being an engineer into being an engineer and a leader of others: The first year that I had a female engineer working for me on a small team, it opened my eyes to the things that I thought were OK as a female engineer versus the things that I am willing to tolerate with one of my engineers. Certain environments and certain attitudes toward women are a little more apparent when you're shepherding other people through the sport.

IndyCar is great, though—I'd say 99% of the people in IndyCar are very welcoming

and supportive. But I think continuing to have talks with race teams about diversity and giving people a chance is always good.

**Shanaman-Tenorio:** Various series have been focusing more on developing the talent of women who race. But as an industry, it's almost expected to be "grassroots" progress in terms of bringing more women into other roles outside of the cockpit. There isn't the same concerted effort to attract women into the engineering and pit crew jobs, along with the administrative side of the business. And I think that's happening in part because there hasn't been a defined need for it, but certainly there could be more women in all of those aspects of motorsport.

**PRI:** Do you have a professional role model or mentor, or someone who inspires you?

**Adams:** I'm going to start with Judith Resnik, an astronaut from Akron, Ohio, who was on the space shuttle Challenger. She's been a role model of mine not only because she was on the shuttle doing all this advanced scientific research, but also because of my connection to NASA through my grandfather's engineering work there.

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"Don't be afraid to speak up, be who you are, and have a point of view," said Sonoma Raceway's Jill Gregory, seated here next to NASCAR driver Kevin Harvick. "Be confident in your abilities."

Once I started following racing, Janet Guthrie became another role model for me—I was always impressed by what she was able to do and the barriers she was able to break down in motorsport. And I would be remiss if I didn't point out that my mom has also been a great role model for me as well. **Shanaman-Tenorio:** One person that immediately comes to mind is Vicki O'Connor—she and I became good friends, and we were colleagues. She was one of the first women I worked with in a senior position in motorsports.

Another is Shannon Shafer. Shannon and her husband owned a company that contracted with racing organizations on both the operational side and the sponsor sales and servicing side, and she definitely set a standard of professionalism for me.

**Riley:** I tend to gravitate toward folks who have a strong sense of integrity, and those who expect more of themselves. I think of Wayne and Shelley Taylor for their deep conviction and can-do attitude, and how that approach can be seen in our crew and our engineers.

I also think of Angela Hall, who has

revamped the credentialing system at IMSA, and Emily Nash, who has revitalized our paddocks and victory lanes. And Sarah Robinson, who brought such incredible creativity and energy to our paddock when Michelin first came aboard.

**PRI:** What's the most important lesson or piece of advice you've carried—and that's served you well—through the years?

**Adams:** You control your own destiny; don't let anyone tell you what you can or cannot do. And one of the best lessons I learned early on was that if you want something, just be persistent.

**Faulk:** Avoid lip service; if you say you're going to do something, do it. And don't be afraid to get dirty when you need to.

**Riley:** If something's not working, be willing to move on to the next idea. It's okay to fail, but "fail quickly." Other than that, just be kind, be persistent, and be creative.

**Shanaman-Tenorio:** Be credible; know what you're talking about before you open your mouth. If you get caught in that sort of situation, I think it tends to hang over you longer as a woman.

**Pendergast:** Probably one of the smartest

guys I ever worked for once told me, "Kim, you have a balance sheet. Here's what you contribute to a company, and here's what you get paid by that company. Always make sure that the first figure is bigger than the second one." Life is really that simple. At the end of the day, employees have to bring more value than they cost. So if you have some quirks, you better be pretty exceptional.

But the best advice I ever received was from the president of the company at my first job. He said, "Kim, you should give your ideas away—you have so many of them, you don't need them all. If you give a few of them away to other people, they will remember it." It took me 20 years to be able to do that.

**Gregory:** Don't be afraid to speak up, be who you are, and have a point of view. Be confident in your abilities. In a situation where you might be one of the only women in the room and you want to perform well and make the right decision, you have to have almost an extra boost of confidence early on. But if you know this is where you want to be and you have a passion for the work, express that. If there's a doubter out there—

even if it's yourself—going back to that fact that you've got something to contribute to the sport is something that will keep you where you need to be. **PRI**

## SOURCES

**Cara Adams, Bridgestone Americas**  
bridgestoneamericas.com

**Krista Elliott Riley, Wayne Taylor Racing**  
waynetaylorracing.com

**Amy Faulk, Hypertech**  
hypertech.com

**Jill Gregory, Sonoma Raceway**  
sonomaraceway.com

**Kim Pendergast, Magnuson Products**  
magnusonsuperchargers.com

**Rena Shanaman-Tenorio, Chevrolet Detroit Grand Prix; Ball, Shanaman & Tenorio**  
detroitgp.com; ballshan.com

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# ALIVE &



# GROWING

With participation—and power numbers—rising and ETs falling, diesel is one of the hottest forms of motorsports today.

By Drew Hardin

“Is diesel racing dead?” That was the subject of a recent *Diesel Performance* podcast, which pitched that very loaded question at Gregg Jolley of the Outlaw Diesel Super Series (ODSS) in Terre Haute, Indiana. ODSS is one of the most popular diesel drag racing organizations in the country, with six events planned for 2021 spanning a swath of territory from the Midwest to the Southeast.

“In my opinion, it’s very much alive and growing at a very rapid pace,” Jolley told PRI, pointing to participant growth that has “almost tripled in size in the past three years.” Even during a pandemic-hampered 2020, “the events we were allowed to have had record attendance numbers. Everyone was ready to get out of the house. I think we’re going to experience the same sort of thing this year.”

Growth isn’t occurring just in diesel drag racing, either. Greg Lussetto of the Heartland Pulling Series in Bridgeport, Nebraska, said truck and tractor pulling has traditionally “been centered in this little corridor region of Ohio, Illinois, and Iowa. But all of a sudden, things are going on in the East Coast. And pulling has popped up in Montana and Wyoming. There’s an organization that’s trying to get rolling in the Arizona/New Mexico area, and Texas has had a ton of growth.”

Another way to measure diesel racing’s vitality: According to Chris Searle of the Ultimate Callout Challenge (UCC) in Idaho

Falls, Idaho, “Five years ago, the biggest thing was to run the quarter-mile in the 9s. In 2016 we had only one or two trucks running that fast. A year later, over two-thirds of them were doing 9s.” And a year after that, the UCC switched the drag racing portion of its event from quarter-mile to eighth-mile “because the trucks were going so fast.”

“OUR IDEA WAS TO CREATE AN EVENT, WITH A DRAG RACE, SLED PULL AND DYNO, ALL AT THE SAME LOCATION, TO SEE WHO IS TRULY THE BEST.”

Earlier this year, Firepunk Diesel’s Larson Miller became the first diesel racer to make an eighth-mile pass in the 3s at the Lights Out 12 event in Georgia. Searle called this progress “a great thing for the sport,” and has made diesel drag racing “extremely popular.”

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So popular, in fact, that the UCC team has partnered with Hot Shot's Secret to start the brand-new Hole Shot Diesel Series, which will hold events in Western states. "We used to have racing out West until the NHRDA (National Hot Rod Diesel Association) went under two or three years ago," Searle said. The classes and rules for the Hole Shot series will be like those at ODSS events, which was done by design. "We told Gregg we wanted to adapt your rules so they become nationwide rules," in the hope that the two series, in the not-too-distant future, could jointly hold an East versus West finals.

As part of its inaugural season, the Hole Shot series will run one of its events at the Texas Truck Jam, which takes place at the Texas Motorplex in August. The Texas Truck Jam has been growing steadily since it started four years ago, but co-founders Joshua Cole and Cory Sorrells are hoping their involvement with the Hole Shot series will take the event to another level. They've expanded the Jam from one to two days to accommodate the expected activity, and are planning for

Participation in Ultimate Callout Challenge is by invitation only and is limited to 30 trucks. That's done so all competitors have the time they need to tune for the various events, "but it's also a feather in your cap to say you competed in the UCC," said Chris Searle. Photo courtesy of UCC.



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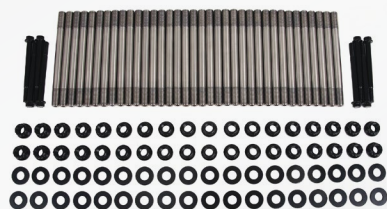


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thousands to come through the gate.

"Our whole goal with this is to have a playground for anyone who wants to be competitive," said Sorrells. "You can throw your truck in the show-and-shine, put it on the dyno, race it on the track, do whatever you want."

## PLAYGROUND ATMOSPHERE

That multi-event "playground" atmosphere is popular in diesel racing. It's common to combine drag racing, truck and tractor pulling, dyno competition, and a truck show at one event. At the East Coast Diesel Nationals, held at the Numidia Dragway in Numidia, Pennsylvania, the drag strip and pulling track are "right next to each other and are run at the same time," said Ron Knoch of the National Association of Diesel Motorsports, Kansas City, Missouri. "People can watch both. If there's a lull during the drag racing, they can watch sled pulling."

*"WE NEED TO INVOLVE EVERYONE TO KEEP THE SPORT ALIVE."*

Likewise, the Scheid Diesel Extravaganza, which this year celebrates its 25th anniversary, is held at Wagler Motorsports Park in Lyons, Indiana, where "the drag strip and pull track are within 500 feet of each other," said Scheid's Jared Jones. "As you're watching drag racing you can look behind you and see a truck pull down the track at the same time."

The Ultimate Callout Challenge is based on that multi-discipline format, but with a twist. "Our idea was to create an event, with a drag race, sled pull, and dyno, all at the same location, to see who is truly the best," said Searle. "Ours is different from most drag series. It requires one truck that is built to go fast, put down big dyno numbers, but then also pull a sled. Building a fast truck that can also sled pull creates a unique challenge."



You have to keep weight on it for the sled pull and lose it for drag racing.”

Participation in the UCC is limited to 30 trucks by invitation only. That's done to make sure all the competitors have the time they need to tune for the various events, “but it's also a feather in your cap to say you competed in the UCC,” Searle said.

## ENTRY-LEVEL GROWTH

While high-profile events like the UCC and ultra-quick ETs grab attention and social media eyeballs, most of the event promoters we spoke to said the sport's expansion is coming at the other end of the diesel spectrum.

“The most growth we're seeing is in the stock trucks, just because of expense,” said Knoch. “The top classes are going to be the Hot Street classes. These guys drive their trucks to the track. They may change tires, or not, make a few tuning adjustments, compete, then turn it back down, put the regular tires back on and drive home.”

“Our biggest classes by far are the ET and 7.70 index classes,” said Jolley. “Those are your street-driven pickup guys, the weekend warriors who want to show off what their truck can do. At Rudy's Fall Truck Jam in North Carolina, we'll have 120 trucks in those two classes alone. That's a huge chunk of our market.”

“THERE IS AMAZING TECHNOLOGY IN PULLING.”

“Those ain't slouches,” said Jones of the 7.70 and 6.70 index classes. “You need 600 to 700 horses to run a 7.70, and around 1,000 to 1,100 horses to run a 6.70. And those are some beefy trucks, packing 6,000, 7,000 pounds and getting those numbers.”

To Jones, the 5.90 class is “gaining the most popularity. These are 1,400- to 1,500-horsepower pickup trucks running consistent 5.90s. It's a really tight bracket class and still a budget-friendly class. With the Ford, Chevy, and Dodge engines you

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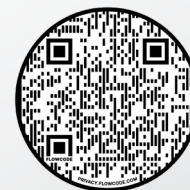


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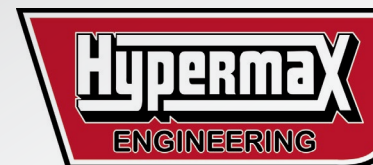
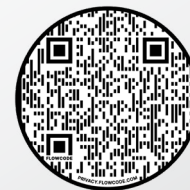
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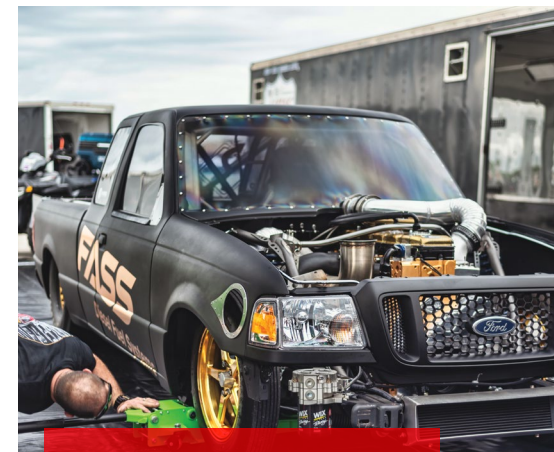
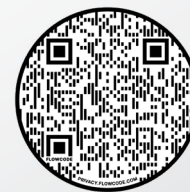
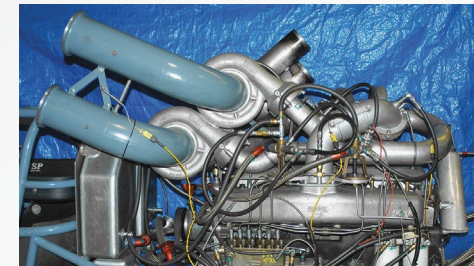
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At the top tier of diesel drag racing, speeds are increasing and ETs are falling. UCC's Chris Searle considers that progress “a great thing for the sport,” which has made diesel drag racing “extremely popular.” Photo courtesy of UCC.

can get 1,400 or 1,500 horsepower relatively easily. It's still an iron block, iron head, not a lot of billet stuff. It's mostly fuel and air to get to that point.”

As popular as the index and bracket classes are, heads-up and no-prep-style racing are growing in the diesel racing world. “I don't foresee the index classes going away, but we are going to do away with our Pro Street class this year and add what is essentially an Outlaw, run-what-you-brung style class, like a big-tire class at a no-prep race,” said Sorrells.

“I took Nathan Wheeler's Crazy Horse truck out to an airport race hosted by Flying Diesel,” said Cole, “and there were 17 people in the run-what-you-brung class. That's a huge turnout for a class like that. I'm going to one this weekend in San Antonio. Every couple weeks there's a race like that down here. It's become a huge thing.”

Cole and Sorrells are adding a no-prep race to the Texas Truck Jam “on Friday night before the main event on Saturday. It would be a top-end, street-style race on the back half of the track,” racing from the end of the quarter-mile “to the sand trap.



The Texas Motorplex track is 6 feet shy of 1 mile, so you have all the room in the world up there.” By doing the no-prep racing at the far end of the track, the other end “will still have the good, solid prep that Texas Motorplex is known for.”

Diesel trucks are doing so well at these kinds of races that “all kinds of rules are starting to be made to ban four-wheel drive,” said Jones. “But if you want your no-prep series to grow, you need to let these diesel pickups in. Make a class for them or adjust the rules accordingly. We need to involve everyone to keep the sport alive.”

*“COMMONALITY OF RULES IS KING.”*

Some promoters won’t allow the trucks to race heads-up or no-prep due to concerns about controlling a vehicle at high speeds that’s as tall and heavy as a 4WD diesel. But “all those trucks running no-prep are still certified to run 8.50s in the quarter, following the rules made by NHRA,” Jones said. “These are NHRA-legal drag trucks with SFI-approved cages. They’re just as legal as the car beside them for their weight.”

### 600-POUND GORILLA

But safety isn’t diesel racing’s only pressure point. Concerns over the US Environmental Protection Agency (EPA) prosecuting competitors and their tuning shops is “the 600-pound gorilla in the room nobody wants to talk about,” said Lussetto.

Generally speaking, most industry members and enthusiasts are aware that not every vehicle, once modified, can be driven on the road. But our reporting indicates EPA enforcement is having a negative effect, with the availability of fewer legitimate options for performance and the specter of that 600-pound gorilla [the government] hanging over stakeholders and impacting this segment of American motorsports.

“People are worried about EPA crackdowns, what’s going to be allowed and what’s not,” Jolley confirmed.

One example is Smoke & Speed’s King

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of the Street Challenge, which in prior years had welcomed competitors converting daily, work, and road trucks. These days, however, it is now open only to emissions-compliant vehicles, said Sara Phillips-Chapman.

“We’ve done that to help boost the industry and drive competition forward instead of it disappearing, as has happened in these past few years,” she explained.

Although concerns about the EPA “haven’t affected our event yet,” Jones told us, Scheid Diesel is one of many performance diesel companies that has been “pushing the RPM Act pretty hard.” (The SEMA-sponsored Recognizing the Protection of Motorsports Act, which was reintroduced in the House of Representatives in mid-May, would protect the right to convert street vehicles into dedicated race vehicles and protect those in the motorsports industry that sell competition products for those vehicles.) Scheid is encouraging others to do the same. “The more people we get on board,” he said, “the stronger we’re going to be.”

### ‘WEIRD ANIMAL’

Though the two motorsports have a lot in common, truck and tractor pulling “will never be a mainstream sport like drag racing,” said Lussetto. “It’s a weird animal, kind of a niche. We get marginalized, like we’re a bunch of hillbillies, even though there is amazing technology in pulling.”

As an example, Lussetto cited the father-and-son team of Jody and Colin Ross, whose pulling tractor “runs four turbos in three stages. They’re running anywhere from 200 to 300 pounds of manifold pressure, and I heard a behind-the-scenes rumor from a legitimate source they dynoed that motor at 4,600 horsepower. That’s out-producing a blown alcohol Hemi, on diesel.”

To Lussetto, events like the UCC that feature both drag racing and pulling are “a very good thing. It’s exposure to people who wouldn’t necessarily see pulling.”

Also working hard to broaden pulling’s visibility is Jason Schultz of Richland Center, Wisconsin, who said his Beer Money Pulling Team “has about a million followers” on social media. And that doesn’t include the audience for the podcasts he produces twice a week.



Because there “aren’t as many kids growing up on farms now, I felt like we need to get this out to social media.”

Schultz races a tractor called The Remedy, with Case IH sheet metal and a stroked and turbocharged International diesel that produces around 2,500 horsepower. But tractors aren’t where the sport is growing, he said.

“Diesel trucks are the biggest area of growth for sled pulling. Not every kid has a (International Harvester) 1066 or a (John Deere) 4020 on the farm anymore, but every kid has a Dodge Ram truck with a stack coming out the hood, driving around town and smoking everybody out at the stoplights.”

*“WE’RE REALLY SEEING THE DIESEL INDUSTRY COME TOGETHER TO TAKE IT TO THE NEXT LEVEL, REALLY ADVANCE IT SO IT’S ON THE SAME TIER AS GAS DRAG RACING.”*

Gregg Randall of the National Tractor Pullers Association in Columbus, Ohio, has seen “demand widen” at NTPA events “for the single-turbo class we call Pro Stock Diesel Truck. It seems like it connects to the younger male demographic that goes out and buys a diesel truck, puts a chip in and plays on the street.” Even though the Pro Stock Diesel trucks aren’t trucks “you can compete in and drive on the street, there’s a connection there to that class. You’re watching something like your own truck on the pulling track. It’s relatable.”

It’s the diesel truck classes that are drawing “first generation” participants

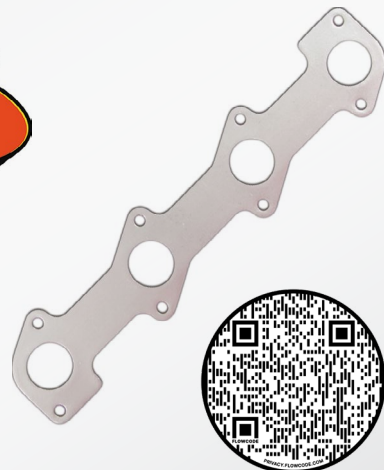
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## PRODUCT FOCUS



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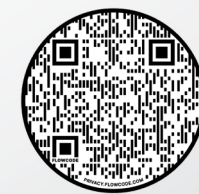
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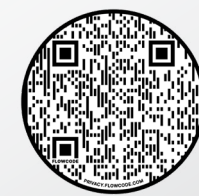
- Ford Powerstroke (1995.5–2007) 7.3L, 6.0L, 6.4L.
- Dodge Cummins 5.9L (1994–2007), 12-valve and 24-valve.
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At National Association of Diesel Motorsports events, the classes experiencing the most growth are stock classes, said Ron Knoch. Gregg Jolley of the Outlaw Diesel Super Series agreed. The “street-driven weekend warriors” make up “a huge chunk of our market.” Photo courtesy of National Association of Diesel Motorsports.

to pulling, Randall said. “They are guys probably in their 30s, or they’re sons of dads who are getting them started. It’s been a breath of fresh air, getting some new folks in.”

One of the “biggest changes” Randall has seen is the expansion of truck and tractor pulling into circle-track venues. “They’re bringing in something special outside of the normal local drivers competing twice a month. Whether it’s a truck and tractor pull, monster truck show, demolition derby, or something else, it’s drawing fans that have never been to that track.” That brings front-gate revenue to the track to supplement the back-gate revenue typically generated by the participants.





COME TOGETHER

The ODSS, for example, is made up of three performance diesel companies, Scheid Diesel, TS Performance, and Rudy's Performance Parts, "that are direct competitors in the business world, but they

have come together to improve the sport. For a long time, it was very tough to get the diesel industry to understand that. The more you have, the more people that'll come." **PRI**

## SOURCES

**Heartland Pulling Series**  
heartlandpulling.com

**Wehrli Custom Fabrication**  
wcfab.com

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# WOUND UP



Photo courtesy of Rudy's Performance Parts

**The diesel racing market remains cautiously optimistic for growth as “getting back on track” and embracing new technologies stand out among stakeholders’ top priorities.**

By Mike Magda

If there's one segment in the performance and racing industry that may literally have a bullseye on its back, it's the diesel market.

A wave of scrubbed events last year due to the COVID-19 pandemic reduced the need for parts and engine builds, especially on the tractor-pulling circuits that rely heavily on county fairs and other regional gatherings to support the competition. Helping keep the industry moving was the core audience for these events—millions of 3/4- and 1-ton diesel truck owners who use their vehicles in agriculture and construction while also modifying them for towing and recreation.

“I would say 75% of the events or more were canceled. So, it really slowed our work down,” said Ryan Salenbien of

Salenbien Performance, Maybee, Michigan. “Nobody needed horsepower or had anything to fix.”

That stood in contrast to the experience of Wade McGinnis of Thoroughbred Diesel in Winchester, Kentucky, however, who told us, “Some sectors have been hit adversely with COVID, but for us business has been very good. We’ve been blessed. We’re more of an e-comm, so I feel like our niche customers are 650 horsepower or less. As far as the competition customer, obviously we can service them, but it’s really not our core customer.”

“We’ve been setting sales records every month,” agreed Lavon Miller of Firepunk Diesel, Plain City, Ohio. “The majority of our customer base is all essential workers. They got their travel and leisure taken away, so they put all their time into building their trucks.”

However, peeking around the garage doors of all these diesel shops is the US Environmental Protection Agency (EPA), which has mounted an unprecedented crackdown on the illegal removal or alteration of factory emissions components on production vehicles.

“We pretty much have dropped all tuning platforms with a diesel aftertreatment system. It’s just not something that Firepunk offers,” said Miller. “[EPA] pretty much made it clear that if the truck is plated for street use, there’s zero tolerance on tampering with the aftertreatment systems.”





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Scheid Diesel manufactures its own 5.9L and 6.7L Cummins aluminum blocks for performance applications. The company is looking forward to a busy second half of the 2021 racing season, "getting back on the track and being able to have some events," said Dan Scheid. "We feel like people are ready to get out and enjoy themselves." Photo courtesy of Scheid Diesel.

Ten to 20 years ago, diesel vehicles were seemingly making headlines at nearly every global racing venue. Audi and Peugeot dominated Le Mans and WEC racing; then Audi quit to focus on electric car racing. Mazda toyed with a diesel in IMSA racing but returned to gasoline after three years. Now endurance racing officials have banned diesel for the hypercar prototype class.

Also, not too long ago there were high-profile diesel breakthroughs at Bonneville and in World Touring classes. A significant number of vehicles at Dakar were diesel-powered, too, and some still are. But across the globe, diesel racing opportunities have tapered off as automakers are pressed by government officials to eliminate the engines in passenger vehicles.

In the US, only drag racing and tractor pulling offer significant opportunities for racing a diesel engine. And the aftermarket has taken the sport seriously. Diesel

technology includes clean-sheet billet engine designs and massive tri-turbo compound configurations that provide more than 150 pounds of boost. There has been an earnest uptick in engineering and parts development for the competitive puller or drag racer.

"Right now, the biggest excitement is getting back on the track and being able to have some events. It's the number-one priority," said Dan Scheid of Scheid Diesel, Lafayette, Indiana. "The farm economy right now—the grain prices and stuff—are extremely good. So, typically, when you got farmers that are making money, they like to pass it around."

Scheid recently added a new mill and lathe to the shop, and fabricating high-pressure fuel lines is keeping the machines busy along with development of hardcore parts.

"We've been kind of stuck on the 12-valve heads for the Cummins 5.9 engines, and now we're getting ready to introduce

24-valve heads," added Scheid. "Either a mechanical or electronic fuel injection system can be used on them. So, we should be getting that out to the marketplace here just within the next month or so. And we still are marketing our 5.9 and 6.7 Cummins aluminum blocks that we have available for performance applications."

Rudy's Performance Parts in Burlington, North Carolina, is already drawing crowds and competitors, having sponsored its first 2021 event in late April at Piedmont Dragway in Julian, North Carolina. Approximately 300 participants raced, and despite weather delays the company leveraged the event successfully through its marketing channels.

"We pretty much start out just marketing on Facebook, posting videos and photos," said Tim Eied. "We get a lot of attention from the spectators, from the vendors, from the racers, and we get a lot of hype from the ODSS (Outlaw Diesel Super Series). We

had to cancel our last two events because of COVID, so we were limited to about 3,000 people this time."

Rudy's is shifting its attention away from performance upgrades to other needs of the truck enthusiast, including suspension, interior upgrades, and lighting.

"Also, we've veered off into the UTV side. We still have tuners from Edge, Superchips, and Banks that are emissions friendly," noted Eied. "But AMP power steps, bed covers, parts like that is where our focus has shifted. It seems that everyone else in the industry is also making that shift."

Diesel shops will gladly offer performance parts again if the manufacturer gets them certified through the California Air Resources Board (CARB).

"We're working with some of the manufacturers and suppliers on CARB approvals for a lot of the parts," added Eied. "PPE (Pacific Performance Engineering) has CARB-approved downpipes and up pipes.

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Rudy's Performance Parts promotes its brand by fielding its own race truck and sponsoring several drag race events, in association with the Outlaw Diesel Super Series. Photo courtesy of Rudy's Performance Parts.

Edge is working on getting all their tuners CARB-approved. S&B is working on getting all of their intake systems approved. It's awesome, and obviously they don't want the market to be limited. So they're working on them, they're doing a great job of it."

"[CARB approval] is in the forefront of every major manufacturer in the diesel niche right now," confirmed McGinnis. "It's what everybody is working toward. What does it need to help the movement? We need more testing facilities to get them tested and on the road."

Miller is in regular contact with his state's EPA office, and has set down strict sales policies that will keep it in line with federal guidelines as well.

"After communicating with my Ohio EPA rep, he said not all tuning is illegal. But if you have to turn off an oxygen sensor and you disabled the DEF pump or the EGR or anything like that, that's considered tampering and you'll be held accountable

for it," said Miller. "So, if I can't sell a tune that doesn't meet those requirements, I just don't do it."

As a result, many diesel shops are looking to offer an alternative to tuning.

"I think tuning is still popular, but I tell you one product that has really shined in the last couple of years has been throttle sensitivity boosters," said McGinnis. "They've taken a place alongside tuning. It's a nice performance modification that can be done to a truck. You can take it off if you have to take it in for warranty. Doesn't really affect the warranty and really increases drivability."

Since Salenbien caters to professional diesel racers with dyno testing and custom engine building—including tractor engines—he can focus more on parts development. At the 2019 PRI Trade Show, Salenbien introduced his Apex turbo, a unique design in which there is no fastener for the compressor and turbine wheel. The blades extend all the

way to the core, which effectively increases the size of the turbo even though the housing dimensions don't increase.

"That opens up the door in the limited classes. If you're in a 3.0 class and allowed only a 3-inch compressor wheel, you got to maximize all you can out of that 3-inch hole," said Salenbien, adding that other forms of racing are now interested in the patented design. "I didn't know anything about car racing, but we've actually started pairing up with some racers and understanding that side of the world."

Looking to the future, diesel shops are optimistic that sales will grow as the diesel racing schedule returns to normal, even if diesel fuel prices escalate or there's still a hangover from the pandemic.

"The only real concerns that I have are supply issues," noted Eied. "COVID made a huge impact on supply; but in all honesty, it doesn't really appear to be getting much

better, which is a little bit nerve-racking. The last thing we want to do is not be able to take care of our customers. So we're doing everything we can to stay stocked up on inventory."

"The main thing is more events," added Scheid. "We feel like people are ready to get out and enjoy themselves."

"I think as people stay performance-minded, it's going to keep us evolving," predicted McGinnis.

Keeping the market clean will also be a priority—even for racers.

"I try to preach over and over to my customers: You want to make it lean at wide open throttle. That way, you have a better chance of getting it dialed in to where you have as low smoke output as possible. Then people outside looking in to our industry don't see us as just a polluting smoke machine," said Miller. "Our S-10 race truck makes over 3,000 horsepower with no smoke going down the track.

People are starting to jump on that trend of trying to put new setups together that are clean with less smoke output." **PRI**

## SOURCES

**Firepunk Diesel**  
firepunk.com

**Rudy's Performance Parts**  
rudysdiesel.com

**Salenbien Performance**  
salenbienperformance.com

**Scheid Diesel**  
scheiddiesel.com

**Thoroughbred Diesel**  
thoroughbreddiesel.com

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# BUSINESS PROFILE: FREEDOM RACING ENGINES

This Indiana-based diesel shop's focus on perfecting its recipe has given rise to a brand that's become "synonymous with racing and winning."

By John F. Katz

Among an impressive list of accomplishments, Freedom Racing Engines provided the 6.7-liter, twin-turbo Cummins that powered Scott Birdsall's 1949 Ford pickup to a new diesel record of 11:24.065 in the 2020 Pikes Peak International Hill Climb. Freedom also built the 5.9-liter Cummins for X275 racer Ryan Milliken's 1969 Nova, which debuted at Lights Out 12 in South Georgia just this past February.

Freedom is owned by brothers Chase and Brayden Fleece, who established Fleece Performance Engineering in North Salem, Indiana, in 2008 to manufacture high-performance diesel components. (The PowerFlo lift pump is just one of their signature products.) The brothers moved their operation to Brownsburg in 2012, where they began outsourcing machine work to Freedom—located literally across the street—and then purchased Freedom outright in 2014. In 2019, both companies relocated to a brand-new, purpose-built, 75,000-square-foot facility in Pittsboro, about

16 miles northwest of Indianapolis. Today Fleece and Freedom together employ just under 70 people, all full-time.

Freedom's operations manager, John Benshoof, had been a dealer mechanic in Minnesota before signing on as the "tire guy" for Antron Brown's Top Fuel Dragster team in 2008. He soon moved up to cylinder head specialist, the position he held when Brown won the 2012 NHRA Top Fuel drivers' championship. By then, however, Benshoof had met his wife-to-be, and wanted to spend less time on the road. "So I transitioned to working in the machine shop (in Brownsburg) for Don Schumacher Racing, where I gained all kinds of experience in machining, CNC, and shop operations." He started his present position at Freedom in spring 2015.

## PERFECTING THE RECIPE

Freedom specializes in Cummins and Duramax diesels. "Cummins has always been our bread-and-butter," Benshoof explained, "and Brayden and Chase have been involved with Duramax since the get-go. But the Cummins engine is the one to have, especially in a pulling application."

And while Benshoof is naturally reluctant to share specifics, he did note how Freedom has "spent a lot of time perfecting our recipe—and a lot of that is data acquisition. Over the years we've done a really good job of stacking up run files on our dyno, and then constantly picking our recipe apart, and making small adjustments." This has allowed Freedom to "adjust quickly, and to continually improve what already works. In any kind of racing, you always have to look for The Next Thing."

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Freedom Racing Engines and Fleece Performance Engineering joined forces in 2014, and moved into their current, 75,000-square-foot facility in Pittsboro, Indiana, in 2019.

Even more than that, however, Benshoof attributes Freedom's success to its people. "The number-one thing in business—it doesn't matter what you are making—is to have the right people. In business you have the who, the what, and the how—but as long as you have the who, the rest gets taken care of."

Furthermore, "We're small enough that communication isn't hard," he continued. "We still use email to communicate, but for the most part we're all right there, so it's easy to pass information along." Still, Benshoof likes to start every Monday morning with a meeting. "That's my time to talk to the crew, get a game plan together for the week, and to find out who has questions or concerns."

### PEOPLE AND PROMOTION

Product promotion is equally people-powered; when Benshoof insists that "our customers are our best advertisement," he really means it. "We've never spent a lot of time trying to market through magazines, or even social media." Promotion "is completely organic. It comes from winning at the track. When our pullers are successful, people call

our shop. They want quotes. They want us to build engines."

And while winning brings new customers in the door, customer service brings them back. "We are in the business of building relationships more than building engines. When you work with somebody—when you are working with thousands of their hard-earned dollars—it's the service after the sale that's key. And that's how we've always done things. You treat people good, you take care of them, and you make customers for life."

One of those customers is Ryan Milliken, who, when he's not racing his oil-burning Novas, partners with wife Leslie in Hardway Performance Solutions, a diesel specialty shop in Mary Esther, Florida. Ryan met Chase Fleece 14 years ago at a dyno event sponsored by transmission-builder SunCoast. "I was the guy at the Fleece booth firing questions, probably until they wished I'd walk away," Milliken chuckled. "I've been buying Freedom engines from Fleece before the brothers took possession of it."

Milliken built his first Cummins-powered Nova, a bright green 1966 hardtop, with a

Having the right machinery has helped Freedom Racing Engines succeed. It boosted efficiency and "repeatable quality," noted one of the company's managers. "It opened up the opportunity to sell a project, get it done in a timely fashion, and get it done the same way every time."

waterless block and a Wagler head assembled and machined by Freedom. He sold that car in 2019; the Cummins in his new (and strikingly blue) 1969 Nova is a pure Freedom product. "Their combinations are tried and true," Milliken confirmed, "with data to back them up. Every move is calculated. If we make a change, we know what to expect—and then we go back to see if it did exactly what we were expecting."

Milliken's own shop also builds performance diesels, "but just basic stuff—600 to 700 horsepower, nothing too wild. When someone comes in with bigger dreams and aspirations, I sell them a Freedom engine," he said. Or, if a customer sees something on Milliken's car



that they want for themselves—for example, "the custom front cover with the integrated dry-sump oil system that Freedom sells, I just call up Freedom and get an estimate, and if the customer says, 'Yeah, I'll have that,' then I order it, and it's on its way. It's great to sell something that you absolutely know for a fact is going to work perfectly when it shows up at the customer's door."

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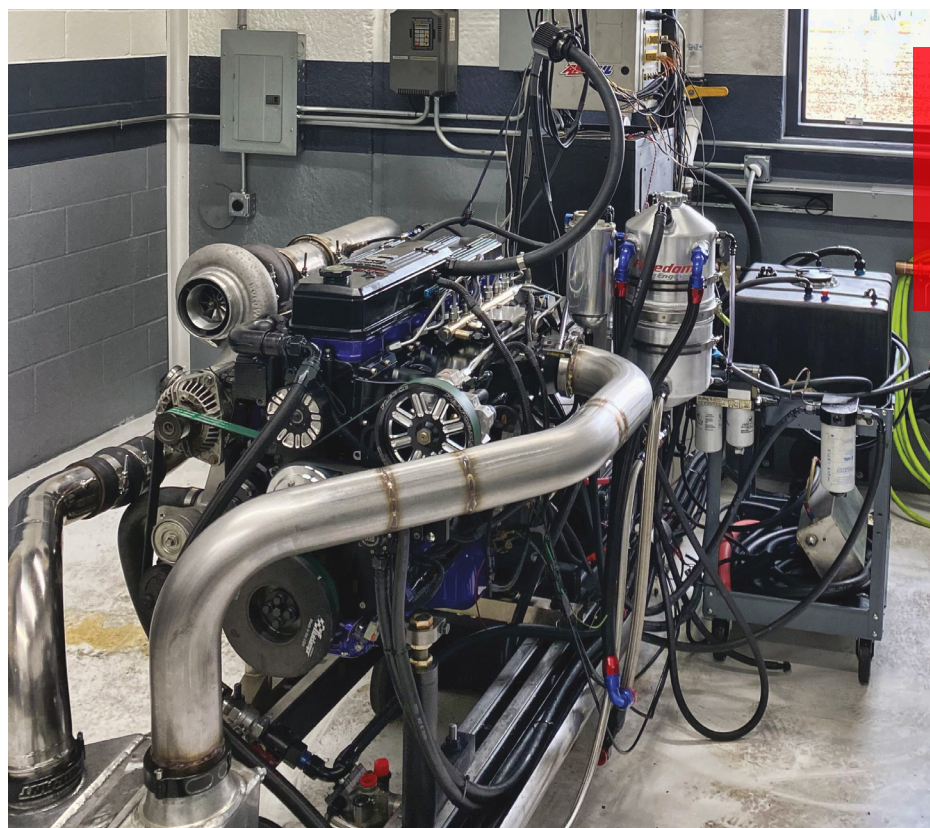


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Data acquisition has been key in "perfecting our recipe," said John Benshoof. "We've done a really good job of stacking up run files on our dyno, and then constantly picking our recipe apart to continually improve what already works."

Similarly, Derek Rose has been a Freedom customer "since they started moving heavily into the diesel world in 2014." Rose is the owner of DNR Customs, a diesel shop in Casco, Michigan, where "we do everything from basic repair to servicing full-blown competition vehicles." He recently opened a second shop just to handle his growing race business. Rose also campaigns his own 2,000-hp 2006 Dodge Ram 2500 in the Outlaw Diesel Super Series.

Much like Milliken, Rose appreciates the Fleece/Freedom scientific approach to performance. "Back in 2014-2015, the diesel industry was evolving faster than the speed of light; but if you were in the industry, you knew

the Fleece name," he explained. "John and Chase were willing to take the time to work through the setups, to try endless different combinations, to learn what worked and what didn't, and to put together an awesome recipe for their Stage 2 6.7-liter motor. And I was involved in everything they were doing. So we built a relationship, and a rapport, on racing."

Fleece Performance sponsors and participates in a wide range of diesel events across the country each year. "A spectator at an event may not buy an \$80,000 race engine," Benshoof allowed, "but they might buy a Fleece Cheetah turbocharger for their pickup truck."

### ADVANTAGES OF AUTOMATION

Having the right equipment has also helped Freedom succeed. "When we purchased Freedom it was a nice shop, Benshoof recalled, "with all good machines"—but not the kind of machines the company needed if it was going to grow. That situation changed "the day we bought our Haas VF-6, and we automated our machine work for our Cummins and Duramax engine blocks. On some projects, we went from machining

and handling an engine block for two weeks before it was assembled, to half a day." Other parts that might require operations on five different machines over a period of 12 hours could now be finished on one machine, in about an hour. Benshoof pointed not only to

the huge gain in efficiency, but in "repeatable quality" as well. "It opened up the opportunity to sell a project, get it done in a timely fashion, and to get it done the same way every time. It changed our business drastically. And it opened our eyes to what we could do."

Derek Rose has been a Freedom Racing Engines customer "since they started moving heavily into the diesel world in 2014," he said. Rose is seen here in his 2,000-hp 2006 Dodge Ram 2500 in the Outlaw Diesel Super Series.



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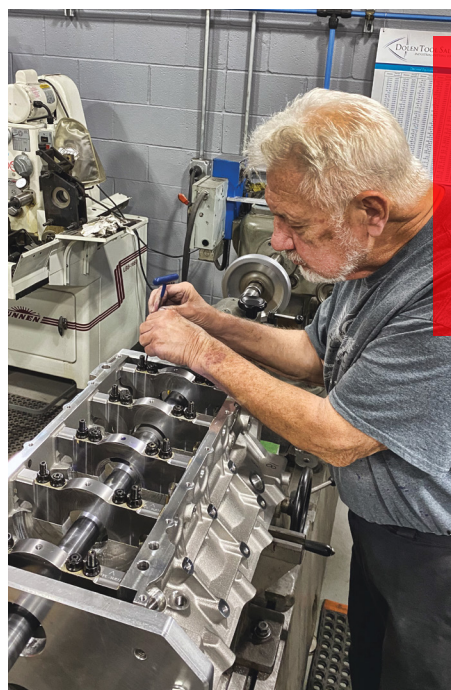
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While some customers just want machine work done on their engine components, others, "once they start getting into it," soon see the advantage of "having us assemble it and dyno it," said a company source. "That's where you get the support."

fortunate to have made a lot of good contacts during my career in drag racing, and that's how I was able to bring in Trend, Diamond, Manley," and other top names in the industry.

So loyalty plays a part, but so does a preference for the tried and proven. "At this point we've very much established a recipe for each application," Benshoof said. So even when a supplier is hawking something new, "we don't change stuff just to change stuff." That said, "stuff" changes fast when performance or reliability demand it. In fact, "most of our development has come out of necessity, when a part has failed because we've surpassed or exceeded its

capabilities. At that point we go to the vendor and say, 'Hey, look, this needs to change, because it isn't working.' And if the vendor is not willing to improve their product, then we move on. We find another source, one who understands what we are dealing with, and who can help us get over that hump."

### EXPANDING THE BRAND

For the most part, the respective roles of Fleece Performance and Freedom Racing Engines are clearly defined: The former manufactures high-performance diesel components, the latter builds complete competition engines. Freedom, said Benshoof, still has "a few customers who just want machine work, and then they assemble the engine themselves. But most people, once they start getting into it," soon see the advantage of "having us assemble it and dyno it. That's where you get the support."

And so "the two companies complement each other really well," Benshoof commented. "Freedom does a good job of marketing for the entire organization. We've been able to get engines into cars like Ryan

Milliken's Nova, and some of our pulling truck customers have enjoyed really good success, so the Freedom brand has become synonymous with racing and winning."

Nonetheless, "back in 2019, we decided that Freedom needed its own product, so we kicked off our Freedom Series cylinder heads for Cummins and Duramax diesels, which we offer in various versions from remanufactured to high-performance. We set up a production environment within Freedom to build the heads, although we still use the Fleece distribution network to bring them to market—because the Fleece brand is so large, with truck shops and dealers around the world."

Milliken noted how Hardway has "sold a bunch" of Freedom cylinder heads, and often has them drop-shipped to customers. "And you don't have to wonder about the quality."

Milliken even runs the Stage 2 version on his 1969 Nova, "with a custom billet shorty intake that they made specifically for my car."

A more esoteric project, which is documented on Freedom's website, is a solid-billet-aluminum Cummins engine block. "That's been in development for a long time," Benshoof said. "We're not trying to sell it yet. We've manufactured a couple of them, but the timing isn't right, for us as a business, to get it out there and support it. In business, there are times for development, and times for making money. But for a small business they rarely come at the same time."

Benshoof reminded us that, for all of Freedom's success, running an engine shop is still a tough business. "There used to be machine shops on every street corner. It's competitive, and you have a lot of overhead.

To do things on the scale that we are doing them now—a lot goes into that. So we have to be mindful of what the next market looks like, where we are going relative to the industry, what's going to make money—and what's not going to make money but will still do well for us."

The billet block seems to fit into this last category. "We're trying to get one into one of our customer's Pro Mods," he added. "It's going to have a 'Wow!' factor: 'I can't buy that, but I can buy this.'"

Meanwhile, Benshoof honestly sees more profit potential in "more street and more re-mans," bolstered, of course, by Freedom's race and pulling reputation. "And we're going to expand our cylinder-head lineup into Power Strokes, to continue to grow that portion of the business—as well as the engine-building side."

Of course, Freedom has plans for its racing engines as well. "I can't tell you a whole lot about what we are doing there," Benshoof said, "other than that we are always looking to develop more and different ways to make power." **PRI**

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# SEALING THE DEAL

Manufacturers of gaskets and sealants caution users against “old habits” as products and technologies have evolved to meet the demands of both modern and vintage power plants.

By Jim Koscs

The science behind gaskets and sealants has evolved greatly over the past three decades, their evolution driven by vastly increased performance from OEMs, staggeringly powerful street cars and, of course, racing.

But while product development has largely kept pace with changing demands, some builders have not, according to the manufacturers we spoke with for this report. In fact, too many still rely on older methods that can actually work against the latest gasket, seal, and sealant technology, our sources noted. Among the key problem areas cited: choosing the wrong products for the job; incomplete or incorrect surface preparation; not following the manufacturer's installation instructions; applying coatings and sealants where none are required; misunderstanding

manufacturers' torquing specifications; and using uncalibrated torque wrenches.

“Trying to get past old habits is the biggest issue,” observed Micky Hale of Cometic Gasket, Concord, Ohio. “Many builders have their go-to thing that they used to do 20 years ago and think it still applies today.”

“The power that engines make today is so much higher than the same application 10 years ago, so you can't do things the same as back then,” added Nick DiBlasi of JE Pistons, Cypress, California, which manufactures the Pro Seal line of gaskets. “Look at 360 and 410 sprint car engines making hundreds more horsepower than 10 years ago with essentially similar combinations. Cylinder head and piston design and tuning are pulling out so much more power. The difference

between a 600 and 850 horsepower V8 is a great difference in cylinder pressure.”

Fortunately, all of the aforementioned problems are preventable. For starters, gasket manufacturers cover the performance gamut with multiple tiers of products, including composite, various types of MLS, and cut-ring gaskets that use composite and steel bodies. Meantime, better materials and products for older applications are coming to market on a pretty regular basis.

## THE LIMITS OF MLS? IT DEPENDS

According to DiBlasi, one common mistake builders make is sticking with the OEM-style multi-layer steel (MLS) gasket with too much power; or, conversely, jumping from MLS to copper

or O-ring in builds where those products aren't needed.

“OEM gaskets are great for stock performance and long life,” he said. “It is optimized for factory power plus maybe up to 20% more.”

Higher-performing aftermarket MLS gaskets represent the next step. NHRA Pro Stock and NASCAR teams use MLS gaskets, for example. For some import engines, DiBlasi said MLS is preferred, too, regardless of power due to cylinder head bolt design and configuration.

“The Honda B-series is a great example,” he told us, citing the four-cylinder naturally aspirated engine used in the automaker's 1980s and early 1990s models. “The engine was designed for 175 to 200 horsepower, but builders can make 1,600 hp using MLS gaskets.”


ProSeal MLS gasket from JE Pistons



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## GASKETS & SEALANTS



Getting engine builders to give up old habits when it comes to gasket use is a "big issue," reported one source. Gasket development has kept up with engine technology, but some builders still use older methods that can work against current gasket technology.

### BEYOND MLS

And that leads us to our next point: There are other products to consider before going to copper or O-ring. Cometic's MLX gasket has an extra "stopper" fold-over layer that provides a torque-limiting surface, which prevents yielding of the combustion seals, according to the company. A high-temperature polymer coating along with embossments provide a micro seal for fluids against the head and block surface.

But even that solution has its limits. For high-performance street and race applications, Cometic offers spring-energized gaskets (SEG) for LS and third-gen Hemi builds.

"It's got a drop-in stainless spring-energized ring that pops into our MLS carrier, like a built-in O-ring in the gasket," Hale noted. "Unlike a solid ring, you don't get the deep groove in the block and head. With this ring, it ends up being just one or two thousandths. It's been out a year and a half, and we have some heavy hitters running with success." The company plans to expand availability to additional engines, too.

Pro Seal also offers a cut ring gasket that uses a stainless-steel ring surrounded by a composite gasket. DiBlasi stressed that this is intended for very high cylinder pressures for racing, i.e., not for long life.

Athena-SCE of Mount Pleasant, Tennessee, owner of the SCE Gaskets brand, offers its Vulcan Cut-Ring gasket that does not require machining of the block or head. The gasket uses a composite body

with steel core reinforcement and bead seals on top and bottom that seal in fluids. A solid stainless ring is flat on the bottom to go against the block or sleeve, and features three micro-ridges that bite onto the cylinder head.

"On a rebuild, you'll have to deck the head three- to four-thousandths to clear those out, but most builders are taking a 10-thousandths pass on heads to true them up anyway," explained Aaron Hunter of SCE Gaskets. "You could use our Cut-Ring head gaskets to levels high enough where you're worried about the crank dropping out the bottom. In terms of boost, we're seeing guys get well into what used to be copper gasket and O-ring territory."

Beyond those levels, Hunter directs builders to the company's line of copper gaskets, including Titan, Pro, and ICS Titan. The latter features Integral Combustion Seals that Hunter said perform the function of O-ringed blocks and heads without the added machining.

Athena-SCE is working with its partner Athena SpA to launch the new Accu Seal Pro composite head gaskets for OE replacement and performance, which is currently in development and expected to be released by early 2022.

### PAY ATTENTION TO THE BASICS

Tim Golema at MAHLE Aftermarket in Farmington Hills, Michigan, told us he sees a number of blunders in the field that could

be prevented by better understanding the basics of bolt load.

"There's confusion over torque-to-yield, fasteners, tension, the angle part of torque, and what exactly torque is," Golema said. "Some will over-torque head bolts. That actually extrudes the gasket material and causes problems. I'm not sure everybody understands this."

Golema also said buying the wrong gasket for the job is common, especially with DIY-ers. "They buy thicker gaskets thinking that improves sealing," he explained. "They don't understand compressibility and why different materials are used for different applications. It's not all their fault. It's the myth that has been handed down over generations."

Hale touted the importance of using a high-quality torque wrench, but said he still talks to customers who don't know or remember to get it calibrated every couple of years.

With the proliferation of LS and Chrysler third-gen Hemi architectures, DiBlasi said builders could benefit from a better understanding of the differences between engines in the same family, especially between forced-induction and naturally aspirated versions.

"Builders that do a wide variety but don't go case-by-case are more likely to run into problems," he said. "For example, on the six-bolt LSX you can go higher on power still using an MLS gasket versus a stock LS block with four head bolts," he said. "It all comes down to clamping force. The



High-performing MLS gaskets are better suited for some applications than copper or O-ring gaskets. According to a source at JE Pistons, MLS is preferred for some import engines, regardless of power, due to cylinder head bolt design and configuration.

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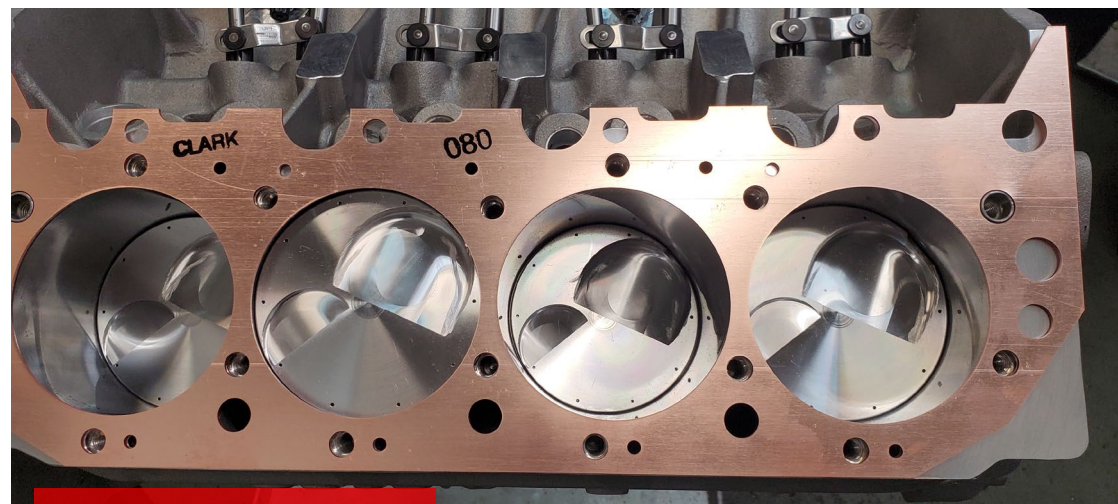
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## GASKETS & SEALANTS

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Copper gaskets can be a tuning tool, said JR Clark of Clark Copper Head Gaskets. The company offers custom gaskets in six thicknesses, allowing drag racers to raise or lower compression between passes by changing gaskets.

less there is, the more reason to step away from MLS and move to a sealing-ring type gasket, like our Cut Ring, or an O-ring, for full pressure sealing around the cylinder."

### PUT DOWN THE SPRAY CAN

Atop their list of user missteps, gasket makers overwhelmingly cited customers following the outdated practice of using additional coatings or sealants when none are required. Spraying copper coat was a primary example.

"Almost no MLS-type gasket needs any further coating," explained DiBlasi of Pro Seal. "Our gaskets have a base coating for adhesion, another layer that's a heat blocker, and a top layer designed to fill in the voids between mating surfaces. When you put copper coating on top of that, you're inhibiting the gasket's ability to seal."

He emphasized that MLS has evolved over decades, though builders may not be aware of its development. "An MLS gasket designed in 1985 is very different than a new MLS gasket," DiBlasi added. "So all they're doing is spraying an inferior coating over the one that's already there and doing the job. We'll get a damaged gasket back and see copper sprayed all over it."

Hale of Cometic Gasket had similar observations. "Our gaskets, especially head

gaskets, need no additional sealers as long as both surfaces are done with the correct Ra finish," he confirmed. "Additional sealers like copper coat work against MLS. All it's really doing is putting a layer of liquid under the gasket and not letting the embossment do what it's meant to do. It basically hydraulics the gasket."

Hunter, too, spoke out against using additional coatings on SCE's MLS head gaskets. "We have a proprietary polymer coating on our MLS Spartan that doesn't require anything else. You need a 50 Ra surface or better. The builder should have a profilometer to measure deck surface."

Golema, while also citing copper coat as an ongoing concern, did report some positive news elsewhere. "On the performance side, we don't see as much of the over-use of RTV to the point where it was plugging up oil pumps," he said. "Use those products sparingly. Once you smear oil or RTV, you risk extrusion. Don't use it unless we put it in the kit."

### WHEN TO USE COPPER

When a power adder makes enough cylinder pressure that is beyond what MLS can handle, that's usually where copper comes into play, according to JR Clark of Clark Copper Head Gaskets in Blaine, Minnesota. Because many customers are less familiar with copper, however, Clark takes orders solely by phone to assess each individual's application.

"We get a lot of guys who call who think they need copper for a street car, but I spend a lot of time trying to talk people out of it," he said.

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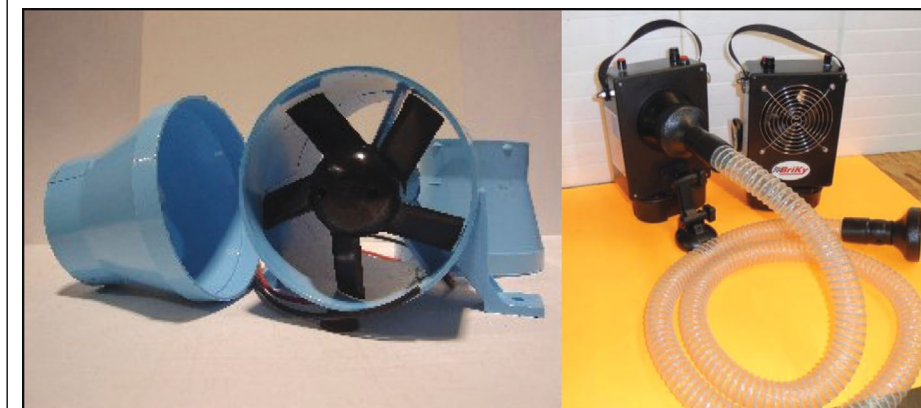
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## GASKETS & SEALANTS

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Gasket manufacturers serve the performance industry with multiple tiers of products for the latest generation of race engines. Even older engine applications are benefitting from new products and better gasket materials.

"All of our gaskets go through a heat-treating process, so it anneals them dead soft; it's pliable, so it goes around the O-ring," he explained. Clark agreed, too, that MLS is suitable for most performance applications and naturally aspirated race builds. For the amount of boost used by turbo or ProCharger racers, though, MLS won't hold.

Clark also advises each customer on the prep work required for copper. "You need a fresh head and block surface, because copper won't fill up imperfections," he said. "And copper is temperamental with water with more than eight pounds of pressure. It won't get into the combustion chamber, because you're also running an O-ring or fire ring. So, if you have water in a cylinder with copper and an O-ring, you have a different problem. The head is coming up. Look to head and block prep. Or there may be a bad intake gasket, or water getting into the intake port."

Clark cited copper head gaskets as a tuning tool of sorts, too—the company offers custom gaskets in six thicknesses, which allows drag racers to change gaskets at the strip to raise or lower compression in between passes.

Over the last year or two, Clark has noticed an influx of business from Porsche and Lamborghini owners competing in standing-mile events. "They're throwing so much boost at them," he said about the custom turbo builds. Among other hot

segments is desert racing, where builders are using turbocharging to push the two-cylinder, 70-horsepower engines in side-by-sides to 300 horsepower.

### GRAPHITE FOR EXHAUST GASKETS

Especially with older engine architectures, getting perfect surfaces can be difficult. A specialty product like Remflex Exhaust Gaskets might be needed. Inventor and founder Remington Moore created his graphite gaskets 15 years ago, having worked with the materials for industrial applications, including aeronautics.

The Remflex gasket sandwiches wire mesh between two layers of graphite. The end product is 1/8-inch thick and, following the manufacturer's torque specs, compresses to half that to seal imperfections. The product has, however, also found favor among customers without surface problems, according to Rebecca Clifford of Mineral, Washington-based Remflex.

The company catalog includes about 500 parts, from 1920s Ford Model Ts to late model 2010s. Most are for American cars, the most popular application being the small block Chevy. Numerous imports are also covered.

Remflex's product is proven in racing—the company has partnered with John Card Racing on its Top Alcohol dragster and Veney Vega Funny Car tribute. Stacy McGlory drives the Remflex Funny Car in the East Coast Pro Comp Series.

Clifford told us that customers most often struggle with understanding torque specs. Some, she said, question whether the company's stated specs are enough.

"They typically have not worked with our product before and are accustomed to using conventional exhaust gaskets," she said. "We want them to follow our guidelines exactly. The product is soft and takes [the] form of the surface. They should not try to compress to less than that 1/16-inch thickness."

Clifford also cautioned against using any sealants with Remflex gaskets. "There's absolutely no reason to," she said.



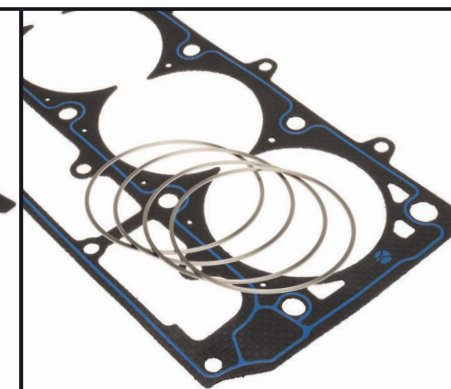
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## GASKETS & SEALANTS



Permatex has grouped its latest products by color, each with different sealing properties. Red gasket maker (pictured) is meant for use in high-heat areas, such as exhaust manifolds and headers.

### NEW LIFE FOR OLD ENGINES

Even to the level of street and track performance available via modern LS, Hemi, and Ford Coyote applications, the hot-rodding world remains a vast melting pot. There are loyal followings for everything from Ford flatheads and small block Chevys to oddball combinations like Buick 350s and AMCs.

Composite gaskets can work for most of these applications, and more products are hitting the market all the time. Golema said MAHLE Aftermarket is building up a new line of composite gaskets for a wide range of older engines. "There is an opportunity to use better materials with the older applications," said Golema. "Each application is engineered based on configuration, material, compressibility, and coating. We can change the material density based on bolt load."

Here, too, Golema cautioned builders to avoid old habits, even when working on classic engines. "Materials have changed. The aluminum head used on the small block Chevy 30 years ago is much different than today's aluminum heads," he said. "We make a handful of composite products with and without wire ring for cast iron or aluminum hardware. Also, for the small block, if you're using a traditional stamped valve cover, you need to use a more compressible material than with a cast cover and machined surface. For non-stamped applications, we have a line of aluminum-cored gaskets."

### SILICONE ISSUES (AND SOLUTIONS)

Just as gasket manufacturers caution builders to avoid using RTV sealers with their products, so too did our source at Permatex in Solon, Ohio, but from the other side.

"People used to want to use the silicone on a traditional cut gasket," said Eric Seibold. "Our chemical gaskets are designed to be used as standalone products. If you're using our gasket maker on a traditional gasket, you are probably creating leak pathways."

Gasket-maker products have also changed over the years to accommodate the evolution in fluid chemistry, so choosing the right product for the job is critical. Common applications for Permatex products include valve covers, oil pans, transmission pans, water pumps, thermostats, exhaust manifolds, and intake manifolds. A specific gear oil silicone is recommended for differentials and axles seals, and a water pump and thermostat housing-specific formula is designed for resistance to today's coolants.

"Additive packages in oils are significantly different than 30 years ago," said Seibold. "The friction modifiers in gear oils in particular are extremely aggressive. If you use the wrong silicone, you could end up with a leak."

Seibold said Permatex has simplified its product line and is highlighting its latest oxime silicones. These are quite different from its older (but still available) acetoxi-

based silicones, which contained acetic acid and could damage sensors with off-gassing. The oxime silicones, by contrast, are sensor-safe.

Essentially, the company groups its latest products into black, gray, and red. The black silicones are flexible and highly fluid-resistant, specifically for different types of oils, Seibold explained. "These can be used anywhere you might have different metals coming into contact with each other and having different expansion characteristics."

Gray cures into a more solid, harder rubber and is generally best suited for high-vibration applications and high torque loads. Red is in between flexible and hard, and is meant for use in high-heat areas, up to 750 degrees F. From there, Seibold recommended racers use the top-line Optimum product if they're working on their car during the week, when the longer cure time is not an issue. At the track, however, the company's Right Stuff products cure immediately for repairs between passes. **PRI**

## SOURCES

**Athena-SCE**  
scegaskets.com

**BLP Products**  
blp.com

**Braswell**  
braswell.com

**Clark Copper Head Gaskets**  
clarkcoppergaskets.com

**Cometic Gasket**  
cometic.com

**Flatout Gaskets**  
flatoutgroup.com

**JE Pistons**  
jepistons.com

**MAHLE Aftermarket**  
mahle-aftermarket.com

**Permatex**  
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**Remflex**  
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# RACING'S HEAVY ACT

CONNECTING RODS ARE GAINING WEIGHT AND GETTING STRONGER TO ACCOMMODATE RACE ENGINE BUILDERS BENT ON CRANKING UP THE BOOST.

By Mike Magda

If there's a common mistake that engine builders make when selecting connecting rods, it's probably that they don't listen to their connecting rod supplier.

"But you have to know your supplier," advised Tom Lieb of Scat Crankshafts, Redondo Beach, California. "There are people who sell parts, and there are people who make parts."

That's a given: Leading engine builders will work directly with a well-respected manufacturer to ensure that the correct rod is helping anchor the rotating assembly. Most rod manufacturers offer a range of different designs and lengths, while others focus on specific markets or applications. The bottom line is that manufacturers can offer a wealth of practical knowledge.

"When a supplier tells you to torque a bolt to a specific number or use a specific clearance, they're coming from a position of experience," noted Lieb.

## MEETING POWER DEMANDS

In the past, the search for a winning combination often led engine builders to use lighter connecting rods as new materials and manufacturing methods improved the rod's overall strength. A lighter rotating assembly will accelerate quicker, which may be the slight advantage that a drag racer or dirt track racer needs. That conventional wisdom is being challenged today by rod companies that are concerned about the tremendous power levels generated when engines are boosted and tuned to the ragged edge.

"Rod weight is important, as it affects the reciprocating forces in

the engine," explained Matt Polena of K1 Technologies, Mentor, Ohio. "Many people think a lighter rod is better because it means faster throttle response and acceleration. But the rod needs to be strong enough to withstand the horsepower and tension forces the engine can generate. Weight is just one characteristic to consider when making your connecting rod choice."

Pushing the engine's envelope is also pushing up the weight of connecting rods. Just ask Kenny Duttweiler, who has built all the record-setting engines for the Poteet & Main Bonneville streamliner Speed Demon. These engines run wide-open throttle for five miles with boost pressures up to 50 psi.

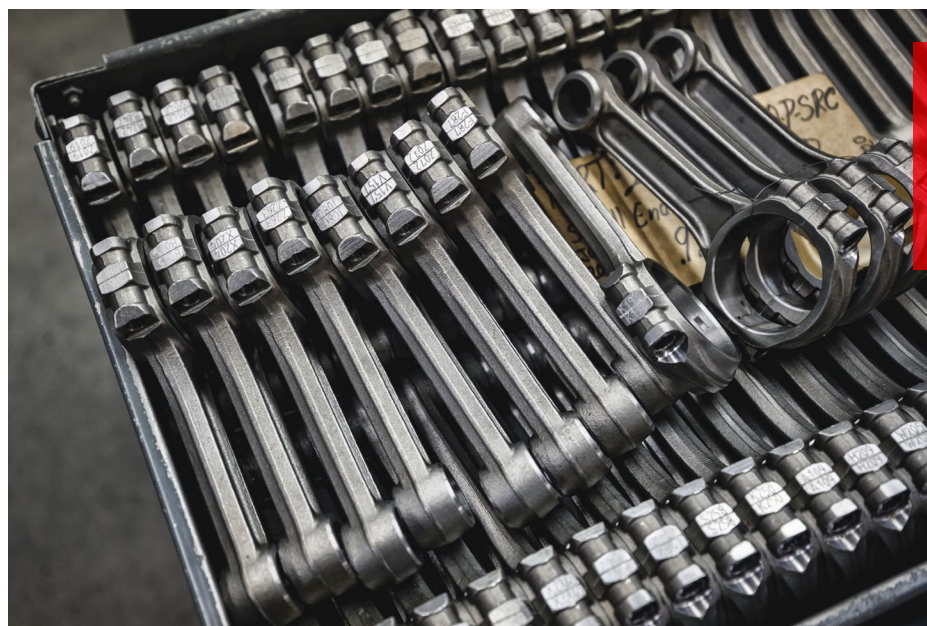
"Any form of detonation would bend the rods," recalled Duttweiler. "It doesn't take a lot to spike the cylinder pressures. We probably started with a 680-gram rod and ended up with around 880 grams. Now our big block rods weigh 930, and I'm having Chrysler rods made that are over 1,000 grams."

Teams can chase gremlins all over the engine trying to find the cause of detonation. One year, using the 388-cubic-inch engine, the Speed Demon team made a pass with an ultra-safe 11 degrees total timing. On the return run they bent a rod.

"At what point did we fix the problem and at what point did something else occur?" asked Duttweiler, who thinks some form of spark scatter or intrusion into the cam/crank signals interfered with the precise timing maps needed for a perfect run. "You might get a couple hits on the spark that's off a few degrees, and that would bend the rod."







**"Know your connecting rod supplier," advised Tom Lieb of Scat Crankshafts, who reminded us that manufacturers can offer a wealth of knowledge to an engine builder.**

Regardless, Duttweiler worked with two rod companies over the years, and the advice kept recommending heavier and stouter rods.

"I told him off-the-shelf rods simply won't work," said Stefan Verdi of Auto Verdi, Söderbärke, Sweden—the company currently working with Duttweiler. "You need something more like a diesel rod, so I came up with a rod that was very heavy. We do a lot of rods for diesel engines. Those rods need to be very fat, and then they work perfect."

Sophisticated tuning has certainly upped the power game, especially at the drag strip where power adders are the norm.

"We're always making stronger rods. We try to steer people in that direction," said Peter Harris of Crower Cams, San Diego, California. The company's Maxi-Light 93 series is available in six different versions, stepping up in weight each time. "For road racing guys, you always want to keep them in a stronger rod even though they want a lighter one. And you still have to get them into a 7/16-inch rod bolt because that racing is so hard on the rod bolts."

Even Crower's top-of-the-line series 6 model has a few different versions to handle power adders. "We're always making the beam stronger and making the big end stay round," added Harris. "Our Maxi-Light series is a radial beam design, which means it's all continuous radiuses. There are no straight areas for stress concentration."

While strength is a priority, the best rod design that can achieve that toughness continues to be debated. It's one of the hottest

arguments within the industry, and it's one of those where there really isn't a clear-cut winner.

"We'll preach all day long for a big power adder that an I-beam is stronger than an H-beam. But at the end of the day, everyone argues both ways," said Brook Piper of Callies, Fostoria, Ohio, which recently introduced its Enforcer series. "It's a heavier, stouter rod that can take power adders. If you are not making 1,000 horsepower, you're nobody these days. And everybody's using some kind of power adder."

## WEIGHT VS. DURABILITY

Over at Dyer's Top Rods in Forrest, Illinois, only H-beam rods constructed from 300m steel are produced—so the priority is on selecting the best weight and size for the application.

"We'll ask how much horsepower, peak rpm, piston and pin weight—get all the usual information," said Roger Friedman. "Then I can determine how heavy or light a rod and whether it needs a 3/8-inch or a 7/16-inch bolt."



"What has changed is the LS engine," continued Friedman. "It seems that if you're talking 600 to 800 horsepower you can get away with any rod. If you had 600 to 800 horsepower in a regular small block Chevy, you don't normally get by with any rod. I really don't have an answer; it just seems that the LS is more of what I call a 'happy' engine."

Friedman and others also have intense discussions with customers over rod weight.

"The best engine builders will question themselves, but their clientele sometimes dictates what they will build," said Friedman. "Racers complain they want lighter and lighter rods, which do accelerate faster. There's probably 1% of all the dirt drivers that can tell the difference between a light or heavy rod in an engine."

Even when titanium rods are allowed, Friedman suggests that it would be difficult to tell the difference from the driver's seat. "They've got these cars glued to the track and they're on the throttle all the way," he added. "A titanium rod may weigh 500 grams and our rod in the same application could be 620. Maybe in a small bullring a driver could feel the acceleration difference."

**Callies' new Enforcer connecting rods are heavier, stouter rods designed for engines with power adders. Pictured here is an Ultra Enforcer rod for LS engines.**

But on an average track where they're on the floor all the way, how's that guy going to tell what the rotating assembly is doing to him?"

"Let's say you go from 650 grams down to 600 grams," added Tom Molnar of Molnar Technologies, Kentwood, Michigan. "How much difference does that 50 grams make when you're trying to move a 3,000-pound car? You go too light and you'll have a catastrophic failure. We're moving people into stronger parts."

Molnar has developed the Power Adder Plus series to keep up with power demands. "Everyone wants to spray or turbo their motors," he said. "We're adding more material in critical areas. We'd been running our regular rods with pretty good luck. But when I see what some of these guys are doing, I better have a stronger piece."

When designing these new rods, Molnar relied on science and engineering but also "40-plus years of just doing it." He said FEA is a great tool, but he has seen improper data used, followed by unsound results.

"There's more to it than just what a computer tells you," he said.



**Dyer's Top Rods manufactures H-beam-style connecting rods, with an eye on selecting the best weight and size for the application.**

"The strength of the rod is in the metal," confirmed Lieb. "It goes without saying about the quality of the metal and heat-treatment. But the amount of metal is the strength. Look at NASCAR. They run a relatively heavy rod because of the rpm they run."

Plus, there are design tricks manufacturers can use. Scat will drill a hole near the big end of the rod in its Ultra Lite stroker H-beam series. "Now we're able to put more material in the beam," said Lieb. "The weight of the piston during overlap is tremendous. When it is coming up with both valves open, it's ready to go through the cylinder head. That's the material that holds the piston when it changes direction."

There are limits to dealing with a steel rod, however.

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## CENTER STAGE

While most of the companies we spoke with for this report offered advice on connecting rod strength, design, length, and materials choice, one wanted to focus on a very specific oversight on the part of some engine builders.

"Some engine builders do not understand the rod offset needed to keep the pin end of the rod centered in the piston," said Richard Batchelor of CP-Carrillo, Irvine, California.

There is a simple formula to determine the offset: rod width – cylinder back offset = the rod offset toward the crank throw. For example, on a small block Chevy, a .940-inch-wide rod minus the .880-inch-back offset equals a +.060-inch offset.

"Often we see the big-end rod width listed as on center when it should not be. Our rod order form requests that the ends

be written down from center of the beam," explained Batchelor.

The company recently had a nostalgia fuel customer with six vintage blocks that all had slightly different bank offsets. The team had constant issues with the pin end rubbing the piston and the big end of the rod rubbing on the crank cheek.

"I sent them a sample rod with a narrowed pin end and had them mock it up in each block and measure the distance to the piston pin boss on both sides. Once I had these numbers, I was able to get them a rod that was intentionally offset on the pin end in the opposite direction of the big end. This combined with an increase in big-end offset and narrowed pin end was just enough to keep it off the piston, regardless of which block they were using," said Batchelor. "It took me some time to figure it out, but in the

end, they were extremely happy to not have this problem anymore." —Mike Magda



Pictured is a comparison of CP-Carrillo connecting rods with different offsets. From top, an LS rod that is on center, a small block Chevy rod with a .060-inch offset, and a small block Ford rod with a .110-inch offset.

"We try to steer guys to their application, and if they have a power adder, we try to put in the heaviest rod we can," said Piper. "But once you get to a certain point you have to look to an aluminum rod."

Aluminum connecting rods take up a lot of real estate, but they are easier to manufacture and, of course, they are lighter than steel. A big block Chevy rod may be 200 grams lighter than a comparable steel rod. Most are machined out of billet alloy, so there's flexibility in the design. Perhaps the most useful property of the alloy rod is that it acts like a shock absorber in high-boost and high-cylinder-pressure applications like Top Fuel, Pro Mod, and even truck and tractor pulling. Not all of the tremendous pounding the piston takes under detonation or misfiring is transferred to the crankshaft, mains, and bearings. The downside, however, is that an aluminum rod won't offer the same cycle life as a steel rod, so it's used mostly in applications where there is consistent maintenance and replacement. Yet, there are always exceptions.

"We're seeing more people use them for street use," said Anthony Giannone of MGP Connecting Rods, Colorado Springs,

Lunati's new X-beam connecting rods combine the benefits of traditional I-beam and H-beam designs, said a company representative. "That helps to minimize weight without sacrificing strength."



Colorado. "These are high-horsepower, Drag Week-style or street-strip engines making 2,000 horsepower."

Drag Week engines must run for about 1,000 miles on the road plus a number of all-out runs on five race days at various drag strips during the class competition.

"I want to say our rods are good for a Drag Week-and-a-half on an engine that's making 3,000 horsepower," said Giannone. "We're also seeing more people use them in LS engines. That's about the only application we're broadening the horizon with these days."

MGP can choose between 42 different designs after considering the customer's application and power level.

"We're starting to get into import engines,

and that can be a tough fit for an aluminum rod and still have enough cross section to make them durable enough to handle boost," added Giannone.

In addition to weight and construction design, rod length is another fun topic that comes up often in bench-racing sessions. Some engine builders have a range of rod-length-to-stroke ratios that fall within their acceptable margins. Others set priorities like deck height, piston compression height and stroke, and then let the rod length fall where it may. While rod length is a highly debatable subject, there are success stories when making certain changes.

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Alan Davis of Eagle Specialty Products told us the company often educates engine builders about proper connecting rod selection. "Understanding which rod is right for your application is essential in extracting the best performance from your engine," he said.

Alan Davis of Eagle Specialty Products in Southaven, Mississippi, recalled an engine builder specializing in offshore marine motors. One of his top products was a supercharged 540-cubic-inch big block Chevy utilizing 6.385-inch rods.

"While everything worked well, we were

able to reduce piston skirt wear by putting a comparable assembly together that used a longer rod," said Davis. "The reduction in maximum rod angle and resulting reduction in side loading helped extend the service life of the engines. It also made for a smoother running engine and it was less sensitive to

timing. Engine acceleration is not important in an offshore application but reducing wear due to constant high-rpm use is."

Eagle offers a wide variety of rod designs and often has to educate the builder on proper selection.

"Most manufacturers offer several variations of each connecting rod that each shine in different applications. Some exist to save money, some exist to provide ultimate strength, some exist to reduce weight to improve acceleration, some exist for longevity in real-world applications. There are connecting rods that are a mixture of several of these attributes, but you can't have everything. Understanding which rod is right for your application is essential in extracting the best performance from your engine. Understand your requirements and take a realistic approach to considering the viability of each option."

### FURTHER IMPROVEMENTS

The future of connecting rods isn't exactly filled with surprises. There are suggestions that composite materials and 3D printing

will be major factors, but for now those breakthroughs are still deep in development.

"There is the most benefit to gain from creative and innovative design," predicted Will Vance of Lunati, Olive Branch, Mississippi. "Although new materials are constantly being developed, many new materials have limitations, like cost or shelf life, that are prohibitive to all but the highest end consumer."

Vance said manufacturing improvements will lead to lower costs, but engineering design will lead to more performance advancements.

"Lunati recently developed a new X-Beam connecting rod that combines the benefits of traditional I-beam and H-beam designs," he said. "That helps to minimize weight without sacrificing strength. We feel it offers the best strength-to-weight ratio of any rod geometry."

As far as materials, there is no "unobtainium" that offers both significant strength and a reduction in weight. Auto Verdi plans to come out with a stronger steel in the next year or two, but there is very specific and expensive heat-treatment associated with this alloy.

"Cost is always a concern with racers, but there are teams that will pay," said Verdi.

"This is a never-ending process, and we are always improving," said Davis. "The market has dictated the necessity for design improvements. More power is being made now than ever before and stronger rods are being developed with this in mind. The

biggest thing you will see in the future of connecting rods is diversity. Application-specific connecting rods will emerge as each market segment becomes more educated in where the advantages are to be found in their specific application." **PRI**

## SOURCES

**Auto Verdi**  
autoverdi.com

**BoostLine**  
boostlineproducts.com

**Callies**  
callies.com

**CP-Carrillo**  
cp-carrillo.com

**Crower Cams**  
crower.com

**Duttweiler Performance**

**Dyer's Top Rods**  
dyersrods.com

**Eagle Specialty Products**  
eaglerod.com

**Howards Cams**  
howardscams.com

**K1 Technologies**  
k1technologies.com

**Lunati**  
lunatipower.com

**Manley Performance Products**  
manleyperformance.com

**MGP Connecting Rods**  
mgpconnectingrods.com

**Molnar Technologies**  
molnartechnologies.com

**Scat Crankshafts**  
scatcrankshafts.com

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A thorough understanding of how setup strategies—and equipment—can help cut lap times is helping boost sales of scales, shock dynos, and more.

By Bradley Iger

As many racing disciplines have become more limited by grip than horsepower, a stronger focus on chassis setup has developed in turn. But effectively communicating the benefits of this equipment to customers requires more than just a recital of the bullet points.

Although crate classes and those that have more or less untethered engine rules might appear to exist on opposite ends of the regulation spectrum, these days there's a common refrain that runs through both of them.

"It's not just a horsepower game anymore," said Chris Berg of Intercomp, Medina, Minnesota. "On one hand, you might not have the opportunity to put an exotic camshaft into a car, or run some sort of exotic fuel, because that stuff is tightly controlled in spec classes. But since most classes use a spec tire—even if you're given free rein with your engine combination—you still have a finite amount of grip to work with."

Either way, simply muscling one's way to the front of the pack has largely become an antiquated notion. Instead, teams must focus their tuning efforts on other aspects of the car in order to shave time in a manner that's consistent and repeatable, and that's led to growing interest in chassis setup strategies as well as a rising demand for the related setup equipment.

But the inherent value of that equipment is more difficult to express than, say, the torque gains of a cylinder head design, or the weight savings of a better material. Instead, effective marketing of chassis setup equipment often requires a hands-on approach and a thorough understanding of how it can improve a team's race program.

## QUANTIFYING COMPETITIVENESS

While this equipment might not be considered a mandatory investment for the weekend grassroots racer who's looking to mix it up for fun, proper chassis setups become more of a necessity as one moves up the ranks of competition.

"This equipment is getting more and more critical to a team's success," said Keith Berner of Accu-Force Dynos & Testers, Millersburg, Ohio. "As the racing gets closer and the sport gets more technical, the guys that think they can do setups by the seat of their pants are going to fall farther and farther behind. We're all now relying on various pieces of chassis setup equipment to figure stuff out to a much more precise degree."

And as Steve Watt of Maxwell Industries in Ventura, California, explained, it's effectively mandatory in the top tiers of many circle track racing disciplines. "Most of our customers for this type of equipment are USAC National dirt guys and World of Outlaws teams," he said. "I'd say 90% of the World of Outlaws teams have a shock dyno in the trailer, and most of these teams wouldn't even go to the race track if they didn't have either dyno data or a dyno for testing the shocks. It's incredibly important because they're so finely tuned today—there's so many different things going on with the valving, the bleed, and so on. There's also always new stuff coming out, and these teams want to make sure they don't get caught out using inferior stuff. Dialing that new hardware in requires this kind of tuning. Most of the teams are now putting their shocks on the dyno between heat races, and they'll check it again before the feature race."





The latest chassis setup equipment enables racers to get all the performance that's available out of the vehicle, said a source. Often, it's some of the least expensive speed that can be found in the car.

Watt added that it often comes down to cost per lap. "If you run a 410 sprint car, your motor program is all based on laps, and every lap you do with a car that's not as good can be a wasted lap. So the goal is to make everything as dialed in as it can possibly be every time you hit the race track."

While sophisticated pieces of equipment like shock dynos, spring smashers, and pull-down rigs are all key players in the modern chassis setup arsenal, Ryan Salata of PROFORM in Warren, Michigan, said that vehicle scales still play a key role in chassis setup across a range of racing disciplines, too. "For the teams in oval track, Formula Drift, and even drag racing, it's a cornerstone of race car setup for a lot of these teams. You can solve a range of issues with these scales by determining things like proper cross weight and percentage distribution, and adjusting the suspension accordingly while taking an individual driver's preference into account as well. Scales deliver measurements that allow you to see how an adjustment affects a particular spec in real-time. This is one area where buying the right tool for the job pays off in spades."

Lynn Doughton of DRP Performance Products in Rocky Mount, Virginia, summed up the general philosophy behind chassis setup in a way that any serious competitor can appreciate. "We're limited to the rules package that we have and the total amount

of grip that's available," he explained. "So there are two things that we need to do: First, we need to make sure that we're utilizing all of the grip that's available, and the majority of the race cars out there aren't set up to do that. Second, we need to make sure that we balance that grip properly. If you have too much of the grip up front or at the rear, it's going to be more difficult to get all of the performance that's available out of the car. That's what this equipment allows you to do, and it's often some of the least-expensive speed that you can find from the race car."

### GETTING THE WORD OUT

Because of the inherently technical and nuanced nature of the beast, selling chassis setup equipment is a different proposition than typical racing components, where effective marketing can be as straightforward as a display touting performance statistics.

"For us, it's been shows like PRI—having people look at and try the equipment in person," said Salata. "We've also gone out to the races with our scales, but what's tricky is that it's very easy to get into the weeds in a situation where someone is trying to fix an issue with their particular car. It's a piece of equipment that captures units of measurement—if they're standing on it, they understand what it does and the accuracy of it. But I think it's important not to get too technical with it before someone

really understands what to do with those measurements."

Berg told us that Intercomp has been successfully working with a dealer network. "We have a great relationship with those folks—they're the ones who're really out there pounding the pavement. Sometimes they're out at race events and they're essentially bringing us along for the ride. I think that a lot of our dealers see our strong brand recognition and want to align themselves with one of the most respected names in motorsport weights and measurements. For our products in particular, I also feel like the racers are often seeking advice from a distributor or company that might be sponsoring a car locally that's winning at the track—that success attracts those customers to that particular business."

Watt agreed that, as with many aspects of racing, word-of-mouth tends to be a significant factor. "When my customers win races and championships, it's the best marketing that we can ask for," he said.

### THE IMPORTANCE OF A GOOD EDUCATION

Doughton noted that the biggest current hurdle in selling chassis setup equipment



Racers who rely on seat-of-the-pants feedback will fall behind those who benefit from the precision of the latest chassis setup equipment, said Keith Berner of Accu-Force Dynos & Testers.



Vehicle scales play a key role in chassis setup across a range of racing disciplines. "For the teams in oval track, Formula Drift, and even drag racing, it's a cornerstone of race car setup," said Ryan Salata from PROFORM.

is knowledge—both on the dealer's side as well as the customer's. "The number one reason that more dealers don't sell chassis setup equipment is because they don't understand it. It's hard to sell something



A shock dyno is almost mandatory in circle track racing's top tiers, reported Steve Watt from Maxwell Industries. Most teams put their shocks on the dyno between heat races and "check it again before the feature race."

when you aren't fully aware of how it works and what it does. I think in those situations, you're going to have a tendency not to bring it up—you're going to avoid engaging in those conversations. If the dealers simply become more knowledgeable about what's available and the reasons why you'd use some of this equipment, they would naturally sell more of it."

Berner pointed to tutorials and after-sales support as aspects that can have a sizable impact on the marketability of this equipment, too. "When people buy from us, they have the opportunity to do a tutorial with us where we spend an hour or two with them. We also do longer one-on-one courses for folks who want to go more in-depth. Educating yourself on this equipment is hugely important—like anything else, you don't know what you don't know."

And, as Watt noted, being able to collect data from chassis setup equipment is one thing...knowing what to do with it is another. "Our strongest asset is our service. When a new customer gets a shock dyno, I tell them to give me a call once they've got it plugged in and ready to go. I know the software well enough that I can have you running a shock in a minute and a half, and I can tell you what graph to look at to find the data you want. With our machines we can send data back and forth between our equipment and

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## CHASSIS SETUP EQUIPMENT

Because of the "finite amount of grip" available from spec tires, precise chassis setup is more important than ever, said Chris Berg of Intercomp. Seen here is Intercomp's new HubScale 360, an alignment system with a self-contained wireless scale that now provides greater clearance for brake components.

our customers', so if they're struggling with something, I can actually send them data off of a shock absorber and they can look at it on their screen as if they just tested it. That way they have all of the information I have, and we can compare that data."

Like many aspects of race car tuning, chassis setup requires time, effort, and experience to yield its full value, but it can pay big dividends for those who have the patience. "It's a process," Berg said. "You shouldn't go into this assuming that you'll be able to reinvent the car overnight. Consistent performance is what wins races, and that comes with a greater understanding of how to use equipment like this to your advantage." **PRI**

## SOURCES

**Accu-Force Dynos & Testers**  
accuforcetesters.com

**Creative Racing Products**  
creativeracing.com

**DRP Performance Products**  
drpperformance.net

**Intercomp**  
intercompracing.com

**Maxwell Industries**  
maxwellindustries.com

**PROFORM**  
proformparts.com

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80-500 RPM		50-440 RPM		35-500 RPM	
Achieve < 0.0002" ( 5 microns ) after plateau honing valve seats!					
0.0002" (Honed Guides)					
< 0.4 Ra μm					
No	Yes	Yes	Yes	Yes	Yes
Yes					
No	No	No	No	Yes	Yes

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- Serving Goodson, since 1998 (Seat Guide Tooling).
- Serving Sunnen U.S.A. since 2001( Seat Guide Tooling)
- Served DCM-Tech, RMC, Winona Van Norman, Guspro, K-Line, Serve-Equip, Kwik-Way (Seat Guide tooling / machines).
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# INDUSTRY NEWS

## NHRA APPOINTS LONNIE GRIM AS NATIONAL TECH DIRECTOR

The NHRA Technical Department has announced the addition of Lonnie Grim as the new national tech director. He comes to the NHRA with more than 15 years of experience within the sport of drag racing, and most recently served as the competition/series tech director at the Professional Drag Racers Association.

"I intend to progress a positive relationship between the racers and the NHRA with sincere appreciation for their effort and support while providing firm consistency regarding the rulebook and its enforcement. I am very optimistic about the future of drag racing and the programs that NHRA continues to develop. As well as the nostalgic past, the future holds great excitement for our competitors to build with a smile," said Grim, who reports to NHRA Vice President of Competition Ned Walliser.

## HOLLEY APPOINTS NEW CFO

Holley, the platform for performance automotive enthusiasts, has announced that Dominic Bardos has been appointed CFO. A financial executive with over 30 years of global finance and accounting experience, Bardos will serve as a member of the executive leadership team and report directly to President and Chief Executive Officer (CEO) Tom Tomlinson.

"[Dominic] has a proven track record of delivering results and creating value. Dominic's public company experience, along with his expertise in providing insightful and actionable business analysis, and his focus on leading and developing high-performing teams, will play a vital role in supporting our success as a public company," Tomlinson said.

Bardos recently served as vice president of finance for Tractor Supply Co., and previously served as CFO for Cambridge Franchise Holdings.

## SPEEDWAY MOTORS PROMOTES FOUR TO LEADERSHIP ROLES

Speedway Motors, the manufacturer, retailer, and distributor of high-quality automotive parts and racing products based in Lincoln, Nebraska, has announced four

recent promotions.

Richard Thomas has been promoted to director of operations at the company. Thomas, who has held various leadership roles in the US Navy, will oversee Speedway Motors' warehouse capabilities, including the Nebraska, Arizona, and West Virginia-based engineering teams and IT teams, a group comprised of about 200 employees.

Andrew Boellstorff has been promoted to director of digital product and technology. With over 15 years of experience, he will oversee all aspects of development and analytics.

Brandon Bisch has been promoted to director of e-commerce. First joining as a customer care specialist and purchasing assistant in 2005, Bisch has held various roles, including quality control, marketplaces manager, and, most recently, business unit manager for the e-commerce team.

Kaitlin Mathison has been promoted to director of marketplaces and is responsible for Speedway Motors' presence on eBay, Walmart, and Amazon online selling platforms.

"As we continue to add new products and new retail and distribution centers, these promotions will help position us to meet customer demand by getting products on shelves quickly, providing a good customer experience online or through our customer experience center, and delivering orders quickly, efficiently, and without any hassles," said Speedway Motors Director of Marketing and People Operations Betsy Grindlay.

## DARYN AND MANDY PITTMAN PURCHASE ULTRA SHIELD RACE PRODUCTS

Daryn and Mandy Pittman have purchased Ultra Shield Race Products, the manufacturer of race seats, harnesses, arm restraints, window nets, and more racing safety products based in Flint, Texas, according to Robert and Donna Bass.

"We will continue to manufacture high-quality racing products for our customers with dreams of building the brand for many years to come. We are...honored that Robert and Donna are confident in us to continue growing Ultra Shield within the motorsports industry," said Daryn Pittman, a former full-time World of Outlaws NOS Energy Drink Sprint Car Series driver.

## MAGNAFLOW NAMES REDMAN RETAIL SALES DIRECTOR

MagnaFlow—the Southern California-based automotive aftermarket parts manufacturer specializing in performance and OE replacement exhaust and emission systems—has hired Cary Redman as the director of retail sales.

In his new role, Redman will focus on strengthening relationships with major retailers for the MagnaFlow and BRExhaust brands. He will lead the retail sales and sales management team to define and coordinate goals, optimize regional coverage, and execute the annual sales plan.

"The key part [of my position] will be growing and expanding the brand. We are growing [by] leaps and bounds, and I want to make sure that I continue to keep that flowing and going," said Redman, who reports to Senior VP of Sales Kevin German. "I still have my performance roots and I always want to go faster and harder, so I'm looking forward to getting our high-quality parts available to consumers that walk into any retail parts stores."

Redman had previously served as vice president at Edelbrock, where he oversaw brand management activities along with the conceptualization and implementation of market segment strategies. Before that, he spent nearly 15 years in sales management with Prestolite Performance and Holley Performance, with a focus on product marketing, account acquisition and maintenance, and relationships with retailers at both a national and regional level.

## RANDY MARTIN OF MARTIN & COMPANY PASSES AWAY

Martin & Company, a full-service marketing solutions firm specializing in national automotive aftermarket brand building located near Nashville, Tennessee, has announced the passing of the firm's co-founder and CFO,

Randal "Randy" L. Martin.

Martin is the husband of Zan Martin, Martin & Company president and co-founder.



Randy Martin

"Randy was the creative and financial genius at the agency.... Through his direction, the company has managed many difficult times of recessions, growth spurts, and unforeseen changes," Zan Martin said.

## NPW CONSOLIDATES EPWI'S ANAHEIM DISTRIBUTION CENTER

National Performance Warehouse (NPW), the parent company of engine and performance distributor Engine & Performance Warehouse Inc. (EPWI), has announced the consolidation of EPWI's Anaheim, California, facility into the NPW distribution center in Gardena, California. NPW acquired EPWI in December 2020.

"All the same EPWI inventory will be moved, and customers get the added benefit of the additional lines available at the NPW location. Basically, nothing will change for the customers and suppliers," said Chris Pacey, NPW's executive vice president and chief operating officer.

EPWI's inventory, ordering, and shipping will now take place out of Gardena. All operations will remain the same, and the entire EPWI staff is being retained. The NPW Gardena facility, located at 14605 South Main Street, Gardena, California, offers a broad selection of brands along with increased stock levels of its common lines.

## BRIDGESTONE AMERICAS MAKES LEADERSHIP CHANGES

Bridgestone Americas has announced changes to key leadership roles under CEO and President Paolo Ferrari.

Scott Damon, currently group president of operations, has been named chief operating officer, where he will be responsible for the company's core tire business, including original equipment, replacement, and retread tire businesses for the consumer, commercial truck and bus, off-the-road (OTR), Ag, and Latin America segments.

Nizar Trigui will now serve as chief technology officer and group president of the solutions businesses department. He will have accountability for the company's mobility solutions, IT, and circular economy strategies,

in addition to R&D, technology, and overseeing Akron, Ohio-based operations.

Gabriel Asbun, currently group president of Americas Tire & Solutions Business, has been named group president of the integrated businesses department, where he will be responsible for Bridgestone Retail Operations (BSRO), Firestone Industrial Products, and the company's Credit First National Association (CFNA) consumer credit division.

And, Craig Schneider has been named chief strategy officer, where he will focus on global strategies outlined in the Bridgestone business plan, including shaping the portfolio, partnership development, and more.

## MATTHEW GAMBLE TO LEAD BANKS POWER ENGINE PROGRAM

Banks Power, the manufacturer of tuners, intakes, exhausts, differential covers, and more performance products, has announced Matthew Gamble as the design, assembly, and testing manager for its DMAX engine programs.

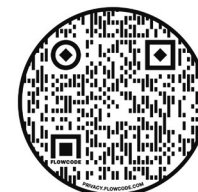
Gamble will help design, develop, and launch the high-performance, turnkey variants of the Banks D866T engine. Engineered and developed in-house at the company's Azusa, California, campus, the engines will feature Banks components, many integrated during an initial assembly at GM's DMAX Ltd. plant in Moraine, Ohio.

Gamble will also lead performance and durability demonstration events—both in-house and remote—among other duties.



Matthew Gamble

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# ADVOCACY CORNER

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

Edited by Laura Pitts

PRI's dedicated advocacy team based in Washington, DC, works nonstop to protect motorsports. We are currently tracking several initiatives on the federal and state levels, including an update on tax credits for businesses participating in trade shows, rules related to hiring independent contractors, and employee retention tax credits.

## URGE CONGRESS TO SUPPORT TAX CREDITS FOR TRADE SHOWS

As previously reported (see *PRI Magazine*, May 2021), a PRI-supported bill was introduced in Congress that would provide tax credits to cover 50% of the expenses associated with exhibiting or attending a trade show, such as the PRI Trade Show in Indianapolis. The bipartisan Hospitality and Commerce Job Recovery Act of 2021 (H.R. 1346/S.477) would help businesses participate in trade shows and the millions of men and women employed in the tourism industry.

There is growing bipartisan support for the legislation. H.R. 1346, has 80 cosponsors (42 Republicans and 38 Democrats). If enacted into law, it would provide PRI Trade Show buyers and exhibitors with a tax credit for 50% of the cost of attending or exhibiting at the 2022, 2023, and 2024 events.

"This bill would help increase the number of attendees and exhibitors at the PRI Show. The stimulative impact of the legislation would lead to more hotel nights filled, busier restaurants, and additional spending in Indianapolis and cities across the country. It is crucial to hotels and service/hospitality businesses," said PRI Vice President of Government and Legal Affairs Daniel Ingber.

PRI exhibitors and attendees should ask their employees to send a letter to their federal lawmakers in Washington, DC, by visiting [votervoice.net/SEMA/campaigns/81675/respond](http://votervoice.net/SEMA/campaigns/81675/respond).

## TRUMP ADMINISTRATION'S INDEPENDENT CONTRACTOR RULE OFFICIALLY WITHDRAWN

The Biden Administration has finalized a new rule to withdraw the independent contractor regulation issued in the closing days of the Trump Administration.

"Gig workers are at the heart of the debate—from Uber drivers to other types of flexible, temporary, or freelance jobholders. At issue is making sure there is clarity in defining whether a worker is an employee or independent contractor so that the relationship is unquestioned by the IRS or state tax collectors," Ingber said.

While the issue may be revisited in the future, the US Department of Labor (DOL) is currently reverting to previous guidance on distinguishing whether an individual should be classified as an independent contractor or employee. Specifically, the DOL deferred to the seven-factor "economic realities" guidance test issued in 2008 and based on court cases. Factors to be considered include:

- The extent to which the services rendered are an integral part of the principal's business
- The permanency of the relationship
- The amount of the alleged contractor's investment in facilities and equipment
- The nature and degree of control by the principal
- The alleged contractor's opportunities for profit and loss
- The amount of initiative, judgment, or foresight in open market competition with others required for the success of the claimed independent contractor
- The degree of independent business organization and operation

In recent years, the increase in independent contractors who perform on-demand services, such as drivers, freelance writers, and other gig workers,

has placed a focus on the definition. Company employees have protections under the Fair Labor Standards Act (FLSA) such as minimum wage and overtime compensation that do not apply to independent contractors.

"There are benefits to hiring an independent contractor such as defining a specific work product to be accomplished within a budgeted amount and time period—with no further obligation," Ingber said. "There is usually no question whether you are hiring an independent contractor since it is frequently for a specific outsourced duty (website design, construction, payroll) for which the contractor has other clients, has control over their schedules, has a limited and defined duty, and is otherwise independent. However, watch to see if circumstances change over time whereby the relationship could be considered employer/worker when applying the Seven Factors Test. In that case, a company should review the situation since there is an obligation to collect and pay taxes and benefits. If not sure, consult your attorney or accountant."

For more information, contact Stuart Gosswein at [stuartg@sema.org](mailto:stuartg@sema.org).

## TAKE ADVANTAGE OF THE EMPLOYEE RETENTION TAX CREDIT

Racing businesses are urged to take advantage of a COVID-19 economic relief program enacted in 2020 and expanded this year—the Employee Retention Tax Credit (ERTC)—designed to help employers that suffered significant financial losses or that were closed due to a government order but continued to pay workers who were unable to perform their duties.

**2020:** The tax credit is equal to 50% of up to \$10,000 in qualified wages paid between March 12–December 31, 2020. The total credit is capped at \$5,000 per employee

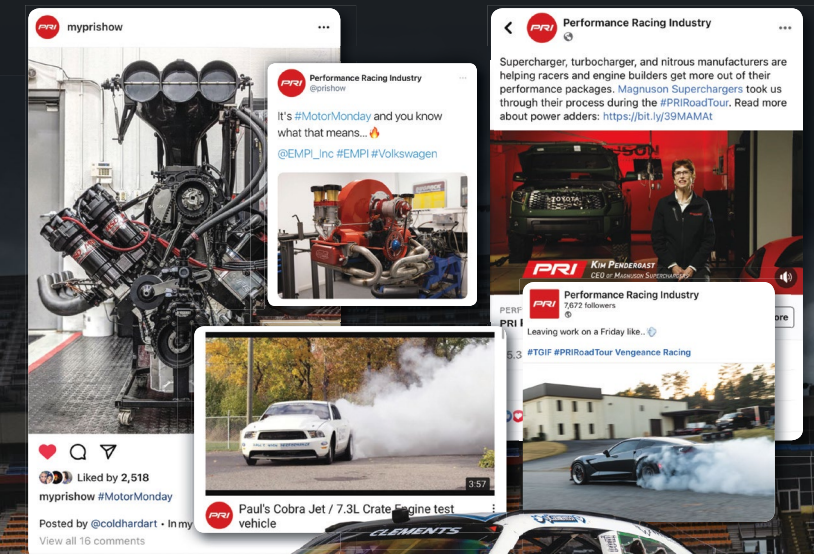
and applies against employment taxes on wages paid to all employees. There is a 100-employee limitation. Credit is available if the employer had a fully or partially suspended operation during any calendar quarter in 2020 due to orders from an appropriate governmental authority due to COVID-19; or the employer experienced a significant decline (more than 50%) in gross receipts during the calendar quarter.

**2021:** The tax credit applies to all four quarters of 2021. The credit is now equal to 70% of up to \$10,000 in qualified wages per quarter (including health plan expenses). This means the tax credit is potentially \$28,000 per employee (\$7,000 for each quarter). Employers who have experienced a 20% or more decline of gross receipts in a quarter, compared to the same quarter in 2019, can apply. For 2021, the size limitation was increased to employers with 500 or fewer employees (up from 100 workers).

"Many companies are not aware of this program enacted to help businesses retain workers," Ingber said. "Racing businesses, in fact, all small businesses suffering an economic downturn in the last two years should take advantage of this program. The program was enacted so that companies can use the cash that is not sent to the IRS to address other financial needs."

Under the expanded ERTC program, a business that obtained a PPP loan can claim the ERTC if wages paid with PPP funds are excluded for the purpose of calculating the ERTC. The IRS issued new guidance for employers on the rules that will apply to the ERTC for the first two quarters of 2021 at [irs.gov/pub/irs-drop/n-21-23.pdf](https://irs.gov/pub/irs-drop/n-21-23.pdf). Additional IRS coronavirus relief information is available at [irs.gov](https://irs.gov). Employers should work with their accountant and payroll preparer to confirm ERTC eligibility and file the adjusted Form 941 tax deposit. **PRI**

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## MAHLE MOTORSPORT

[us.mahle.com/en/motorsports/](http://us.mahle.com/en/motorsports/)

The latest addition to the line of Ford Modular piston assemblies includes the Ford 5.2L VooDoo Drop-in Forged PowerPak Piston Kit. This replacement piston is available as a ready-to-run assembly that requires no rebalancing or compression ratio change. The pistons are designed to accept either the OE rod with tapered small end or an aftermarket rectangular rod.

**Contact: 888-255-1942**



## CORNWELL QUALITY TOOLS

[cornwelltools.com](http://cornwelltools.com)

Cornwell Tools' Platinum 84-inch 14-Drawer Triple Bank Cabinet is available in seven colors and features cage frame construction. Drawers are supported by 260-pound capacity ball bearing slides with integrated TLC mechanism. Each drawer features a non-slip liner and a full-length pull with decorative end caps, plus much more.

**Contact: 330-336-3506**

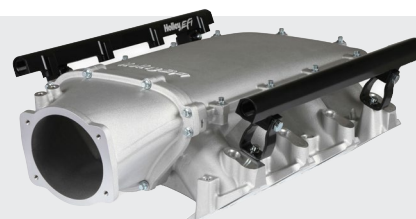


## SSPERFORMANCE1

[ssperformance1.com](http://ssperformance1.com)

These custom, precision-cut weld kit cases are waterproof, crush-resistant, lockable, and feature shock protection and precision-cut foam. Personalization is also available.

**Contact: 219-608-8326**



## HOLLEY PERFORMANCE PRODUCTS

[holley.com](http://holley.com)

The Holley LS3 Lo-Ram intake manifold kits are designed for GM LS Gen III and Gen IV engines equipped with GM LS3/L92 cylinder heads. These intakes will work with OE or aftermarket cylinder heads. The Lo-Ram intake manifolds are designed for forced induction (supercharged or turbocharged) engine applications.

**Contact: 866-464-6553**



## BREMBO

[bremboparts.com](http://bremboparts.com)

Brembo has added 51 new brake rotor part numbers and 83 new brake pad offerings to its line of aftermarket replacement parts. Of the 83 new part releases, 50 are Brembo Ceramic pads that are recognized by their red backing plate. These pads are engineered for comfort, minimal noise and vibration for maximum driving comfort.

**Contact: 855-478-6565**



## DESIGN ENGINEERING, INC.

[designengineering.com](http://designengineering.com)

DEI's Vibration Damping Kits are designed to fit 1990–2005 Mazda Miata NA and NB models. The kits reduce noise and vibrations coming from metal surfaces to help interiors stay cool and quiet. Kits include sheets of black Boom Mat damping material, 2-inch wide by 20-foot roll of black Boom Mat Vibration Damping and Sealing Tape, and an application roller.

**Contact: 800-264-9472**



## E3

[e3lithium.com](http://e3lithium.com)

E3 introduces a new line of lithium phosphate powersports batteries, initially featuring eight offerings ranging in power output from 140 to 760 cold cranking amps and covering a wide range of applications. Performance benefits include 80% lighter and three times longer life than traditional batteries, mounts in any position, environmentally friendly, and more.

**Contact: 904-567-5994**



## KBS COATINGS

[kbs-coatings.com](http://kbs-coatings.com)

The XTC Silicone Zinc Primer and XTC Xtreme Temperature Coating are designed to provide good-looking, durable, and long-lasting finishes on exhaust manifolds, headers, and exhaust systems. The Primer can withstand temperatures over 1,200 degrees F and provides rust protection even in high humidity, high condensation, and salt air conditions.

**Contact: 888-531-4527**



## VORTECH SUPERCHARGERS

[vortechsuperchargers.com](http://vortechsuperchargers.com)

The new Billet Mounting Bracket Assembly is engineered to install the V-30 centrifugal supercharger onto Chevrolet LS engines. Kits range from the V-30 94A supporting 1,400+ horsepower up to the V-30 123A supporting up to 2,800+ horsepower.

**Contact: 805-247-0226**



## JE PISTONS

[jepistons.com](http://jepistons.com)

The 20° BBC Series are available with 23cc and 18cc domes, designed for high-horsepower naturally aspirated, and nitrous engines with bore sizes from 4.600 to 4.625. Forged in-house from 2618-T6 aluminum, they include JE's Ultra-Groove process that creates flat and smooth ring grooves with tolerances held to a millionth of an inch.

**Contact: 714-898-9763;**  
[sales@jepistons.com](mailto:sales@jepistons.com)

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### MANLEY PERFORMANCE

[manleyperformance.com](http://manleyperformance.com)

Manley has expanded the availability of its Turbo Tuff Tri-Beam forged steel connecting rods for highly boosted or nitrous oxide-fed sport compact applications. The exclusive Tri-Beam configuration is a hybrid incorporating both I-beam and H-beam features, and it's based on forgings of 4340 aircraft quality vacuum degassed steel or 300M alloy.

Contact: 732-905-3366

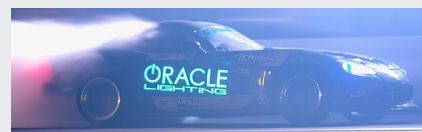


### MSD

[holley.com/brands/msd](http://holley.com/brands/msd)

The Atomic 2 EFI system now features an 865 CFM throttle body with integrated ECU, full color touchscreen, simple four-wire hookup, and several other features. The Master Kits include a complete fuel system.

Contact: 866-464-6553

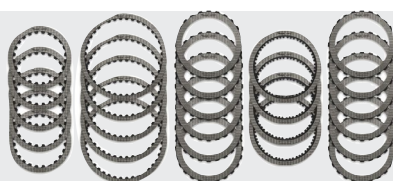


### ORACLE LIGHTING

[oraclelights.com/logos](http://oraclelights.com/logos)

Oracle Lighting offers custom illuminated logo decals for cars, trucks, powersports, and marine applications. These less than 1-mm thick semi-rigid panels can be made in a variety of shapes, colors, and sizes. These panels are constructed from an electroluminescent material that glows softly at night.

Contact: 800-407-5776;  
[info@oraclelights.com](mailto:info@oraclelights.com)



### RAYBESTOS POWERTRAIN

[raybestospowertrain.com](http://raybestospowertrain.com)

GPZ friction clutches are available for Dodge Chargers and other vehicles equipped with the 8HP45 transmission. GPZ friction clutch plates are also available for the 8HP51 transmission in the new A9X series Toyota Supra.

Contact: 800-729-7763



### RACING POWER COMPANY

[usrpc.com](http://usrpc.com)

RPC offers SBC CID logo billet aluminum push-in valve cover breathers and PCV breathers. Users can show off their engine displacement with a durable laser etched logo on RPC's high-quality billet aluminum, powder-coated units. They're available in four of the most popular SBC engine displacements, with more to come.

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Gridlife: 09.10 - 09.12 ..... South Haven, MI  
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Hot Rod Drag Week: 09.14 ..... Norwalk, OH  
Hot Rod Drag Week: 09.15 ..... Indianapolis, IN  
Hot Rod Drag Week: 09.16 ..... Byron, IL  
Hot Rod Drag Week: 09.17 ..... Martin, MI  
Super Dirt Week: 10.07 - 10.10 ..... Oswego, NY  
Indy Autonomous Challenge: 10.22 - 10.23 ..... Indianapolis, IN  
Dodge//SRT NHRA Nationals: 10.29 - 10.31 ..... Las Vegas, NV  
SEMA Show: 11.02 - 11.05 ..... Las Vegas, NV  
Mint 400: 12.03 - 12.05 ..... Las Vegas, NV  
PRI Trade Show: 12.09 - 12.11 ..... Indianapolis, IN

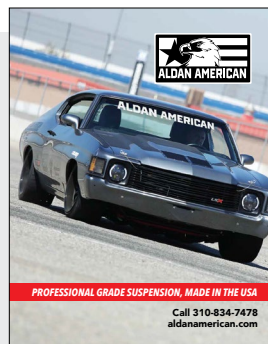
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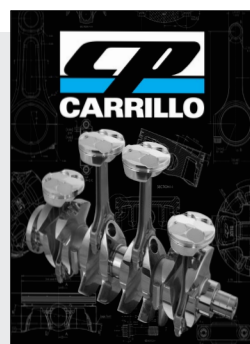
# CATALOGS



## ALDAN AMERICAN aldanamerican.com

Aldan American showcases its current coilover options along with a guide for selecting the correct shock and coil springs for different applications.

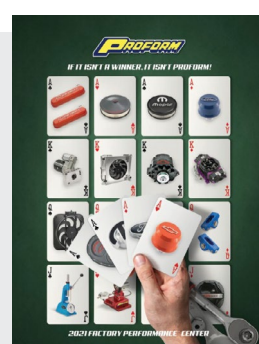
Contact: 310-834-7478



## CP-CARRILLO cp-carrillo.com

Pistons, connecting rods, pins, rings, fasteners, locks, gaskets, and bearings are displayed in CP-Carrillo's latest catalog, organized by application.

Contact: 949-567-9000



## PROFORM proformparts.com

PROFORM's latest catalog highlights its Chevy and Mopar engine dress-up kits, roller rockers, 1-2-3 radiator systems, black crinkle alternators, billet bolt-down clamps, and more.

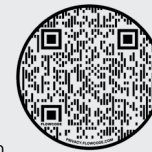
Contact: 586-774-2500;  
info@proformparts.com



## SCRIBNER PLASTICS scribnerplastics.com

Utility jugs, survival trio jugs, funnels, kart bodywork products, link barrier systems, and engine, transmission, and specialty shipping containers can be found in Scribner Plastics' latest catalog.

Contact: 800-552-5847;  
info@scribnerplastics.com



## ROADRUNNER PERFORMANCE roadrunnerperformance.com

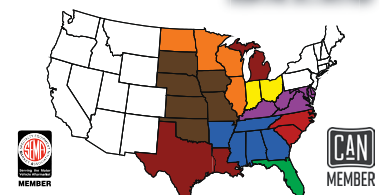
High-performance hoses and fittings are highlighted in this catalog, which features such categories as stainless steel, full flow, push-on, and PTFE hose fittings, and more.

Contact: 509-262-9165;  
sales@roadrunnerperformance.com



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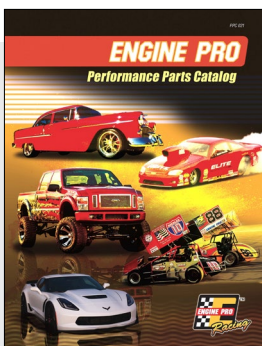
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## BICKNELL RACING PRODUCTS bicknellracingproducts.com

Bicknell Racing Products' 204-page catalog covers hundreds of product categories, including brakes, chassis and chassis components, engines, fuel systems, gaskets, and more.

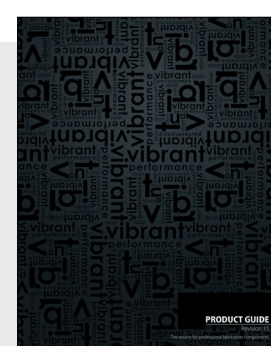
Contact: 716-285-7502



## ENGINE PRO enginepro.com

Engine Pro's performance engine parts catalog covers 300 new products, including multi-layered steel gaskets for LS and diesel engines, performance pro-adjust timing sets, and more.

Contact: 303-424-3200;  
enginepro@enginepro.com



## VIBRANT PERFORMANCE vibrantperformance.com

Motorsports fabrication equipment, including fluid delivery, connectors and clamps, tubing and bends, exhaust fabrication, and more can be found in Vibrant Performance's 132-page catalog.

Contact: 866-820-6617;  
info@vibrantperformance.com



## RADIAL BEARING radialbearing.com

Radial Bearing's latest catalog features aircraft-quality rod end and spherical bearings, including options with self-lubricating PTFE fabric liners.

Contact: 800-377-1937;  
sales@radialbearing.com



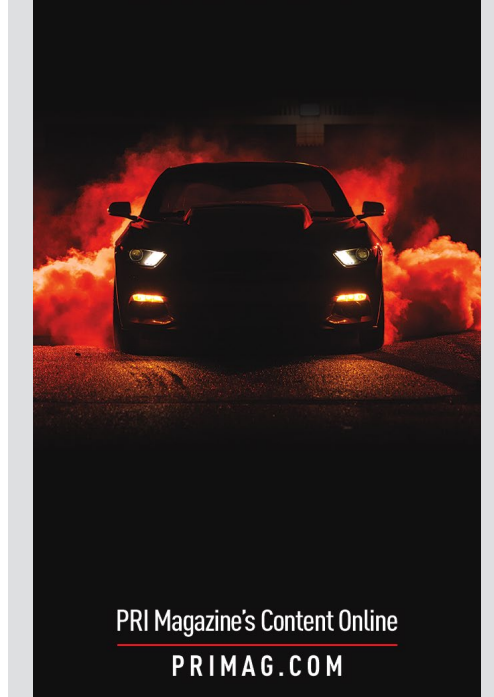
## RACETEC PISTONS racetecpistons.com

The latest RaceTec and AutoTec catalog covers the brands' selection of pistons for various applications and custom options. Of note: RaceTec pistons are made with forged or billet 2618 aluminum alloy.

Contact: 714-903-4362;  
info@racetecpistons.com



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## ADVERTISER INDEX

Name	Page No.	Name	Page No.	Name	Page No.
1 WAY TECHNOLOGIES.....	127	EAGLE SPECIALTY PRODUCTS INC.....	59	RED LINE SYNTHETIC OIL .....	97
ACL DISTRIBUTION INC. ....	119	ELECMECH INC. ....	103	REMFLEX EXHAUST GASKETS.....	88
ATECH MOTORSPORTS .....	3	EQUALIZER SYSTEMS.....	52	ROD END SUPPLY.....	120
ATL RACING FUEL CELLS.....	100	EXHAUST GAS TECHNOLOGIES INC. ....	127	RON DAVIS RACING PRODUCTS INC.....	120
AURORA BEARING CO.....	113	FITECH EFI.....	68	ROSS RACING PISTONS.....	101
AUTOMOTIVE RACING PRODUCTS INC.....	5	FLATOUT GASKETS & FABRICATIONS .....	50	ROTTLER MANUFACTURING.....	136
BARNES SYSTEMS INC .....	113	FLUIDAMPR-VIBRATECH TVD .....	91	SAMPSON.....	125
BEHRENT'S PERFORMANCE WAREHOUSE .....	29	FLURO GELLENKLAGER GMBH .....	114	SCAT ENTERPRISES INC.....	27
BILL MITCHELL HARDCORE RACING PRODUCTS ....	48	GANDRUD PARTS CENTER.....	111	SCE GASKETS INC.....	105
BLP RACING PRODUCTS LLC.....	54	HOT SHOT'S SECRET .....	12,13	SCHAEFFER MANUFACTURING CO.....	14,15
BOOSTLINE.....	60	HYPERMAX ENGINEERING INC.....	115	SCHUMANN'S SALES & SERVICE .....	123
BRASWELL CARBURETION .....	56	IGNITIONEERING/B.R. MOTORSPORTS .....	119	SCRIBNER PLASTICS.....	95
BRODIX INC .....	56	INTERCOMP CO.....	49	SCS GEARBOX INC .....	48
CALICO TECHNOLOGIES INC.....	56	ISKY RACING CAMS .....	107	SERDI CORP.....	107
CALLIES PERFORMANCE PRODUCTS INC. ....	70	J-TEC ASSOCIATES INC .....	104	SETRAB USA .....	65
CALVERT RACING SUSPENSIONS .....	100,119	JAZ PRODUCTS INC .....	57	SHAFTECH LTD.....	112
CENTROID CORP. ....	96	JE PISTONS .....	2	SPECIALTY AUTO PARTS USA INC. ....	83
CHAMP PANS.....	94	JESEL INC.....	64	SPECIALTY PRODUCTS COMPANY .....	71
CHE PRECISION .....	123	JONES RACING PRODUCTS .....	55	SPECIALTY PRODUCTS DESIGN.....	61
COLEMAN MACHINE INC.....	103	KILL DEVIL DIESEL .....	85	SPEEDWAY MOTORS INC. ....	33
COMEC .....	105	LINE2LINE COATINGS.....	120	STAINLESS HEADERS MANUFACTURING .....	96
COMETIC GASKET INC. ....	67	MAGNAFUEL PRODUCTS INC. ....	52	STRONG HAND TOOLS .....	101
COMPETITION PRODUCTS.....	83	MAHLE AFTERMARKET .....	16,17	SWIFT FILTERS INC. ....	102
CP-CARRILLO INC.....	107	MAHLE MOTORSPORTS INC.....	94	THERMO-TEC .....	104,107
CREATIVE RACING PRODUCTS, LLC.....	51	MG INDUSTRIES INC.....	54	TOP STREET PERFORMANCE.....	102
CROWER CAMS & EQUIPMENT CO .....	69	MOTOR STATE DISTRIBUTING .....	44	TOPLINE AUTOMOTIVE ENGINEERING.....	135
CRP CANTRELL RACING PRODUCTS LLC .....	127	NATIONAL ASSOCIATION OF		TRIBODYN INC.....	86
CTECH MANUFACTURING.....	11	DIESEL MOTORSPORTS .....	73,82	TRICK FLOW SPECIALTIES.....	46
DAIDO ENGINE BEARINGS.....	125	NEO SYNTHETIC OIL CO INC.....	63	TURBONETICS INC. ....	92
DAILEY ENGINEERING .....	102	ORACLE LIGHTING INC. ....	45	TURN 14 DISTRIBUTION INC.....	7
DARTON INTERNATIONAL INC. ....	123	PACIFIC PERFORMANCE ENGINEERING .....	47	UEM-ICON/KB PISTONS.....	87
DC SPORTS.....	66	PBM PERFORMANCE PRODUCTS .....	55	VAC MOTORSPORTS.....	104
DESIGN ENGINEERING INC .....	39	PENSKE RACING SHOCKS .....	104	VAN NORMAN MACHINE INDIA PVT LT .....	9,57
DIAMOND RACING PRODUCTS .....	43	PERFORMANCE DISTRIBUTORS .....	41	VAN NORMAN MACHINE INDIA PVT LT .....	121,127
DIESEL PERFORMANCE PRODUCTS INC.....	57	PERFORMANCE TUBE BENDING INC. ....	106	WEHRLI CUSTOM FABRICATION .....	89
DYERS TOP RODS.....	112,115	RACETEC PISTONS.....	93	WEINLE MOTORSPORTS .....	123
E3 SPARK PLUGS .....	102	RADIAL BEARING CORP.....	46	WOOLF AIRCRAFT PRODUCTS INC .....	111



# SOCIAL STATUS

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

A social media influencer can be described as a user on one or more social media platforms who has established credibility in a specific industry and has access to a large audience, giving him or her the ability to persuade others by virtue of authenticity and reach.

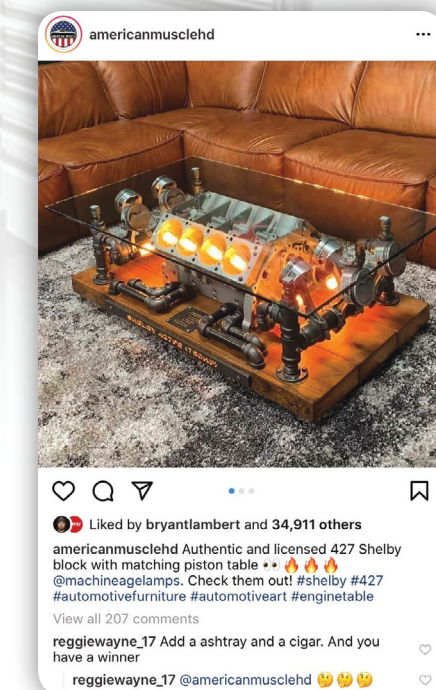
Garrett Reed, who runs the @AmericanMuscleHD Instagram account with over two million followers, is definitely considered a social media influencer. He started his page in March 2013 and broke through the two-million mark in late 2020. "I think the biggest attribute to being able to accomplish that goal has a lot to do with how soon I started and how there wasn't much competition at the time. I stuck with it through the algorithm changes and that allowed people to just know my name," he said.

Reed's idea of an influencer is "someone who you can relate to and who will be as transparent as possible about what products and services that they promote or advertise. They are someone you feel comfortable taking advice and gaining knowledge from," he explained. "A real influencer isn't out just to get money, but they genuinely care about the people they are influencing—at least that's how I feel."

Some people strive to become influencers, while for others it happens by accident. "I started this page, honestly, just for the fun of it. I didn't even know what an influencer was at the time," Reed said. "I can't remember how far in that I realized I held some value as an influencer, but when I did, I rolled with it and started to get myself out there more in person so people would recognize me and know my name."

For those actively pursuing influencer status, "Make relevant and interesting content in order to get your name out there and help grow your following," Reed suggested. "Another must-do is to interact with those who are already established as influencers, but make sure it's genuine from the beginning. Don't talk to people in hopes that they will just catapult you to where you want to go. And I would just say to be yourself and be confident in what you know and are good at. But also remain humble and always be willing to learn from those who know more than you."

Once becoming an influencer, it's important to consistently post content and engage with your audience in order to stay relevant. "Where the effort comes in is taking the time to respond to followers and fans' comments and DMs (direct messages). A lot of 'big name'



influencers don't really do this for a number of reasons," Reed explained. "But I have followers that will tell me after I respond to their DM that they are surprised that I responded. I think it's important to engage with the people who have helped you gain the notoriety that you have."

"And when it comes to relationships with brands and companies, that takes time, too, between engaging with them on social and making it a point to reshare content regularly so that your followership sees who you still work with," he added.

For businesses that are interested in partnering with influencers for marketing purposes, Reed offered some tips for reaching out to them. "The best way for a company to approach me is probably email, but I've also had success with companies that DM me on Instagram," he said. "I pride myself on reading or at least checking all of my messages on IG, so I make sure I don't miss anything important. In terms of what to say, basically just lay out your interest and the main thing you want posted/promoted, and if you already have a budget set aside."

Simple as that! You're now equipped with the tools to become—or partner with—a social media influencer. **PRI**



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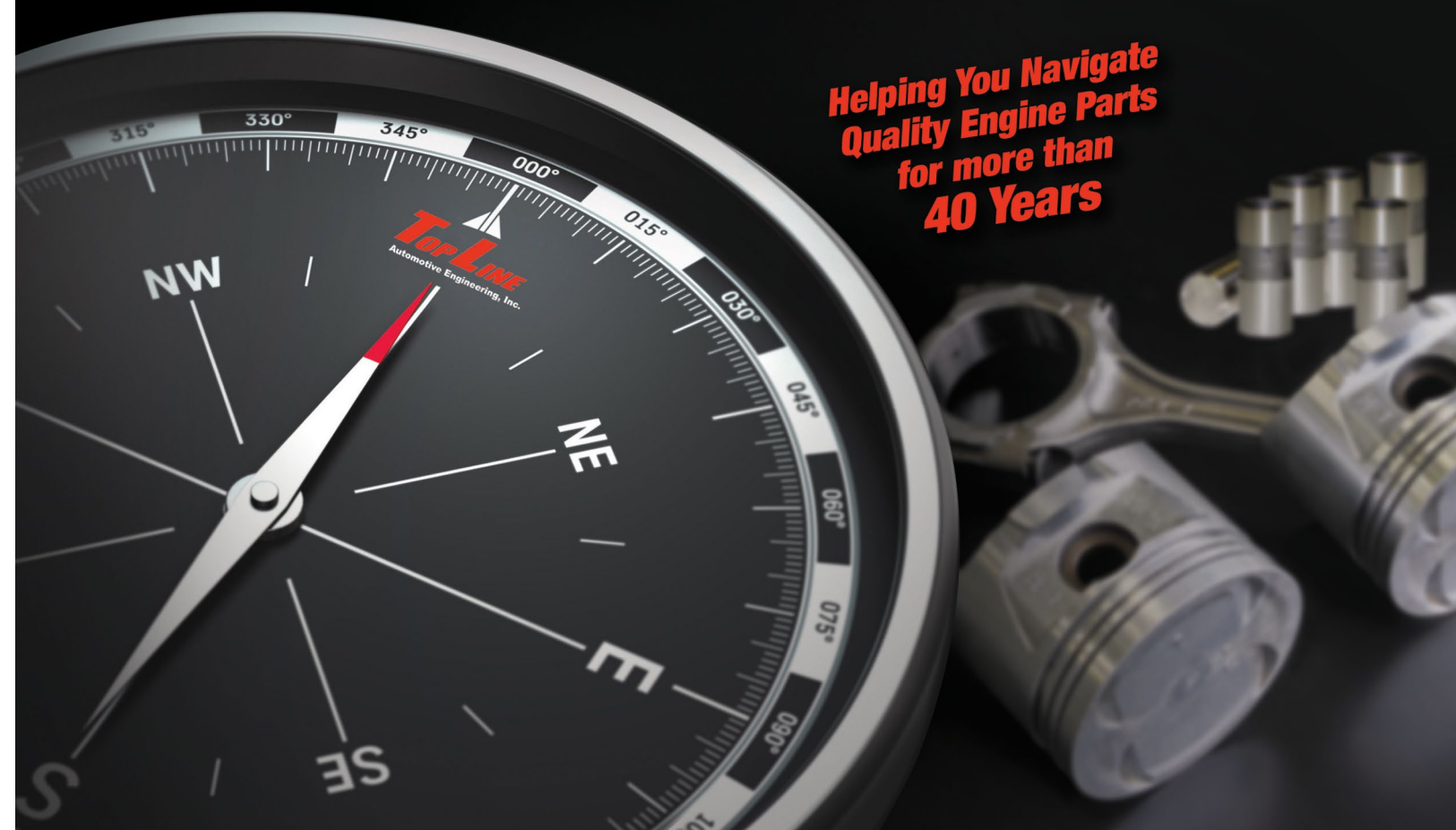
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