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TRUCK PARTS

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Commercial Vehicle

Published by Endeavor Business Media, LLC 30 Burton Hills Blvd, Ste. 185, Nashville, TN 37215 800-547-7377

Vol. 27, No. 9

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ARTICLE REPRINTS



Fleet Maintenance (USPS 020-239; ISSN 2150-4911print; ISSN 2150-492Xonline) is published nine times a year in January/February, March, April, May, June, July, September, October, and December by Endeavor Business Media, LLC. 1233 Janesville Avenue, Fort Atkinson, WI 53538. Periodicals postage paid at Fort Atkinson, WI 53538. Periodicals postage paid at Fort Atkinson, WI 53538, Periodicals postage paid at Fort Atkinson, WI 53548, Periodicals postage paid postage paid at Fort Atkinson, WI 53548, Periodical

Subscriptions: Publisher reserves the right to reject non-qualified subscriptions. Subscription prices: U.S. \$75 per year; Canada/Mexico \$110 per year; All other countries \$162 per year. All subscriptions are payable in U.S. funds. Send subscription inquiries to *Fleet Maintenance*, PO Box 3257, Northbrook, IL 60065-3257. Customer service can be reached toll-free at 877-382-9187 or at fleetmaintenance@omeda.com for magazine subscription assistance or questions.

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The delicate art of overachieving

The industry is full of overachievers and problem solvers, so sometimes a manager's job is to make sure these human engines of productivity don't overheat in the process.



By John Hitch Editor-in-chief





Last issue I asked our readers to nominate someone they work with who deserves recognition for their stellar performance. The idea stemmed from meeting so many hard-working professionals in the course of reporting and going to various events and shop visits. The timeline for nominations was rather brief-about a month-so we weren't flooded with emails but did get a steady enough stream of candidates to make the decision tough for our judges, which included our staff and advisory board.

Interviewing each of the six winners made it clear these folks all fit the bill as overachievers, even if they were surprised (and maybe a bit bashful) about being named such a thing. To them, all the long hours and hard work were part of the job-just fulfilling their duties of keeping the transportation industry moving and their families fed and happy. Nothing special really.



» Marathon's workhorse technician Cody Clegg still finds time to spend quality time with his son at home.

Photo courtesy of Cody Clegg

work even more. Cody Clegg pulls 60+ hours a week for Marathon Petroleum, servicing crude oil haulers across Utah, and then goes into dad-mode with his four kids, teaching them how to hunt, fish, and ride dirt bikes and horses. In Kansas, Travis Reekie maintains his entire city's municipal fleet and then heads home to tend to a 300-acre farm. This includes maintaining equipment there, too.

Overachieving on an individual level is one thing, but passing on experience and work ethic truly makes a hard worker even more valuable. Dewey Bishop taught himself how to rebuild engines and service trucks. And as technical trainer for Ozark Motor Lines. he now spends his time showing the maintenance department's 68 techs the right way to do things. Major tenets include fixing things right the first time and chasing recurring issues to identify systemic root causes.

A word of advice for those who manage overachievers like this, though. Make sure they strike a balance between work and home life. These employees appear rich in modesty and tenacity but didn't strike me as the type to complain about workloads. They see a difficult challenge as a new opportunity to solve something-and your challenge is to make sure they maintain their health and sanity. In my line of work, I had to accept this when

dealing with a heart attack earlier this year. Sometimes after I take my foot off the gas for a while, I come close to redlining again in a race against myself to make every issue better than the last. It's worse after winning two national writing awards in October (and picking up an honorable mention for writing about said heart attack).

The stress of my unchecked ambition earned me two horrific days in the E.R. Tests showed my chest pain was a false alarm, but hanging in a waiting room with a nail-in-theeye guy for a few hours and then several more near a massive-head-wound grandma in the E.R. hallway gave me some clarity-for now. I want to be able to highlight the good and the bad (like pushing electric trucks before their time) in our industry for many years to come, so I need to do a better job at overachieving in realistic expectations and stress management. My family needs food on their table, too. And because it's easier to offer advice than to take it, my boss now monitors my online status at night, threatening to call my wife when I won't log off.

And I'll end with that, along with my thanks to you for reading our magazine, whether for the first time or the hundredth, and sincere wishes that you have a healthy and stress-free holiday season.

It's also amazing how, after a hard day's work, these apex professionals will go home to work even more.

And that's exactly what makes them special. They are truly their shop's workhorses, pulling the load to get that truck back on the road by any means necessary. For Cox Automotive mobile technician leader Ryan Ziegler, that means driving all over the Pacific Northwest to help his techs troubleshoot an aftertreatment system or replace a cab door. In the case of Regina Zahm, a former pediatric cancer ward nurse turned Great Dane service coordinator, it's refusing to quit when finding a part or service vehicle gets tough, or defusing volatile situations with patience even when an angry customer has lost theirs. And for construction leasing company Sukut Equipment, Colby Coleman tirelessly hunts for new ways to improve efficiency and thwart catalytic converter thieves.

It's also amazing how, after a hard day's work, these apex professionals will go home to

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EQUIPMENT

TRUCK IUGO

How fleet maintenance managers can develop a replacement parts strategy that balances price, performance, and downtime.

By Gregg Wartgow

[PARTS]

ome fleets view the maintenance department as a cost center, but the best ones also view it as an opportunity center—an opportunity to make smart buying decisions that ultimately help drive fleet profitability. "I'm never going to make money for the company, at least not directly," said Ernest Acevedo, director of fleet maintenance and onboard technologies at Massachusetts-based Boyle Transportation. "But by limiting unscheduled repairs, you're keeping everything going and everybody happy. That is my main job."

Limiting those unscheduled repairs starts with routine preventive maintenance, of course, but also involves the quality of parts you use when making scheduled and unscheduled repairs. Scouring the ends of the earth to find a cheaper part doesn't automatically earn you a gold star as a maintenance manager. A fleet may be able to cut costs when initially buying a replacement part, but its true value must be measured not only by price but also by performance, durability, and availability. This makes the decision on whether to buy an OEM versus aftermarket replacement part more complex. It can feel like a never-ending game of tug of war, so we spoke with experts to figure out which side has the edge.

OE or aftermarket?

"Some fleets will opt for the OE part every time," said Kevin Lydic, VP of business development at FinditParts, an online provider of heavy-duty OE and aftermarket parts. "But with the longer truck lifecycles we're seeing now, more fleets are more interested in aftermarket parts when a vehicle is getting closer to end of life."

PARTS FINALS

Lydic, who has been in the industry for a decade, also noted the quality of aftermarket parts have improved.

"Several providers are competing at a really top-notch level today," he said. Nevertheless, some fleets continue leaning toward OE parts as a vehicle gets older.

"We did a study a few years ago, and using better OE parts comes back to a net-zero if not a financial gain for our company," said Kurt Dunn, senior fleet technical adviser at Pitt Ohio, an LTL trucking fleet that operates in the Northeast, Mid-Atlantic, and Midwest. "We run most of our trucks to a million miles or more. We've found that using OE parts becomes really important to keep a vehicle on the road up until the day it retires."

Safety may also influence where a fleet is willing to look on the price/quality spectrum. Brakes, for instance, represent an area where some fleets don't want to take too many chances.

"We have the mindset that brakes are a primary safety function on a unit," said Jason Dolence, manager of parts and warranty at Pitt Ohio. "That's why we do not deviate from OE replacement components when it comes to braking systems, which includes things like brake linings and shoes."

Boyle's Acevedo is leery about venturing away from OE when it comes to core engine components. He categorizes those items "as commonly replaced but capable of causing a lot of headaches and unscheduled repairs."

So what's his advice?

"If you find something that works and is reliable, stick with it," Acevedo advised. "That's typically a top-of-the-line OE part."

"If you find something that works and is reliable, stick with it."

Ernest Acevedo, fleet maintenance director, Boyle Transportation

Acevedo has designated a second parts category as well. These are regularly replaced, PM-driven items that provide some opportunity to shop around.

However, whether you're talking about oil and filters, batteries, bumpers, tires, or other high-wear items, the only way to know if you're purchasing the perfect part is if you measure and analyze how it performs.

Test, measure, & move forward

Pilot programs are a popular way to begin trying out an alternative, less expensive part.

"A pilot program allows you to put a new part through the normal paces of the truck to see how it holds up," said Willie Reeves, director of maintenance at PacLease, Paccar's leasing company that provides full-service lease, rental, and maintenance programs for Kenworth and Peterbilt trucks.

When piloting a new part, Acevedo said it's important to maintain the same PM schedule as the original. Extending the trial through two or three PM intervals to guard against any one-off flukes also helps. "It's important to have some processes in place to help determine if the alternate part is holding up to the same standard as the original," Acevedo said. "It's more about durability and dependability than money, regardless of whether it's an OE or aftermarket part."

A good software system that can measure usage and failure rates can further assist maintenance managers in accurately evaluating the performance and true cost of an alternative part.

"Without a good system, you might assume a part is working properly because you haven't heard any complaints," said Michael Dominguez, VP of business operations, procurement and fleet management at Transervice, a provider of freight management, fleet leasing, and contract maintenance services. "With our system, we can see if there is an increase in spend for a certain component. Then we can dig into the data to get to the root cause of the problem. If the reason for the failure is that the part isn't good enough, we will pull the plug right away."

Finding the value in filters

Filters represent one area where a fleet will often shop around. Finding the best value requires a product that meets a minimum performance standard and also aligns with the fleet's own maintenance objectives.

For example, if the fleet is looking to extend a vehicle's oil-drain interval, paying more for highend filters makes sense. "Maybe you're averaging three oil changes over the course of a year," Reeves said. "But maybe the oil viscosity is still at 40-50% and might be able to make it to the next PM. Using high-quality, extended-life filters could help extend that PM and drive uptime."

Sometimes extended-life filters may not be the best value. Acevedo uses the example of a reefer with a premium filter that's advertised to last up to 3,000 hours. If the fleet has made a decision to be more proactive and replace that filter every 1,500 hours, paying more for double the life doesn't make sense. Buying a less expensive filter that's



» Maintenance teams can indirectly make fleets money by helping limit unscheduled repairs and downtime. That is why the cheapest part isn't necessarily the best value.



» FinditParts provides crossover options when fleets search for parts so the buyer can make an educated decision based on the fleet's needs, and includes part cost, warranty, and lead time. "We aren't about the price play," said Kevin Lydic of FinditParts. "We're selling uptime because that's what 95% of fleets are most concerned about."

rated up to 2,000 hours would provide more value in this instance, he offered.

"Whatever you decide with any type of filter, just make sure you have a quality product that will perform to OEM standards," added Paul Pettit, VP of maintenance for Riverside Transport, who has held various fleet maintenance leadership positions since 2005. "You also want to balance quality with cost. The most expensive filter out there is not always necessary. But you don't want to go with the cheapest, either, if you're trying to protect your engine warranty coverage and meet the minimum standards. A catastrophic failure and voided warranty could end up costing a lot more than a high-end filter."

Engine oil ROI

Fleets also have a lot of options when it comes to engine oil. Making the right choice starts with assessing the performance necessary to satisfy the vehicle's needs. An API-certified oil is a clear indication of that; however, not all API-certified oils are created equal.

"Other benefits like corrosion protection and liner wear protection could be included in certain oils, delivering another level of performance that gives fleets something else to evaluate," said Greg Matheson, product manager for commercial engine lubricants at Lubrizol, a specialty chemicals company whose additives are used by a variety of OEMs and aftermarket marketers.

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» Choosing the most cost-effective filter comes down to matching the minimum performance standards to the fleet's own internal maintenance expectations. Gregg Wartgow

Matheson said fleets must also confirm that the oil they are considering is approved by the OEM. Some oils may only be approved for use in older model year vehicles. Other products may promote the fact that they are "suitable for use in" a certain engine. That doesn't mean they won't perform well, but it does mean the fleet needs to do a little more homework.

"It's important to have conversations with both the OEM and your oil suppliers," Matheson said. "Ask for data showing how the oil performs from a wear protection perspective. Also ask for data on oxidation control because that can help extend an oil drain or at least maximize performance within the oil drain.

"Understanding these things will help fleets fully understand the performance benefits from one oil to another," he continued.

Fleets could also realize longer-term cost savings by using a higher-performance oil. Extended drain intervals could help fleets save money by reducing downtime. Better protection of components like camshafts, pistons, and liners can help improve the efficiency of an engine.

"Oils meeting API CK-4 certification are formulated and rigorously tested to withstand high temperatures, heavy loads, and extended service intervals," said Jeff Harmening, senior project manager at the American Petroleum Institute (API). "CK-4 oils also provide shear stability, oxidation resistance, and aeration control, and they are engineered to meet stringent emissions requirements. API-certified CK-4 engine oils are vital for heavy-duty engine performance, reducing maintenance costs, and complying with industry standards."

Taking it a step further, Matheson said API FA-4 oils can provide an even stronger ROI advantage despite their higher upfront cost.

"The fleets I've talked to said FA-4 oil costs a little more per gallon, but say they are reducing fuel costs," Matheson said. "They've done the ROI analysis, and the savings outweigh the extra cost of the oil. That's what is most important to a fleet maintenance manager."

On that note, some lubricant experts advise fleets to look toward synthetic oils.

While synthetics typically carry a heftier price tag, the longer-term savings could prove to be worth it.

"A full synthetic or a synthetic blend provides advanced engine protection and enhanced performance," said Karin Haumann, OEM technical manager for Shell Global Solutions. "These cutting-edge lubricants guard against the damaging consequences of metal-to-metal contact, high loads, cold starts, and prolonged idling. In addition

» Synthetic oils such as Shell Rotella T4 10W-30, a CK-4 synthetic blend, typically cost more upfront, but can provide longerterm cost savings through enhanced engine protection and better fuel economy. Gregg Wartgow









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"Cost fleets want to know how much a tire is going to cost per mile, or maybe per 32nd in a severeduty application."

Kevin Rohlwing, chief technical officer, Tire Industry Association



He added the resulting gains in engine performance also yield significant fuel savings. "A switch from 15W-40 to 10W-30 can result in up to 3% fuel savings through outstanding oxidation performance," Bowles noted.

For example, construction fleet Brundage-Bone changed to the CITGARD 700 Synthetic Blend SAE 10W-30 on its concrete pumping trucks, and telematics revealed a 2.5% annual fuel savings, according to CITGO. Bowles did advise that chasing better fuel economy with

lower viscosity oils should not come at the cost of engine durability or emissions system compatibility.

Overall, fuel efficiency is a benefit that's relatively simple to measure. Some of the other benefits of using a premium-quality oil aren't so easy to put a number on.

That's why Matheson is a proponent of oil analysis. "At a minimum, it's a good idea to draw an oil sample when doing an oil change," he said. "Send that sample to a reputable third party for analy-

> sis. The results will tell you about wear metals and other things going on with the oil. This helps fleets understand how the oil is performing."

Tire price vs. tire cost

Much like with brakes, tires represent one area where a fleet may want to tread cautiously when it comes to price shopping. The ramifications of tire performance on safety, fuel economy, and driver satisfaction can have a huge impact on lifecycle ROI. "Plus, given the cost of rubber and availability of tires these days, tires are something a fleet definitely doesn't want to take too many chances on," PacLease's

Identifying a tire with the most value is somewhat dependent on a fleet's over-

"There are price fleets, and there are cost fleets," said Kevin Rohlwing, chief technical officer at the Tire Industry Association. "Cost fleets want to know how much a tire is going to cost per mile, or maybe per 32nd in a severe-duty application. Price fleets want to know how much money is being taken out of their pocket right then. They don't really

» When pilot testing tires, it's important to provide for an apples-to-apples comparison by making sure the same high maintenance standards apply to all tires across the fleet, not just for those being tested. PacLease

to safeguarding your engine, synthetic oils can enhance fuel economy and operational efficiency in addition to helping reduce CO2 emissions."

Viscosity is also one of the most important properties to look at, asserted Steven Bowles, Sr. lubes product specialist at CITGO.

"New low viscosity heavy duty engine oils (HDEOs) serve double duty," he explained. "They go low enough to flow at low temperatures and high enough to protect and perform at high temperatures."



care about brand name, where the product is from, or the warranty."

Linehaul fleets should adopt a cost-per-mile mindset, according to Rohlwing.

Pilot testing is a key part of that analysis but also requires a commitment from the maintenance team. All tires across the fleet, not just those being tested, should be regularly measured

so an honest comparison can be made.

"Check tread depth and tire pressure, and note the odometer readings," Rohlwing advised. "When you can get to where the level of maintenance on a regular tire is just as good as a test tire, you'll be able to determine the lowest cost-per-mile tire every time."

Cost per mile for a linehaul fleet will include a couple of retreads, along with all of the maintenance costs in between. For fleets that aren't interested in retreading, such as vocational applications and city delivery where the risk of casing damage is much higher, value is attained by balancing that initial tread life with tire cost.

"Where it gets interesting with these types of fleets is with steer tires," Rohlwing said. "Even some price-driven fleets will spend money on name-brand steers."

What's the thinking here?

"If one of the four tires on the rear axle blows out, they feel like they'll be OK," the tire expert said. "But if they lose a steer tire, that's a whole different animal for both the driver and the cargo. So this is another tire strategy some fleets choose to follow to balance performance and cost."

Availability impacts downtime and cost

If a sound replacement parts strategy is about balancing cost and downtime, product availability deserves strong consideration. Building partnerships with reliable vendors can help limit downtime by improving access to key parts.

Focusing on a handful of key vendors can also help fleets leverage some buying power for more favorable pricing on certain items. That is why Pitt Ohio likes to standardize the same brake system across all vehicles in its fleet.

"Then we only need to stock

one type of OE brake pad, brake shoe, and so on," Dunn said. "By leveraging our relationship with the manufacturer, we can really stock up and get the best pricing. Some people say it's not smart to put all of your eggs in one basket. But for us, with most of the supply issues during COVID behind us, standardizing and streamlining is working very well." Pitt Ohio—and any other fleet, for that matter just needs to make sure they are standardizing with the perfect part that balances cost, performance, and downtime. That's what winning the truck maintenance tug of war is all about.

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Tips to implement more efficient brake changes

Beyond keeping roadways safe, proper brake inspections and service help maintain performance, minimize downtime, and lower total cost of ownership.

By Seth Skydel

IN VEHICLE



f you need a reminder that servicing brakes correctly and establishing effective brake change intervals are important, look no further than the results of the Commercial Vehicle Safety Alliance 2023 Brake Safety Week inspection and enforcement initiative.

Inspectors examined 18,875 vehicles in the U.S., Canada, and Mexico in late August, focusing on brake pad and lining violations. The recently released results are telling:

- A total of 12.6% of the vehicles inspected were placed out of service as a result of brake violations.
- The 2,375 vehicles placed out of service were cited for violations such as broken brake drums, loose air tanks, corroded holes in the spring brake housing, inoperative tractor protection valves, cracked linings, loose chambers, or a combination of the above.
- Of the vehicles placed out of service, almost 60% failed the 20% defective brakes criterion, with 1,127 out-of-service vehicles featuring stand-alone brake violations and 12.4% exhibiting steering axle brake violations.
- In total, 379 tractors and 261 trailers had lining and pad violations.
- Contamination was the most frequent issue, with 214 tractors and 59 trailers logging contaminated pad and lining violations.
- The least frequent citation was for loose or missing pads, which accounted for 10.7% of lining and pad violations.

Overall, this indicates that the industry as a whole needs to do better at keeping brakes maintained. Fleet managers should already know that having fresh vs. worn-down rotors and pads could be the difference between a near-miss and a fatal rear-end collision, so perhaps the reason they are not paying enough attention is they are pressed for time. To ensure this will not be an issue for you, we reached out to several experts to identify ways to increase the speed and efficiency of brake replacements while ensuring the brakes perform to their full potential.

Focus on inspections

The value of effective brake inspections and service processes is obvious for 2023 TMCSuper-Tech Grand Champion Doug Nickles, a FedEx Freight technician.

"Performing brake service and even performing an inspection correctly is key to proper operation and to ensure safe and timely stops of a heavy vehicle," he said. "Inspections play a vital role in the operation of the brake system. Without inspections, you would have no idea about the state of the brake system."

Eric Daniels, VP of truck care for Love's, noted that comprehensive brake inspections are important and should be completed with every preventive maintenance task to benchmark wear. He added that fleets can establish an effective brake change schedule based on the usage of their vehicles and by following manufacturer guidelines.

"The primary function of inspections is two-fold," explained Larry Fowler, senior manager of vehicle operations support, Cox Automotive. "First, they serve to enforce compliance with brake system maintenance and safety standards. Second, they function as an ongoing educational tool, raising awareness among commercial vehicle operators about the critical importance of adhering to these standards."

"Inspections and reporting of issues are the first line of defense," Fowler continued. "Regularly scheduled brake inspections allow you to get a trained technician's eyes and hands on the system. That not only provides a means to identify repair and maintenance needs but will also allow fleets to gather data on expected lifespan, brake component performance, and even driver habits."

Inspections are preventive because they reduce unscheduled failures and their consequences, including the costs of roadside repairs and failing to deliver on time, noted Richard LaFlamme, technical services manager, SAF-Holland Inc.

"Fleets and service providers also have historic maintenance data to accurately forecast brake change intervals for their specific operating conditions," he added.

"Brake inspections are crucial to establish and help predict brake lining life for trucks, tractors, and trailers," said Mark Holley, director of marketing and customer solutions - wheel end, Bendix. "Because commercial vehicle applications differ greatly, there is no set mileage or timeframe that can be used across the board to estimate brake lining life.

"In addition, there are differences between drum brake systems and air disc brake systems, so even in the same application, the lining life could be quite different between the two," he continued. "That's why fleets and service providers must rely on periodic brake inspections as part of a preventive maintenance program to predict brake lining life on any commercial vehicle."



» Staying up to date with continuing education allows Love's technicians to provide safe, accurate brake inspections and service. At the company's facilities, comprehensive brake inspections are completed with every PM to benchmark wear. Love's Truck Care

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» It's obvious to TMC SuperTech Champion Doug Nickles, a FedEx Freight technician, that performing an inspection correctly is key to the proper operation of brake systems. TMC

Tools crucial when inspecting and servicing brakes

Having the right tools is crucial for technicians, Nickles noted. He recommended that shops should have basic tools, such as jacks and jackstands, flashlights, snap ring pliers, and precision tools like dial indicators, mics, and wear gauges.

"Proper measuring tools and a clean, well-organized shop allow technicians to efficiently service brakes on trucks and trailers," Daniels said. "Additionally, when we're working on dropped trailers at Love's facilities, an integrated trailer tester such as the IPA Tools Alpha MUTT allows full remote operation of the braking system along with ABS diagnostics."

LaFlamme concurred on the importance of keeping shops neat and organized, adding that "lifts and pits make work easier as well." He also recommended using tools that are specifically designed for the task. For example, the "5081" air brake spring tool is more efficient and safer than using a screwdriver to change brake shoes. "Correct tools always increase safety," he said.

"Technicians must have proper equipment to lift and support vehicles," said Brian Screeton, manager of technical service training, Bendix. "Lifting tools and/or dollies should also be used when removing tires and hub/rotor assemblies. Lastly, technicians will need shop air and a good set of air pressure gauges to perform pneumatic brake system diagnostics."

Joe Kay, director of engineering at Cummins-Meritor, pointed out that there are brakes and lists of recommended tools in maintenance manuals for each brake type. An adequate weight jack for the truck that is being worked on, pry bars of different sizes, torque wrenches and sockets, brass drift, a set of screwdrivers, hammers, dial indicators for end-play checks, and calipers for other dimensional checks are among the standard items.

At Cox Automotive, shop equipment for brake service is vehicle-dependent based on class or size, Fowler noted. When working on light-duty vehicles, for example, a two-post lift is adequate for lifting the vehicle safely. For medium- and heavy-duty trucks or trailers, a jack and jack stands are more time-efficient. In addition, to prevent injury when removing larger and heavier wheels on trucks and trailers, using a wheel dolly or pry bar to remove the wheels close to the ground is the recommended procedure.

Brake drums are very heavy, so brake drum caddies, handlers, and carts are good options for technician safety, Fowler added. There are also brake drum attachments that can be installed on a clutch jack to do the lifting for the technician. And don't forget tools that make checking and measuring brake stroke easier, such as the OTC Tools – 5052 Slack Check Tool, and tools for checking brake lining thickness.

boschdiagnostics.com/hd

"Utilizing Mitchell 1 to prepare for a brake job is a useful way to see a visual diagram and ensure you have all necessary tools and parts before starting," Fowler said. "The most important tool when finishing a brake service is a torque wrench for ensuring wheels are on correctly and to prevent premature wear to wheel studs and lug nuts, which can damage the wheel or cause a catastrophic failure."

Preparation and training are vital

To prepare technicians, Screeton noted that quality technical education from a trusted source is essential. In addition to training, technicians should follow established safety precautions and refer to OEM service manuals for proper procedures.

Staying up to date with continuing education allows technicians to provide safe, accurate brake inspections and service, related Daniels.

"Technicians can ensure efficiency and accuracy by participating in routine training and by following policies and procedures according to maintenance manuals provided by manufacturers," said LaFlamme.

Doing your homework is important, too, Nickles noted. "OEMs have manuals for their brake systems," he stated. "Before attempting an inspection or repair, read the manuals to ensure you have a proper understanding of the system's operation."

Using the right parts

It is important to stick with a quality, name-brand manufacturer for any safety-critical parts, related Daniels. "At Love's, we only use new brake components to ensure all parts are a direct replacement for OEM quality."

"At Cox, we do recommend that OEM equivalent or better parts be used," said Fowler.

Bendix recommends replacing "like for like" using the same parts the OEM used when the vehicle was manufactured, related Holley. "Genuine OEM parts help maintain performance and the integrity of other brake system components," he explained.

"Some components are designed to function optimally together, such as air disc brake pads and rotors, and when paired have longer service lives," Holley continued. "If OEM parts are not an option, make sure the replacement parts selected are approved by the manufacturer." "OEM specs are always encouraged," LaFlamme emphasized. "Reputable brands have established reliability and performance records and can provide superior after-sales support."

Safety first with brake inspections, repairs

"The last thing any fleet, driver, or service provider wants to have happen is a failure on a major safety component that puts lives at risk if improper repairs are completed," said Love's Daniels.

For Cox Automotive, servicing brakes carries a significant responsibility, noted Fowler. "It's imperative never to assume that everything is functioning correctly; for instance, by merely recording readings without conducting inspections," he said. "Visual assessments serve as a proactive approach to identifying potential safety concerns."

"Poor brake maintenance will lead to catastrophes that cannot be undone," LaFlamme emphasized. "Preventive maintenance and standardized procedures ensure vehicles leave the shop in their best working condition so there is less risk."

Truck operators should always make sure to address any brake concerns as soon as possible, related Kay. "One reason to assure maintenance practices are kept up is to ensure best stopping distances," he explained.

"In addition to safety, proper brake service helps fleets maintain performance, minimize downtime, and help lower total cost of ownership," said Holley. "It delivers peace of mind for fleets and drivers when they know they are properly maintaining their vehicles, and it helps keep roadways safe."

Effective brake service begins with periodic, thorough brake inspections and proper troubleshooting. "It is critical for technicians to troubleshoot by first verifying the complaint or issue that's been raised, then following the steps to determine the root cause," Screeton said.

Fowler provides an example: Slack adjusters are not meant to be adjusted during every preventive maintenance inspection. If they do, it's a clear indication that there may be underlying wear or damage preventing the adjuster from performing its

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SHOP OPERATIONS



Recognizing the best in the industry

[LABOR MANAGEMENT]

You can't succeed in commercial vehicle maintenance without a good work ethic, but some take it to another level. Here are the six overachievers our judges selected as the best of the best for 2023.

By John Hitch

0

verachievers drive everyone else to try a little harder and pay a little bit more attention to detail. In an industry where mistakes can cost lives, they are nothing short of indispensable. That's why we created this recognition program to remind everyone of that fact and to honor everyone in the industry who does their job the right way because it's the right thing to do.

Most likely, the hardest workers get the least amount of positive feedback, because if they ain't broke, why manage them? We offered managers a chance to publicly call out their best employees and were not disappointed by the numerous entries. Calls for submissions went out in October, and finalists were selected in November by our panel of judges.

There were many worthy maintenance professionals, but these six winners all exemplify what it means to overachieve. One thing we noticed is that though their jobs are all very different, they share several common traits, most notably humility, selflessness, and innovation. (Hiring managers take note.)

While some may feel recognition is its own reward, we don't. Along with a trophy, each winner will be receiving gifts donated generously by FleetPride, Fullbay, Milwaukee Tool, Red Kap, and TEXA USA. [See page 22 for details.]

Cody Clegg

"The Team Player" Lead Technician | Marathon Petroleum Corp.

As a 16-year-old in Salt Lake City, Cody Clegg was already 6'2" and using that bulk to wrestle and play defensive lineman for his high school. When not doing that, he worked for a shop doing alignment and brake jobs on heavy-duty trucks and trailers. The 28-year-old hasn't really stopped since. He's had stints at Republic Services fixing refuse trucks and then supervising 12 technicians at two locations and as a municipality maintenance manager.

There's likely no place he's worked harder—or been more of a team player— than at his current role as lead technician for Marathon Petroleum Corp. He clocks 60 or more hours a week maintaining 66 Mack trucks that haul crude oil from wells in the Northwest and Canada to a refinery in Salt Lake City. Though he signed up as a shop mechanic in 2021, the rugged expanse of northern Utah is his workplace. Armed with just what will fit in his service truck, Clegg can rebuild a transmission, replace fuel injectors or wheel seals, or just do regular PMs.

And you'll never hear him complain, back away from a challenge, or ignore a call to help other technicians or drivers, explained Nick Specht, a transport maintenance supervisor at Marathon.

"Cody has been working in an environment he did not sign up for as a field technician battling all of the elements that Utah has to offer," Specht said. This included setting up PM schedules, ordering and inventorying parts, and being on call 24/7.

"Cody was basically doing the job of

two techs," Specht acknowledged.

Using a notebook, data from Mack's GuardDog Connect telematics platform, and regular oil samplings, Clegg stays ahead of catastrophic engine failures, EGR cooler issues, and minor issues. The lead tech schedules his workload three weeks in advance and tries to touch trucks on a regimented two-week interval.

He has help now in the form of a junior technician who only had PM experience when he started. That experience is growing by the day, as Clegg "goes that extra step to make sure [other techs] understand the diagnosis procedure for future repairs and things to look for to help streamline the process," Specht said.

By seeing his troubleshooting process, "they might advance a little bit more in their career," Clegg said. The team is certainly stronger overall because of these efforts.

"This has helped our team develop a very diverse set of skills for handling all kinds of tough tasks that we would normally send to a dealership," Specht said. "Now we can keep this work in-house."

When he has so many responsibilities himself and is doing a job far more extreme than expected, why would Clegg continue to take one for the team?

"I can remember when I started as a technician," Clegg started. "I didn't really know a lot. I had a leader that wasn't really the best and led by intimidation and belittling when you would make mistakes.

"That pushed me to be a really good technician," he continued, "but I promised myself that when I ever got to the point where I could teach somebody, "I like going home tired and dirty, knowing that I'm going to put food on the table for my family and my family's going to be okay doing whatever they want to do."

Cody Clegg





I would give them the respect and the attention that they deserve."

Like most successful techs, he's also driven to figure out and fix problems no one else can. But more than that, Clegg's fighting for his favorite team: his wife and four children. "I like going home tired and dirty, knowing that I'm going to put food on the table for my family and my family's going to be okay doing whatever they want to do," he said. Clegg does make the most of his downtime, stalking elk and deer with his trusty bow when he's not duck hunting or fly fishing. If that's not enough, he also raises horses.



Tokens of appreciation

The six winners were sent laser-engraved acrylic awards along with the following gifts from gracious donors:

Milwaukee Tool: Technicians receive SHOCKWAVE Impact Duty Socket ½" Dr 16PC MM PACKOUT Set; M18 FUEL ½" High Torque Impact Wrench w/ Friction Ring Kit; and tumbler. Others receive tumbler, WORKSKIN hat, and GRIDIRON T-shirt.







TEXA USA: eTruck Remote Diagnostic tool



Fullbay: Branded backpack and Yeti tumbler with our Overachiever logo



• FleetPride: \$50 gift card and swag





Ryan Ziegler

"The Road Warrior" Mobile Technician Leader | Cox Automotive Mobility Fleet Services

Four days a week Ryan Ziegler bounces around between his 30 techs, performing usual supervisory work such as quality inspections, arranging and assigning work, or walking them through a diagnosis. The catch is Cox Automotive is a mobile maintenance provider, so he racks up 1,000 miles a week doing it. His territory spans Arlington, Washington—a city north of Seattle—down Interstate 5 to Salem, Oregon. Ziegler lives in Kelso, Washington, about halfway between the two, though he rarely has time to sleep there. He says he starts his day around 4:30 a.m. and sometimes finishes up around 8 p.m.

Helping those techs makes the days go by quicker and feel less like work for Ziegler, who was initially hired two years ago at Dickinson Fleet Services prior to Cox acquiring the company. "I love helping the guys learn, work through their issues, and see them succeed at the end of the day," the 30-yearold said. "It's really hard to get tired of that."

Hearing what he does day to day assisting his colleagues does sound exhausting, though. Sometimes this means driving over to help one tech put a bulky cab door back on or teaching them welding techniques. Other times it's helping a novice mobile tech replace a trailer's drum brake assembly.

"He didn't understand how a brake chamber worked fully (because he had mostly worked on buses that used air disc or hydraulic brakes), so we got out there, pulled the brake chamber off, pulled it all apart together, and I talked him through how it works and the theory behind it," said Ziegler, who spent his junior and senior years of high school in a diesel program before graduating from WyoTech in 2013. He was also quick to point out where you should avoid placing your finger to prevent injuries to your hand.

It's all necessary for Ziegler, who strives to lead by example and get his hands dirty just as much as the techs he supervises, though he makes sure to let them take lead on the repair.

"Coming from a technician background, Ryan is great at training and is always willing to roll up his sleeves and lend a helping hand," said his supervisor, who added that Ziegler "is a first-in, last-out leader who sets a stellar example daily."

Ziegler's prior experience also includes eight years at a Ryder dealership, where he noted a technician would work on several makes and models every day, including a great deal of aftertreatment work. This helps when showing his roving staff how to service a Freightliner's emissions system, an Isuzu box truck's liftgate, or a Hyundai Translead trailer.

Throughout the (very long) workday, he'll also offer tips and tricks from his smart phone, too. The strategy has worked out great for Cox's bottom line. Since Ziegler took the leadership role in April managing the mobile techs for Portland and Seattle, his team had the highest year-over-year revenue growth in the company and has doubled in headcount. In addition, he drove efficiencies Sky Needle high.

"We can look at spreadsheets all day, but hearing from the customer that we got them out of a bind—that to me is a successful day," Ziegler concluded.

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The Folio: Eddie & Ozzie Awards

Winners

- Profile or Q&A, B2B: Homebody, July 2022 by John Hitch, Editor-in-Chief
- Single Article, B2B, Travel / Transportation: Finders Keepers, August 2022 by John Hitch, Editor-in-Chief

Honorary Mention

 Column/Blog, B2B, Travel / Transportation: A recovering workaholic's guide to self-maintenance, March 2023 by John Hitch, Editor-in-Chief

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Regina Zahm "The Caretaker"

Service coordinator | Great Dane Indianapolis

How can a burly trucker whining about an air hose get to you after decades of witnessing kids stoically go through chemotherapy and stare down death with a smile? They simply can't, and that is Regina Zahm's superpower.

Though now the calming presence sitting behind the service counter at Great Dane Indianapolis, Zahm previously spent 25 years as a triage nurse for the pediatric cancer center at Riley Hospital for Children in Indianapolis.

In 2018, a Facebook post by the hospital noted that Zahm is "always making her patients and their families feel at ease and cared for. Even as they battle cancer, Zahm helps bring them a feeling of comfort." A litany of comments on the post concurred.

During the COVID-19 pandemic, she left that role because one of her parents also had cancer and she worried about bringing the disease home. The hours also weren't great for the single mother of four, and she called the job "very mentally challenging," a true understatement if ever there was one.

On the prowl for a new job, Zahm saw a Great Dane parts driver in the Wal-Mart checkout line and asked if the company was hiring. He connected her with their service manager, Mark Chris, who immediately saw her unflappable nature and was impressed with her computer skills. Now two years later, Zahm is an integral cog in ensuring trailer uptime in Indiana.

Chris said she's a calming presence at the front desk, and one of her best attributes is that she "stays calm and positive, no matter the situation."

The situation might be billing customers, finding parts, ordering tools for technicians, making bank runs, and a host of other daily tasks.

In managing it all, Zahm's advice was simple: "You can't take everything to heart; you just roll with it."

After the trailer shop began offering mobile service in the Hoosier State, Zahm also sends out those invoices and outfits the mobile trucks with equipment and parts. In October, after their regular dealer could not fulfill an order for new Transit-350 vans for parts delivery, she called around until she found a dealer who could provide the vehicles. Then she handled all the registration paperwork, too, Chris noted.

"When I come to work and see her, I know things are gonna get done," Chris said. And Zahm is equally appreciative of the role. "I wouldn't change it for anything," she said.



Travis Reekie "The Jack-of-All-Makes" Technician | City of Ottawa, Kansas

It doesn't get more middle America than Ottawa, Kansas, a rural town of about 12,000 about 50 miles south of Topeka and Kansas City. This Smallville-esque town even has its very own Superman, a versatile technician named Travis Reekie, who has been responsible for maintaining the city's municipal fleet of 280+ vehicles for the last five years. These range from the police department's Chevy Tahoes and Ford Interceptors to bigger fire trucks and road graders.

His supervisor Chris Raby is in the shop, too, but meetings and paperwork account for half of his time. That leaves the 34-year-old Reekie largely responsible for keeping the city's vehicles on the road. And with such a wide variety of makes and models, there's no telling what Reekie's day might look like.

"Travis has to go from installing an engine to rebuilding a hydraulic cylinder to rebuilding a pump in a fire truck," said Raby, who added the technician must keep up on diesel and gas engines as well as various hydraulics and electrical systems.

Reekie started working on farm equipment after graduating from high school and was certified to work on John Deere equipment at Fort Scott Community College.

He came in with a solid knowledge base in diesel and credits Raby with training him on gas engines. Diagnosing and resolving fault codes is mostly learning on the fly, though Reekie said he and Raby take online classes and attend local training or head up to Kansas City "as much as possible." With a two-man operation, though, that's not always an option.

That means Reekie has to have equal amounts of grit and strategy to get the job done. Going from troubleshooting a Ford to a General Motors vehicle right after can be difficult, he said. "Knowing who to call" from the OEMs helps him manage.

Prioritizing, while also challenging, is his primary duty to help the city operations run smoothly. "Public safety equipment comes first, though if there's a snowstorm, snowplows come first," Reekie explained.

If you think Reekie would have his fill of work changing brakes and troubleshooting trucks all day, you haven't met his alter ego, a mild-mannered farmer who grows corn and soy beans, raises cows, and spends time with his two kids and expectant wife. This, too, is not easy but not unachievable for an overachiever like Reekie. "Dry years are never good—and this year was not a good year for us," he said, "but we'll manage in the end."



Colby Coleman "The Facilitator" Fleet Analyst | Sukut Equipment

When Colby Coleman got promoted in 2020 to his current position as truck fleet manager for Sukut Equipment, Parts and Rentals, he took on a lot of new responsibilities. Foremost of these was handling the maintenance for the company's Classes 2 through 8 work trucks, comprising 285 vehicles maintained mostly by third parties. He kept his previous responsibilities as operations manager as well, handling building maintenance, security, and upkeep at the 15-acre Bakersfield site.

Coleman, whose eclectic resume includes managing parts for a Freightliner dealership and working in a junkyard, also inherited two major problems costing the company money. First off, thieves were ripping the catalytic converters from parked pickups and F-550s.

"We were getting hit multiple times a week, every week," recalled Coleman, adding batteries were also taken by opportunists. Replacing a catalytic converter could range from \$2,000 to \$2,500 for parts and labor, and the worker might not be able to get their gear to the worksite. What's worse, thieves would inadvertently pillage the diesel trucks' aftertreatment components, too.

"Because these guys weren't the smartest, they were cutting the DPF out of some of the trucks thinking they were just really big catalytic converters," Coleman surmised. And those DPFs were really expensive, with some out of stock.

"Our company took a big hit when all of the [parts] were being stolen out of fleet trucks," affirmed Felix Vallan, the Sukut parts sales associate who nominated Coleman for the Overachiever Award. "Colby did research and found the best solution to be able to keep our trucks safe and not have to pay the costly price of replacing the whole converter."

After testing several options that weren't the right fit for the operation because of install times and restricted access to drain plugs, the former automotive technician found a local father-son shop called FS Performance Engineering (FSPE). This small manufacturer provided robust skid plate-style protection and easy access for technicians to maintain the trucks. To ensure his trucks had the best fit, Coleman even passed along feedback from the dealer that installed the anti-theft plates to FSPE. The engineering shop then tweaked the design and sells that version now.

Modernization was also on the docket. Prior to Coleman taking the role, maintenance was handled as needed by the dispatch department, and preventive maintenance was not tracked.

Vallan said Coleman went through service and repair records from 2018 to 2020 and created an extensive spreadsheet to track

"Colby did research and found the best solution to be able to keep our trucks safe...."

Felix Vallan, sales associate, Sukut Equipment, Parts and Rentals

each truck's make, model, mileage, and maintenance and repair needs. "There was nothing in use at the time," Vallan noted.

He also started tracking repeat offender issues, such as ball joint repairs. Always on a quest for continuous improvement—and having previously optimized Sukut's warehouse and shipping department spaces to run more efficiently—Coleman has taken the next step in modernization. The fleet is in the process of integrating Trimble's B2W Maintain software into its Samsara telematics solution.

"We're going to start actually having preventive maintenance notifications, instead of relying on our employees or my spreadsheet," Coleman said. "Now we can catch things in real time instead of following it—we're ahead of it finally."

Moreover, Coleman also earned the appreciation of his coworkers for setting up a network of mobile maintenance providers for the trucks to be maintained on site or at the worker's home when possible, rather than having them visit a shop.

"Even though it's a little bit more on the upfront, [mobile maintenance] is so much more convenient for the guys in the field," Coleman said. "The last thing you want to do is pull somebody's toolbox away from them because it needs an oil change or alignment."

Coleman said he enjoys what he does every day and appreciates Sukut finding new challenges and positions for him: "I just want to take care of the company, because I know they'll take care of me."





Dewey Bishop

"The Mentor" Fleet Technical Trainer | Ozark Motor Lines

For the last 15 years, Dewey Bishop has been in charge of training Ozark Motor Lines' 68 technicians, providing them instruction on everything from general maintenance and repairs to working on newly adopted technology such as tire pressure monitoring systems and collision mitigation. Surprisingly, he taught himself how to work on cars and trucks.

"I've never been to actual school for any of it," Bishop admitted. "I sit down and read manuals." He also learned simply by doing, starting with the rebuild of a 1966 Chevy Chevelle 350 V8 engine at age 16.

Bishop said he was hooked on the trade once he saw "mechanically how everything functioned, how it was connected, and how one piece was required for the next piece to function properly."



That was in 1988, and he hasn't stopped since. For the last 17 years he's worked for Ozark, a fleet that mostly runs in the Southeastern state. Bishop has attended several OEM training sessions to stay up to date on changes to the equipment. That, to Bishop, is a critical piece to avoiding downtime.

"From my experience, this industry changes daily," he said. "And if you don't stay on top of [those changes], you're gonna get left behind. That's the point I'm trying to get across to all of our techs."

In addition, Bishop stresses that Ozark's maintenance team takes pride in their work and never takes shortcuts. "It's not how fast something can be repaired, but how long the repair will last," he offered.

Another adage Bishop passes down: "If we don't have the time to fix it right now, when are we gonna have the time to fix it again?"

Because Bishop's nose is always in a manual or company maintenance report, he has caught issues that not only improved Ozark's efficiency but also the industry at large.

In one case, Bishop noticed that the fleet was going through an excessive amount of steering axle brackets that supported the ABS cable. The techni-

"If we don't have the time to fix it right now, when are we gonna have the time to fix it again?"

Dewey Bishop, Fleet Technical Trainer, Ozark Motor Lines

cians would always replace the bracket before any damage was done, but labor and parts aren't free. So Bishop pressed the issue with the OEM, which then had engineering redesign the piece.

"I always call it the 'Dewey bracket,' because had he not said anything about it, then [the OEM] would have continued to use that same bracket," explained Wayne Skinner, Ozark's VP of fleet maintenance.

Bishop's eagle eyes were put to good use when recurring differential leaks started to mount across the Memphis-based fleet. He confirmed the technicians were following OEM repair guidelines, and bolts were tightened to OEM specifications. But the investigation was not done yet, as Bishop then checked previous torque values and saw they were previously higher. He again addressed this with the OEM's representative to get the value increased.

"Any fleet that uses that repair procedure is able to benefit from these updates," Skinner noted. Aside from chasing down issues on older equipment, Bishop must also prepare Ozark's five shops for new technology. In an effort to decrease tire maintenance costs, Ozark adopted Bendix SmartTire TPMS this year. Along with setting up training visits from the OE, Bishop created internal training videos using a GoPro camera.

Skinner noted Bishop will also create videos whenever he discovers reliability issues. "That helps get information out to our outlying shops, as well as here in Memphis," Skinner said. The Memphis home base has specific shops for trucks, tires, trailers, body work, and detailing, all of which Ozark uses to diversify its apprentices' skill set through five phases. Bishop oversees the 52-week program, with a target of getting three to four techs through each year. "We're trying to build the best truck technician possible," Bishop said. As no surprise, he says the best techs have an innate "curiosity about how it functions or why it functions."

That was a self-taught lesson, too. 🗖



NEXIQ Enhances USB-Link[™] 3 Vehicle Interface with Integrated CAN FD and DoIP protocols Connect with ease via Bluetooth, Wi-Fi or USB-and get faster results

Fleet managers and commercial vehicle repair centers understand that success in the commercial transport industry basically comes down to an organization's ability to keep their vehicles on the road. Any time a truck is in the shop for repairs, there's great potential for lost revenue. This places enormous pressure on fleet managers and service operations to complete repairs as quickly as possible.

Anyone familiar with servicing big rigs and the like will tell you that the key to performing fast repair work is the ability to diagnose vehicles quickly and accurately. For this reason, repair facilities across the country have put their trust in NEXIQ Technologies[®]. For more than 35 years, NEXIQ has been a leading provider of premium quality diagnostic solutions, including the NEXIQ USB-Link 3 Vehicle Interface—a next-generation handheld diagnostic device that connects quickly and seamlessly to a PC, tablet or smartphone. But that's just part of the picture.

Recently, NEXIQ enhanced USB-Link 3 by adding built-in CAN FD and DoIP protocols. This essentially has made an already fast and accurate diagnostic tool even better. To provide fleet managers and repair facilities with valuable insight on the benefits of the newly improved USB-Link 3, Dave Shock, product manager, Snap-on Business Solutions/ NEXIQ Technologies, answers some important questions he has received over recent months.

For starters, what makes USB-Link 3 such a great diagnostic device?

USB-Link 3 allows users the flexibility to "make the connection anyway you like," whether it be a PC or a smart device. By enabling both Bluetooth® and Wi-Fi connectivity in a single unit and then adding built-in CAN FD and DoIP protocols, USB-Link 3 represents our most advanced vehicle communication interface to date.

Explain CAN FD and DoIP protocols.

I'll provide a basic overview. CAN FD is short for Controller Area Network Flexible Data-Rate, which is an improved communication bus with increased speed, length of data, reliability and smoother transition. DoIP is short for Diagnostics over Internet Protocol. The advantages of DoIP are faster diagnostic response and shorter time to transfer large amounts of data, just to name a couple.

Why did you integrate USB-Link 3 with CAN FD and DoIP protocols?

It was proactive. We knew this was an emerging technology and we wanted to have it available for our OEM customers as they develop new vehicles with this architecture. Plus, by the time these new vehicles hit the road, we wanted to provide our repair facilitiy customers with the right diagnostic equipment.

Do CAN FD and DoIP protocols add speed to the vehicle diagnostic process?

Yes. CAN FD and DoIP protocols increase diagnostic speed because data is communicated at a faster rate. For example, bottlenecks in the transfer of information are not the result of the USB cable or Wi-Fi, but rather the CAN communication. By bringing CAN FD and DoIP protocols into the picture, the time required to transfer data is decreased, thereby eliminating CAN bottlenecks and increasing the overall speed of diagnostic results.

In developing this advanced diagnostic device, did you remove any legacy support/capability?

No. Not at all. And that's an important question because when a device is upgraded to this level, you would think something might be sacrificed or removed in the process. But we were mindful of this and certain to maintain all the functionality that made USB-Link such a great device from the start.

How can readers learn more about USB-Link 3?

It's easy. For more information on USB-Link 3, please visit the USB-Link 3 product page at nexiq.com.

SPOTLIGHT ON ENERGY



Courtesy of Tesla, Inc.

here's a prevailing theory out there that electric trucks are going to save the world and their adoption must be accelerated. Instead of pumping oil from the earth and converting it into energy—and as a result creating the harmful emissions that the United Nations warns will create climate catastrophes ranging from hurricanes to droughts—these battery-powered trucks can run on renewable resources like solar and wind power, all while creating zero emissions.

And because EVs have fewer moving parts, they are expected to require less maintenance. That's important as maintenance operations struggle to find technicians to work on vehicles in general. Tack on the benefits to drivers—quieter, cleaner operation that doesn't cause fatigue-inducing vibrations—and there's a lot to be excited about.

The problem is that there's an equal or greater amount of concerns. Electric trucks cost more (even with subsidies and incentives), don't travel as far on the road or perform as well off it, and require major infrastructure changes. On top of that, no one really knows what the return on investment will be.

In testimony to Congress, Andrew Boyle, the new chairman of American Trucking Associations, said converting the nation's diesel trucks to electric "would require a \$1 trillion investment, which ultimately would flow to consumers," adding that due to less capacity, lower ranges, and high charging times to haul the same freight, the industry would need "far more trucks" that cost two to three times as much as a comparable diesel truck. He pleaded that "we can't allow unrealistic timelines...and technically unachievable regulations to set trucking up for failure."

That's just a sampling of the overarching issues. The dark side of commercial vehicle electrification is vaster than many are willing to admit-and likely obfuscated by some of those who staked their time, money, and reputations on its success. States and OEMs have also planned phase-out dates for diesel before EV technology has even proven itself. In short, the current push toward electrification oftentimes feels more like a shove. And while there's no denying the potential of commercial EVs, accelerating their use in something as delicate and vital as the supply chain may lead society down a dark road indeed. Here we intend to shed some light on a few of the many reasons why the nation's current electrification strategy should be reconsidered.

Government pressure and uncertainty

Long term, the Department of Energy declared the U.S. "must eliminate nearly all greenhouse gas (GHG) emissions from the [transportation] sector by 2050," keeping in line with the Paris Agreement, which President Donald Trump pulled out of in 2017 and Joe Biden rejoined almost immediately after his inauguration in 2021. Trump said the deal imposes "draconian financial and economic burdens" on the U.S., while Biden said the global agreement would "help us all avoid catastrophic planetary warming."

By 2030, the Biden administration aspires for EVs to comprise half of all new vehicles sold, but if Republicans take back the executive branch after the 2024 election, that plan could be stymied. Trump did pull back many emissions standards while in office, and meeting those standards is a primary reason many fleets are even entertaining the costly, time-consuming proposition of electrification.

Many would likely continue their CEV plans with the GOP in office, simply to do business in California. The California Air Resources Board (CARB) is the most aggressive on promoting CEVs and eliminating ICE, banning the sale of medium- and heavy-duty fossil fuel trucks in 2036. Starting next year, CARB is forcing high-priority fleets-defined as "entities that own, operate, or direct at least one vehicle in California, and that have either \$50 million or more in gross annual revenues, or that own, operate, or have common ownership or control of a total of 50 or more vehicles (excluding light-duty package delivery vehicles)"-to make at least half of all their new vehicle purchases zero emission and 100% by 2027.

There has been some pushback recently on these plans. After previously following California's lead, Connecticut Gov. Ned Lamont has reversed course on banning gas-powered vehicles in his state by 2035.

"The tide is turning as state officials across the country wake up to the reality that California's electric-truck mandates are bad policy that carry serious political consequences," ATA President and CEO Chris Spear responded, adding that "California's sure-to-fail approach is not the only option."

Spear reasoned that a better strategy is "ensuring the necessary infrastructure is in place and allowing for a range of technological solutions to prevail, rather than one-size-fitsall mandates."

In another broad move to protect the environment, Biden's Interior Department has placed a moratorium in Minnesota on mining cobalt, needed to make the large lithium-ion batteries used in electric trucks, and other metals. The Republic of Congo currently supplies a majority of the world's cobalt, which it sends to China to refine and make batteries. The mines require the cutting down of millions of trees, which naturally remove CO2 from the atmosphere, and extraction of the toxic metal is done by child slaves, according to researcher and anti-slavery activist Siddharth Kara. The International Energy Agency (IEA) expects global demand of cobalt to increase 60% as a result of the Paris Agreement. Maybe the Congolese children can get the UAW to negotiate a higher wage than the alleged \$2 a day they get now?

Perhaps the climate situation is so dire that severe, authoritarian measures must be executed and underdeveloped countries must be plundered. That does not change the fact that to stay financially viable, fleets need reliable, road-tested equipment to make their razor-thin margins. And right now, there are simply too few electric trucks out there to extrapolate success at scale and to justify the current timelines.

According to CALSTART data, the total number of medium- and heavy-duty zeroemission truck deployments in 2022 constituted 0.3% of the total 1,186,966 Classes 2b-8 deployed sales. The 3,510 ZET units sold did constitute a 78% increase over the previous five years, but that's simply not good enough to build confidence.

Tesla founder and CEO Elon Musk has been quite upfront on how "making one of something is easy," while "making lots of something consistently that's going to last a long time is extremely hard."

No example proves this more than the Tesla Semi. You've likely heard someone joke that it's been coming out next year for the last five years. It was announced in 2017, and production was set to begin in 2019. It's now being fleet tested. The impressive early results suggest more time equals a better product.

Another example of EV success, the Freightliner eCascadia, has years of real-world experience. Schneider National, the seventh largest for-hire fleet, has 92 eCascadias that just passed one million miles of freight hauled.

"Everyone talks about total cost of ownership, but without a residual value that they have any confidence in, the TCO doesn't make any sense for a long time."

Rich Mohr, senior VP of Americas for ChargePoint



» Mining cobalt, a raw material used to make lithium-ion batteries, has ravaged the Congo, which provides 70% of the global supply. Massive use of child slave labor, and water and soil pollution, are a result of growing demand. 1297129846 [RHJ] Getty Images

Volvo's VNR Electric and Mack's LR Electric refuse truck have also seen steady work on a small scale, as have Kenworth's and International's medium-duty trucks. Mid- and large-sized fleets' pilot tests have also shown there is absolutely a place for electric trucks.

The question is if and when CEVs should comprise entire fleets. Of the 500,000 or so for-hire carriers, more than 80% are considered small. For electrification investments to scale and thus reduce their price to make them more accessible, small fleets will need to be persuaded with results, not strong-armed with regulations.

Building confidence and infrastructure

Some Tesla Semis can now be seen making deliveries for PepsiCo, and range data from the North American Council on Freight Efficiency Run on Less: Electric Depot program is a reason for optimism. While many Class 8 EVs struggle to get 200 miles per charge, the Tesla Semi recorded a 410-mile clip on one charge and 1,076 miles in a day. This was due to opportunity charging, which won't fill the battery all the way but capitalizes on a lithium-ion battery charging as quickly up to 80% as from that point to a full 100%.

"It's nice for them to show these big numbers, but you can't get delivery yet," NACFE Executive Director Mike Roeth told *Fleet Maintenance*.

Even so, the technology is trending in the right direction. The 18-day study revealed that deploying and scaling electric trucks at larger depots "are more possible than we thought," Roeth said.

The former Cummins engineer is an unabashed advocate for improving efficiency and reducing emissions across the transportation industry, and is also as honest about EVs' shortcomings as he is eager to laud their benefits. Roeth was most positive on lighter-duty deployments.

"The smaller the truck, the better the total cost of ownership is because you don't have these ginormous batteries and really fast, expensive fast chargers and all that," he said.

This was NACFE's fourth foray into collecting truck efficiency data through real-world testing, and the second with commercial electric vehicles. The nonprofit has also produced several in-depth confidence reports since being founded in 2010, and the real-world depot test was a way to grow industry confidence in electric trucks as early adopters scale up units, charging infrastructure, training, and maintenance.

Roeth compared a truck depot's energy usage to that of an NFL stadium, and building up infrastructure to get enough energy to charge several heavy-duty trucks even once has proven difficult.

"That's taking much longer than these 10 fleets expected," Roeth said, "and everybody else trying to do this is finding the same thing."

If a fleet of 100 were to adopt 10 electric trucks, it could find the capacity, he said, but it would have to have serious discussions with their energy provider for another 20-30 trucks.

Those discussions need to be had well in advance of actual deployments, noted Rich Mohr, senior VP of Americas for ChargePoint, one of



the leading end-to-end providers of charging infrastructure.

"I haven't run into a problem with a utility saying they don't have power available for a site," he said. "What the utilities really need to understand is how much infrastructure [a depot will need] to anticipate over the next five years so they can prepare for that."

For a couple of buses or heavy-duty trucks, Mohr, the former CTO of Ryder, said an average of 1 megawatt, the equivalent to powering the Empire State Building for one day, would be required.

"Imagine how long it takes to prepare a city utility for building a new skyscraper," he said. "That's years of work to understand that that power needs to go there. That's the biggest risk in the entire electrification model right now. Grid resiliency is not the problem—it's planning."

Many commercial vehicle users don't have the confidence to even consider that planning.



• Small depots are those that require 10 MWh per day; large depots would need over 35 MWh per day.

- Electric vans' upfront costs reach parity with gas and diesel models.
- To electrify all 850 trucks at all 10 depots' in the program, they'd need 214 MWh per day.
- Pepsi Sacramento's Tesla Semi drove 410 miles on one charge and 1,076 miles in 24 hours.
- The depots involved took 9 to 36 months to energize infrastructure.

A 2023 survey by Commercial Truck Trader found that 79% of "commercial truck shoppers would 'never' consider adding an electric vehicle to their fleet" because of range and battery life.

A 2023 Fleet Advantage benchmarking survey released this fall similarly showed diminishing enthusiasm. Last year, two-thirds of respondents said they were "most interested in electric trucks"; this year, that number was one-third. Fuel cell electric trucks, which have longer ranges, improved from 15% to 38.5% in fleet interest over two years in the same survey.

The only way to build more confidence is more data. That will take time.

ROI and residual value

Mohr thinks electric trucks have a bright future ahead but also calls himself "the biggest pessimist in the EV business" due to trucking's troubles rolling out emissions technology over a decade ago.

"Our industry has gone through its fair share of heartbreak," he noted, citing questionable technology, high running costs, and bad residual values or the money recouped after selling the truck.

Residual value is a big part of calculating total cost of ownership, and it's imperative to have an idea of TCO prior to making an investment in new equipment. Residual value won't be known for seven years, Mohr said.

One big question mark surrounds the battery depreciation. According to Volvo Energy, after seven or eight years, a lithium-ion battery loses 20 to 30% of its capacity. Diesel trucks will also lose fuel efficiency over time, but this type of loss on an electric truck, where range is only a few hundred miles, severely limits range and increases the amount of time a driver will have to stop and find a charger, plus the time it takes to charge. That further cuts into TCO. Battery tech is expected to improve, but that would make current BEVs' value depreciate more down the line.

"Everyone talks about total cost of ownership, but without a residual value that they have any confidence in, the TCO doesn't make any sense for a long time," Mohr said.

Fleets appear to feel the same. In that previously cited Fleet Advantage survey, 90% of respondents said cost and calculating TCO were a concern. Of the major barriers to adoption, nearly half identified not having a "proper way of calculating costs involved" and not being "convinced there will be a decent ROI."

Fleet Advantage does have a software tool to calculate a leased electric truck's TCO called EVAN (Electric Vehicle Analytic Navigator). According to Fleet Advantage, EVAN uses factors such as the truck's initial price, charging costs, incentives, maintenance costs per mile, and projects the sum a fleet will pay over six years, and compares that to a comparable diesel truck.

In one model using a Florida food delivery fleet's data, a 2024 diesel truck cost \$43,000 less over six years than an electric truck. The EV was 25% less in maintenance and repair and 45% better in fuel costs but more than double the diesel truck's financing costs.

OEMs are indeed aware of the early-stage challenges and risks a fleet will have to take. Their

solution is to push renting and leasing as options.

"We're working to help franchises and our customers identify, apply for, and obtain grant funding to lower their capital investment as they transition to [EVs]," said Andrew Keane, PacLease director of franchise operations.

When leasing, a fleet will likely end up paying more in the long run but with fewer headaches.

Lingering issues

This is all just scratching the surface of major problems with electrifying too soon. Since EVs are equipped with heavy lithium-ion batteries, they weigh more than their conventional counterparts. This could put more stress on roadways and speed up the development of potholes.

The Indiana Department of Transportation (INDOT) designs pavements based on the current average daily truck traffic to last approximately 50 years, according to Natalie Garrett, INDOT strategic communications director.

"If heavier legal loads are approved through federal regulations," Garrett explained, "then design standards for pavement and bridges would need to be updated to account for those heavier loads." She added that unless standards are changed, CEVs will have to abide by the existing limits and find another route.

Many states rely on fuel taxes to repair potholes and crumbling roads. In Indiana, about 82% of the agency's state revenue is derived from motor fuel taxes, which accounts for 61% of INDOT's total revenue, with the remaining 39% being federal, Garrett said.

"INDOT is projecting a shortfall in the future due to EV adoption," said Garrett, who added the agency is providing data to the state legislature to figure out a solution.

A vehicle-miles traveled (VMT) tax may be in order, but that itself comes with problems. According to Jana Jarvis, Oregon Trucking Association president and CEO, her state's weight-mile tax has issues, among them tax evasion and the cost of collecting the taxes.

"I have a pretty good idea it's well in excess of 20%," Jarvis said. "The cost of a collection for a fuel tax is 0.5%, which means you have to raise the rates higher to get the same revenue and to support whatever it is you're supporting."

ATRI's analysis of VMT concluded that evasion and noncompliance will exceed \$7.87 billion annually, and collection costs would be 300 times higher than for the federal motor fuel tax.

"It's going to cost 40 cents to collect \$1 based on VMT compared to 3 cents now," explained Paul Enos, CEO of the Nevada Trucking Association. "So where does that 37 cents go? It goes to Silicon Valley, it goes to banks—instead of going to our roads, instead of going to those things that we want the government to do in an efficient way. We're now giving it to people who are taking this grift, and that isn't going to benefit us as citizens." *Additional reporting from Cris Beaulieu*.

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SPOTLIGHT ON EMPLOYEE BENEFITS



Perking up shop retention

Showing appreciation for a technician's work is more than a kind thing to do. It's a solid business practice for recruitment and retention.

By Alex Keenan

o tackle the technician shortage, the industry must not only boost recruitment but also ensure that it can retain the technicians it already has. While this seems easy enough on paper, WrenchWay, an organization that matches techs with shops, reported that 79% of technicians have considered leaving the industry in 2022.

"One of the number one issues we see with a technician is that oftentimes, they feel like a number," said Jay Goninen, co-founder and president of WrenchWay and a former technician. "They don't feel like their thoughts matter in a shop, and that can be as big of a driver to them leaving as anything."

So how do you make technicians feel like they're not just another cog in the maintenance engine, endlessly toiling to improve fleet uptime?

Zippia reported that strong employee recognition programs reduce turnover rates by 31% and that employees who are recognized are almost six times more likely to stay at their jobs than those who aren't. Now, this doesn't mean shop managers need to offer each technician a daily raise or a brand-new toolbox each week, but there are other work perks you can offer to improve your techs' lives and keep them on the floor instead of out the door.

Tool allowances

In the technician's trade, not only are the trucks expensive, complex pieces of machinery, but the tools can be costly as well. WrenchWay reported that 57% of technicians estimate that they spend over \$60,000 on tools throughout their career, and 33% think the biggest challenge for new technicians is the tool investment. This makes tool allowances one of the most directly beneficial work perks—if handled correctly.

"I've worked at a place before where they're like, 'Yeah, we give you \$100 toward your tools a year," said Celine Young, a J.B. Hunt shop supervisor in Windsor Locks, Connecticut. "That's great, but I'd rather you just keep the \$100 at that point."

Considering the cost of some of the tools a technician needs, offering the right amount for an allowance is critical to making sure this benefit is a perk, not an insult. But if done well, tool allowances can enhance both recruitment and loyalty, said Tim Rothbauer, VP of business development at Imperial Supplies, a provider of heavy-duty truck parts and equipment.

To set up a strong tool allowance program, Imperial Supplies usually works with a fleet's maintenance, finance, HR, and IT departments to meet their retention goals. Then they can offer a specific selection of tools that the fleet can show their techs, with some of the most popular being impact wrenches, ratchet sets, torque wrenches, and cordless tools and batteries.

"Customers don't want mechanics to be able to buy a refrigerator; that doesn't help them do their job," Rothbauer explained. "So, we work with them to define what is going to be the product list that they have access to."

This list can be as short as 100 items or as long as 1,000. The company then pays for the tools the technician selects from the list, which tends to be the most successful model at Imperial Supplies.

"There are other programs we're aware of where mechanics might be able to lease the tooling from the company under a wage garnishment-type program," Rothbauer acknowledged. "From what we've heard, those typically are not as well received because the mechanic feels like they're on the hook to the company, whereas in this case, the company is buying it for the mechanic and truly showing their appreciation. Likewise, for us, we're discounting the tooling to make sure that the company and the mechanic are getting a true value for the program."

Scheduling flexibility

One of the most cost-effective perks to provide to techs is a flexible schedule. But while shop managers might balk at the idea of being short-staffed during peak hours, it's not that technicians don't want to work, they just want to have a measure of control over when they work.

"If they're being paid fairly and they get flexible schedules, or at least an adaptable schedule that can work with their personal life, I do think that goes a really long way," WrenchWay's Goninen said. "And if nothing else, it shows that you're listening to them and that you actually care about them as a person."

This approach allows technicians to attend their kids' soccer games and visit ailing family members as long as they can make up the hours later. And statistics show that when given the option, they will make up the hours. WrenchWay reported that 22% of technicians don't mind working weekends, with an additional 44% willing to work weekends for the right incentives.

As an example, J.B. Hunt's Young works a fourday week from Sunday through Wednesday. "They try really hard to have a good work-life balance," she said. "It encourages people to take their time off to do what they need to do to be there for their families. It definitely helps with retention."

Physical or digital gifts

One of the easiest ways shops can show technicians that their work matters is through the occasional token of appreciation. These don't have to be expensive and only take a bit of personal investment on the manager's part.

"Knowing that you are appreciated through small, mindful gifts is a great touch to show that you, as a manager, listen and know your employees," said Cindy Barlow, director of industry outreach at the diesel and collision trade school WyoTech. "Will things like this help in technician retention? Without question."

As an example, Ryder System, Inc. celebrated this year's Technician Appreciation Week with a gift and a personal thank you from each location manager to their technicians, said Lesley Kerr, VP of human resources, Ryder. This year, the shop managers gave their technicians a Ryder-branded Yeti coffee mug.

"Last year, we gave a really high-quality flashlight to the technicians," said Bryce Kinsley, VP of maintenance at Ryder. "These were well-received two years in a row."

Technician tokens of appreciation don't need to be physical gifts or even shop- or fleet-branded. Goninen's father, who owns a Wisconsin-based independent shop, once gifted his best technician a subscription to Scanner Danner, a library of diagnostic training video resources and case studies on engine performance, computer controls, and electrical systems.

"We went out and got him the premium subscription because that was something that he really liked," Goninen recalled. "And he was tickled pink."

That subscription cost \$11 per month.

"There are ways to hold down the cost," Barlow mentioned. "Remember, this is about building relationships and that means everyone has a part in it."

Free food

Of course, we'd be remiss to talk about perks without bringing up one of the best of all: free food. At her shop, J.B. Hunt's Celine Young said techs can earn a free lunch each month for meeting safety goals.

"For every milestone of one, two, or three years of being safe with no reported accidents or incidents, we get a big lunch," Young said. At their most recent lunch, "we had steak and baked potatoes, and we were given two hours to relax, hang out, and enjoy each other's company."

Ryder also offered their technicians free food for Technician Appreciation Week, which was largely driven by the local shop managers.

"Some of them brought in games during the day to entertain their techs. There were food trucks, and some of the managers would barbecue," Ryder's Kinsley noted. "It was very unique from location to location, and being able to hear some of the stories in our world of what those locations did for their technicians was pretty impressive."

Free food can also be used to celebrate a tech for their years of service, whether it's five years or 45. For those celebrations, the important part is tailoring the reward to the technician and what they would appreciate. This emphasizes the unique community of each shop location and the individual role each tech plays in that community, Kinsley and Kerr explained.

Perks shouldn't replace strong salaries and benefits

All of these strategies can help increase technician retention and recruitment, but it's important to note that they're not replacements for a salary that supports a technician's family, strong benefits packages, and trustworthy leadership.

"I mean, it's nice to have four-day workweeks, and it's nice to have the lunches and feel appreciated," Young noted. "But if you don't have everybody on the same page for what is expected of the management team, feeling appreciated doesn't amount to much."

"Salary is still number one," Goninen added. "With that being said, I think you have to appeal over and above salary."

These perks can add miles to a technician's job satisfaction, many of which come down to recognizing the individuality of a technician as more than a simple worker drone, but a skilled employee whose input is valued as much as their work. This gives them the ability to work in the way that best suits them, and thus the shop.

"If you don't feel like you've got any control over what's happening to your life, you don't feel as confident and you don't feel as happy," Goninen concluded. "Even if it's something that's simple, as long as you're getting some ability to control schedule or pay, the more flexibility the better."

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Impact of predictive analytics on DPF maintenance

By pairing predictive analytics with various DPF regeneration modes, fleets can anticipate and respond to aftertreatment issues before they're left with a derated vehicle.

In the pursuit of operational efficiency and

reduced downtime, forward-thinking fleets are increasingly turning to the power of data and predictive analytics. One crucial component fleets monitor is the same that most say is the biggest source of issues on the road: the diesel particulate filter (DPF).

In a recent Pitstop survey taken by 200+ fleet professionals, 51% pointed to the DPF or diesel exhaust fluid as the main causes of breakdowns in their fleets. But leveraging predictive analytics can help fleets better understand and anticipate issues related to DPFs, such as soot



By Jessica Kim

HEAD OF MARKETING AND REVENUE OPERATIONS, PITSTOP

Jessica is the head of Marketing and Revenue Operations at Pitstop, an Al-powered predictive maintenance software that harnesses available vehicle data to curb rising maintenance expenses and enable data-driven decisions to improve overall operation efficiency. buildup. With this technology, fleets can not only streamline maintenance processes but also enhance overall performance and adhere to environmental regulations.

DPFs and predictive maintenance

Diesel vehicles equipped with aftertreatment systems face challenges related to the DPF, which captures soot emitted by the engine. To prevent clogging, the system must undergo periodic regeneration to burn off the soot. When soot levels exceed predefined thresholds, vehicles enter a state of "derate." That leads to reduced power output, compromised performance, and increased fuel consumption. Beyond these operational challenges, derates can result in longer routes, diminished productivity, elevated maintenance costs, and potential breakdowns.

The key to mitigating these challenges lies in predicting and preventing derate events

through continuous monitoring of aftertreatment sensors. By focusing on parameters such as DEF fluid level, DPF soot level, and regeneration status, fleets can proactively manage DPF maintenance. This approach allows for early detection of issues, providing fleet managers and technicians with a strategic window of opportunity for intervention before derate events occur.

DPF regeneration modes

In order to achieve predictive maintenance instead of reactive maintenance, it is crucial to understand the intricacies of DPF regeneration modes. These modes include passive regeneration, active regeneration, parked regeneration, and forced regeneration. By leveraging data from these modes, aftertreatment systems can track and predict the need for regeneration events, offering valuable insight into the overall condition of the system and forming the basis of aftertreatment system tracking.

With aftertreatment sensors, we can track active regenerations and predict if and when one will be necessary. We can also monitor the success of completed active regenerations and incomplete active regenerations, which signal a worsening state of the DPF. Additionally, active regeneration tracking data forecasts the need for parked regeneration and its potential for success.

Finally, combining aftertreatment sensors, active and parked regeneration tracking, and fault code information lets fleet managers predict the likelihood of a vehicle derate and the ensuing forced regeneration.

Proactive alerts and intervention

To avoid derates and forced regens, fleets can use predictive analytics and timely alerts so that both managers and technicians can anticipate potential derate events. This advanced warning system empowers proactive maintenance measures within a 24- to 72-hour window, minimizing the impact of derates on operational efficiency. Fleet stakeholders can also address issues before they escalate, resulting in improved efficiency, reduced breakdowns, and better control over operational costs.

Beyond addressing DPF concerns, this strategy can apply to several vehicle components throughout the entire vehicle life cycle. By adopting a holistic perspective, fleets can enhance overall performance and foster efficiency, safety, and profitability.

The integration of predictive analytics into fleet maintenance represents a paradigm shift in addressing real-world challenges in the transportation industry. By focusing on the predictive maintenance of DPFs, fleets can navigate this evolving landscape and utilize these strategies throughout their vehicle for increased uptime. ■





leader Mathis hands over WyoTech reins

Jim Mathis jump-started the sputtering auto & diesel school in 2018, and after guiding the school to growth and expansion, the cowboy-at-heart is moseying on.

By Alex Keenan

It was not uncommon for boys growing up in the 1960s to dream of becoming cowboys. Spaghetti Westerns were all the rage, and perks of the job included rolling hills, big skies—and bigger steaks—and, most of all, the freedom to make your own way. The lifestyle hooked Jim Mathis when he moved to La Grange, Wyoming, from Michigan in 1969.

"All I wanted to do when I got to Wyoming was become a cowboy," Mathis recently recalled to *Fleet Maintenance*.

But life never happens the way you expect. Over the next several decades, Mathis found his true calling was in trucking—more specifically, steering the next generation of automotive, diesel, and collision technicians as president and CEO of WyoTech, a for-profit technical college in Laramie, Wyoming.

And it's a good thing Mathis did, as the vehicle repair sector has suffered from a drawnout drought of incoming young talent over the years, while the old bulls have headed out to pasture. This dynamic has created a technician shortage, and educators like Mathis who marshal interest and enrollment in the trade are all that stand between America's cars, trucks, and heavy equipment getting where they need to go and gathering dust.

Mathis, a former WyoTech student, instructor, and executive, has been integral to the school's resurgence in recent years. Founded in 1966, the trade college came under fire after its previous owner, Corinthian Colleges, was found to be misrepresenting the success of its graduates and sold the school in 2015.

Mathis, who was also WyoTech's president

» Jim Mathis on his Laramie, Wyoming, ranch. Photo: Kate Lunsford

from 1998-2002, knew there needed to be a new sheriff in these parts, so he rounded up a posse of private investors. In 2018, he acquired the school from the interim owner, Zenith Education Group, with the help of Wyoming state representatives. What he bought was not the training juggernaut he previously presided over. He started with a dozen students, down from thousands. Since then, the school has gone from a ghost town to a booming mine of skilled talent. According to the school, enrollment has risen 9,000% during Mathis' tenure. In 2022, the school also completed a 90,000-sq.-ft. expansion, with more on the way.

"This turnaround has had its challenges," noted Cindy Barlow, WyoTech's director of industry outreach. "Just as we were about to take off, COVID hit. Jim proved that it was just a bump in the road and that we needed to put the truck into 4-wheel drive and stay teaching in our shops and classrooms."

While much of the country locked down and learning went virtual, Barlow said Mathis "was adamant that we stay in the shops and in our classrooms, so we did."

She added that the humble and tenacious Mathis is the "True Grit" of Wyoming and "has always risen above life's adversities and came through it all tougher and stronger."

With WyoTech brought back to life and his mission accomplished, the self-professed "wannabe cowboy" stepped down from day-today operations on Nov. 1. A member of Mathis' staff, Kyle Morris, who has been with WyoTech for 20 years, now assumes the role of president.

Mathis, meanwhile, retains ownership and remains CEO, though he prefers the term

NYOMING TECHNICAL INSTITUTE

STAFF IDENTIFICATION

im O. Mather

Ass't. Director of Trng.

"Catalyst." You could say he is hanging up his spurs, but he'll actually have them on *more* often. The ranch owner and avid team roper will be spending more time working with his horses in Arizona, where he has owned a house for the last few years.

He noted that his people handle most of the daily operations business now, and this just makes it official: "It's not fair to the team for me to be gone and still hold the title." But at WyoTech, he will always hold one title: Legend.

From ranches to ratchets

The story of how Jim Mathis turned WyoTech around began in a school, though he had very

different feelings on education (at least the standardized kind) at the time. He was 14 and intent on the cowboy life, setting his plan into motion by leaving home to live and work on a farm and ranch.

"I hated high school because it was all theory and no practical [education]," Mathis said. Like two other students in his

class of 12, Mathis scheduled his coursework to graduate at the end of his junior year while receiving the practical experience of working with livestock and fixing up equipment on the ranch.



» Mathis gives a speech at the ribbon cutting for the Dave Kuhn Training Facility.

» Mathis' ID card

in his second role

at WyoTech.

Photo: WyoTech

Photo: Alex Keenan | Fleet Maintenance According to Mathis, a month before he was set to get his diploma, the school board raised the credit hour requirements to get more funding. He decided to leave anyway, quitting school and getting his GED shortly after. Then he signed on with a custom combine crew to harvest wheat in Texas.

It was at that time a new trade wrangled Mathis' heart: trucking. He started driving semitrucks during the winter in Nebraska, Oklahoma, Kansas, Wyoming, and Colorado, and his career goals shifted to owning a trucking fleet of his own. So, Mathis went back to Wyoming in 1976 to enroll at WyoTech. He joined a class of 80 students in the diesel program; the school had 200 students in total.

During his time at WyoTech, Mathis' career goals changed once again, while remaining firmly planted in trucking. He was influenced by "an amazing teacher" named Marlowe Jones to become an educator himself. "I thought, 'The heck with owning semis; I want to come back and teach," Mathis recalled.

So teach he did. Mathis graduated from WyoTech that June and became an instructor there five months later. He rose through the ranks as an assistant training director, then training director of diesel. This first stint at WyoTech lasted 26 years, "minus the three days when I was fired [in 1990]," Mathis explained.

His temporary unemployment was due to a fastidious executive, while Mathis liked to shoot from the hip. Their philosophical differences led to a showdown that Mathis lost. He still remembers the date and time: "August 20, 1990, at four o'clock in the afternoon," and he held on to the letter of termination, too.

Almost immediately after his dismissal, the then-president of WyoTech talked Mathis into coming back as a vice president. He spent some time in admissions and marketing, and in 1998 became the college's president.

In 2002, Corinthian Colleges bought the school for nearly \$85 million. Expecting a clash between his maverick personality and corporate culture, Mathis left. He saw this as an opportunity to go from "wannabe" to a real-deal cowboy and purchased a cattle ranch, where he worked when not acting as a school turnaround consultant.

Cleaning up the town

The life of a part-time rancher, part-time consultant worked for the next 15 years. Then in 2017, Mathis heard rumblings that WyoTech might be closing down. It had campuses in California, Florida, and Pennsylvania at the time, and a whole heap of trouble due to its new owners.

Corinthian peaked at 110,000 students and 105 campuses in 2010, according to the U.S. Department of Education, but by 2015, the DOE uncovered widespread fraud at WyoTech and Everest, another Corinthian program. Then-California Attorney General Kamala Harris provided evidence in the joint investigation of the college that made billions off of federal loans.

The lawsuit, filed in 2013 by Harris, alleged that Corinthian used "false advertising and deceptive marketing targeting vulnerable, low-income students and misrepresenting job placement rates to potential and current students, investors, and accrediting agencies."

"Corinthian preyed on vulnerable students who are now buried under mountains of student debt," Harris said in 2015.

So many students couldn't find jobs after graduation and defaulted on their loans that the government announced last year that 560,000 borrowers would receive \$5.8 billion in full loan discharges.

Undeterred by the school's now infamous reputation, or maybe driven by it, Mathis' group was able to borrow enough through state funding to purchase WyoTech in 2018.

Now as CEO of WyoTech, Mathis had to start virtually from scratch. The school had only 12 students, and they were set to graduate after completing WyoTech's nine-month program when Mathis arrived. To retain WyoTech's accreditation, the class of 12 agreed to take an additional elective, extending their studies for 90 days. Afterwards, the team recruited 25 more students to start in October.

There was really nowhere for WyoTech to go but up, though the rate of ascent is something to behold. The campus has taught 2,500 students since Mathis' ownership, with over 1,000 students currently enrolled, according to Barlow. She was hired by Mathis in 2018 and works with fleets and shops to strengthen the industry's participation with WyoTech, helping to ensure their students have the best opportunities for employment after they graduate.

The school offers many more opportunities for female students as well. Although females represent around 3% of the sector's technicians, WyoTech has had more than twice that number in recent years. And the school started the Women of WyoTech (WOW) club to offer female students support and career guidance.

And because of the technician shortage, no student at the school is wanting for opportunities. Some companies, such as John Deere and C&B Operations, will even fly technicians out to their facility, offering several students jobs even before they finish their program.

"The shortage of technicians is not a problem of the future, it is now," said Adam Somers, regional human resources manager for C&B Operations. "This has a large impact on not just C&B Operations but on many other companies across the nation. Industry partners such as WyoTech have been a blessing, producing quality students to bridge that gap of the supply meeting the demand."

There will likely be a time soon when the lack of maintenance professionals slows down the U.S. transportation sector, as the commercial vehicle maintenance industry could be facing a shortfall of almost one million techs by 2026. That's when Mathis' master plan to mass produce techs may pay dividends.

Along with the 90,000-sq.-ft. expansion, which added eight classrooms and the Dave Kuhn Training Facility shop space, the school obtained an additional site in October, formerly Wyoming Game & Fish, to start a welding and fabrication program in Spring 2024. Then WyoTech wants to build more housing to suit an additional 3,000 to 3,500 students by 2027.

"Our ultimate goal is to have 10,000 students by 2030," Mathis said last year.

Mathis also installed safeguards to ensure WyoTech does not repeat past mistakes to increase enrollment. One is verifying students can pay without school scholarships, which Mathis said makes some students subsidize others.

"We know how every single student is going to pay before we ever allow them to start," said Mathis, who explained this could be through Title IV federal financial aid or the GI Bill for veterans.

WyoTech also has students sign a professionalism code of conduct, and stay clean shaven and free of rings and visible piercings. Students will also be expelled if they miss three days of class in a six-week period. "[It's] because we are training professionals that have to be accepted by our employers," Mathis said. "We have two customers to serve: our students and the employee that hires them—and they both have to win."

Riding into the sunset

Mathis' new arrangement traveling back and forth between Wyoming and Arizona every few weeks will allow him to have his cake and cow pies, too. He gets to come up with ideas for growth and change and hand them off to his protégé, Morris.

Morris, most recently VP of operations, started at WyoTech in 2003. He started out as a director of student services and success. When Mathis gained control of the school, he gave Morris more responsibility.

"He took a gamble on me and let me run with some of the financial side of the operation and then more and more of the operation over those five years of his ownership," Morris said. "Fortunately, he has granted me the opportunity to take the reins on the whole operation as he takes some more time to himself."

How will Mathis spend that time? "I'll probably just drive my team nuts," he laughed. "I'm a dreamer and a schemer, always thinking outside the box. But our growth plan is going to need a lot of financing, so I'll go out and work with people to figure out how we can finance that."

Meanwhile, the United States Team Roping Championship member will be up on a saddle.

In the meantime, the school won't be without a Mathis on the premises. While the man himself will still be a regular occurrence on campus, his family members, Isabelle and JD, will also continue serving WyoTech as a marketing projects coordinator and program coordinator, respectively. All three will continue to support the school as it, along with every other diesel technical school, corrals incoming technology as electrification and automation enter the sector.

"As long as we continue to stay up with our curriculum and keep [the industry] informed and they keep us informed of the changes that they need in what we teach, we will change with the times," Mathis agreed. "When they need multiple technicians in a particular area, such as for hydrogen or electric vehicles, we should be right behind them, changing our curriculum to provide techs for them."

Morris' main job now is to build on what

FULL

EQUIPPED

Mathis left him.

"We're really poised to continue that momentum and really make sure that our students not only have great opportunities and great careers set in front of them, but also respect," Morris said. "This is not a less-than pathway," he concluded. "This is an equal pathway or a greater-than pathway [to traditional colleges]."

With new technologies, regulations and customer expectations coming down the pike, it isn't enough to be aware of what's changing. You have to prepare. Only Heavy Duty Aftermarket Week delivers a comprehensive experience that's part deal-making, part upskilling, part networking and entirely focused on what's next. Build real relationships with access to the industry's most successful business meetings program and expert insights from peers. This is your chance to see what's coming — and seize opportunities in a shifting market.



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What's new in products for more efficient fleet operation.

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Marathon Brake System's air disc brake calipers and chambers meet the



needs of a range of aftermarket air disc brake applications, from on-highway trucks and trailers to fire trucks and waste haulers. The calipers and chambers complement Marathon's line of air disc pads and rotors, reducing noise and lowering maintenance costs. The calipers cover a variety of mounts, while the air disc chambers include both complete springbrakes or type 18 or 20 ADB service chambers.

For more information visit FleetMaintenance.com/53079311



Prevents stones from lodging in the tire

The Goodyear Armor Max Extreme Service Drive (ESD) tire is durable and offers a tread compound that resists cuts, chips, and tears. Available in 11R22.5 H and 11R24.5 H sizes, the tires feature an optimized tread geometry to prevent lodged stones and stone drilling. The 32/32" tread design ensures minimized mud and snow buildup for enhanced traction, while the sidewall design allows chains to be placed above tread blocks.

For more information visit FleetMaintenance.com/53065374



Compact, versatile, and discreet

Motive Technologies' Asset Gateway Mini offers asset tracking from a device only 5.8" long and 3.3" wide. Features include real-time location tracking and equipment health visualization in both cableand battery-powered options as well as the durability to withstand harsh conditions and high-pressure water sprays. The battery lasts for five years at two GPS pings per day, and fleets can also access telematics data and establish PM alerts

For more information visit FleetMaintenance.com/53079186

Offers predictive TPMS and analytics

Halo Tire Management from Aperia Technologies provides everything a fleet needs to get ahead of tire health issues. Halo Tire Management includes vehicle asset tracking with satellite map views, tire health status alerts, active tire inflation, and tire analytics on a user-friendly platform. Easily installable in 5-10 minutes, the system requires no special tools and attaches directly to the wheel hub. It comes with a three-year, 300,000-mile warranty.

For more information visit FleetMaintenance.com/53079180



>>> Now covers Ford, Ram, and more makes

Continental's Knock Sensors offer the same fit, form, and function as the OEM parts, offering easy installation for several vehicle makes, including Ford, Jeep, Ram, and more for models from 2000-2023. Able to detect engine ping caused by pre-ignition, the sensors help adjust engine timing to run smoothly and can resolve knock sensor fault codes.

For more information visit FleetMaintenance.com/53079389

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The Road Pro 36-Series snow plows from Meyer Products is available in 9', 10', or 11' full-trip lengths or a 10' bottom-trip length. Offering a 65-degree attack angle and a 36" moldboard height with a 15" radial overhang, the Road Pro 36-Series includes a pivot design for five-degree oscillation on both sides to better follow road contours. The moldboard is constructed of 10-gauge steel or 3/8" polyethylene and includes six vertical ribs and a black iron push frame for added strength. With a universal mounting system, the plow works for almost any medium-duty truck.

For more information visit
FleetMaintenance.com/53078508



Features four flash patterns

The STLW314 Series LED Stop/Turn/Tail Lights from Optronics International is a 4"

round, sonically sealed and waterproof tail lamp with a built-in yellow and white warning light function. The lamp meets SAE J595 standards for Classes 2 and 3 directional warning lamps and includes four flash patterns which can be connected to synchronize the flash. The STLW314 is also hard wired and features a grommet mount and is available in STLW314M-SHB and STLW314MGHB grommet-mount version

For more information visit FleetMaintenance.com/53069327

Offers weatherproof, lockable storage containers

DECKED's **Drawer System** comes in two configurations: one for full-size pickup trucks and cargo vans and another for midsize trucks. The system creates a flat load floor in the bed, while the weatherproof, lockable drawers offer additional storage. The full-size system features two 18" wide drawers with a 2,000-lb. deck payload capacity; the midsize version offers one 42" super drawer and supports 1,000 lbs. Both offer D-ring tie-downs, outbound side storage, and pass through power outlet access. **S**For more information visit FleetMaintenance.com/53077943

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- Mike D.





TOOLS & EQUIPMENT

A roundup of the latest tool and equipment offerings.

RPG

8411

Twin hammer mechanism for balance

» The 1/2" Drive Composite Impact Wrench with Extended Anvil from Ascot

Supply has a forward/reverse push button and a four-setting torque adjustment switch for convenient operation. The tool features a compact design at only 7.2" in length and has an energy-efficient motor that ensures maximum performance and long life. The twin hammer mechanism provides smooth balance while the feather trigger allows for precise speed control. Additionally, the swivel air inlet prevents the 153-12260 hose from twisting.

For more information visit FleetMaintenance.com/53079173

Designed to cut grease and grime on most surfaces

Tub O' Towels' Heavy-Duty Cleaner and Degreaser spray by FedPro is designed to cut grease and grime on countertops, grills, kitchen appliances, automotive parts, glass, and more. It's alcohol-free and solvent-free, has a pleasant citrus scent, and can be used in conjunction with Tub O' Towels Heavy-Duty Cleaning Wipes for deep cleaning. It's available in a 24-ounce bottle. Proudly made in the U.S.

For more information visit FleetMaintenance.com/53069542

Test batteries and starting/charging systems

The AutoMeter Heavy-Duty Truck Electrical System Load Tester, No. BCT-468, performs automated load-based voltage drop testing on cables, liftgates, stinger cords, and magnetic circuits. It tests both 12V and 24V starting and charging systems, along with flooded, thin plate pure lead and AGM batteries. Simple step-bystep screens allow for fast and easy operation. The load tester is Wi-Fi enabled for automatic real-time data collection and alerts.

For more information visit FleetMaintenance.com/21044624



Features a built-in cutter

The Automatic Wire Stripper, No. 48-22-3083, from Milwaukee Tool features a one-handed stripping application for quick, clean cuts through 80-20 solid and 1022 stranded AWG wire. The tool is designed to cleanly strip up to 1" in a single squeeze and the built-in cutter is located in the center of the tool for optimal leverage for cuts through copper wires. Additionally, the molded grip handles offer users added comfort for all-day use. For more information visit FleetMaintenance.com/53075693



The 18V 3/8" Drive MonsterLithium Cordless Impact Wrench, No. CT9038, from Snap-on is designed to deliver 525 lb.-ft. of bolt breakaway torgue and 275 lb.-ft. of working torgue with minimal vibration. Its 5" compact body allows users to access tight spaces, while its variable-speed trigger offers additional control. The tool's three torque settings can be set independently in forward or reverse. The wrench's drivetrain is composed of high-alloy steel components contained within a metallic case. Reinforced nylon housing supports the frameless, brushless motor for a longer tool life. Additionally, the wrench has a 100 lm LED and an integrated brake that halts the anvil once the trigger is released to prevent thrown sockets or fasteners

For more information visit FleetMaintenance.com/53077941

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Aligns trucks, trailers, buses, and more

Hunter Engineering Company's HawkEye XL alignment system is suited to service a wide range of commercial vehicles, including, trucks, buses, trailers, and more. Featuring three-dimensional extra-large targets and high-definition cameras with extra-long-range sight, the HawkEye XL captures all measurements in a single rolling compensation, even on 53' trailers. Then it displays live alignment data from up to three axles at once, making the XL easy to use if technicians need to make adjustments. Accessible for use in any bay, the aligner can be moved for floor or lift use with its adjustable camera beam.

For more information visit FleetMaintenance.com/53075046

Oil and acid resistant

Mueller-Kueps' creeper, No. 510 098, is a bright neon green color that is highly visible and perfect in and around the shop and on mobile service trucks. Featuring a slightly raised and upholstered headrest for comfort, the creeper offers a built-in parts tray for easy access to tools and smooth-rolling swivel casters for maximum mobility. Able to bear 300 lbs., this oil and acid-resistant platform sits on rigid polyurethane wheels that can glide across various surfaces.

For more information visit FleetMaintenance.com/53079175

Includes tire specs, part numbers, and training videos

Michelin North America's MyTechXpert app is a one-

stop shop for tire recommendations and data. Available for free on both Android and iOS devices, the app offers Michelin product information, technical specs, and diagostic advice for tire wear and tear. The app also features a quicksearch option for tires and common characteristics, images for diagnostics, technicial details for tire mounting, safety instructions, training videos, and product ranges for new tires and retreads. The app includes regular over-the-air software updates and developments as neccessary.





Rugged 2-in-1 PC

Panasonic's **TOUGHBOOK 33** is a rugged, 2-in-1 PC with a 3:2 screen. The laptop can convert to a 12" tablet and comes with an optional keyboard and optional i7-1270P processor with 12 cores of computing power. The TOUGHBOOK 33's twin battery design allows for hot-swappable battery replacement and features an optional FirstNet Ready EM7511 Band 14 mobile broadband. Other integrations are also available, including a serial port, barcode, fingerprint, and insertable or contactless Smart Card readers.

For more information visit FleetMaintenance.com/53077129

Easily portable and perfect for shops and garages

The **Blue 2200 Residential Floor Fan** is the first **Patterson**-designed, ETL-listed, high-performance, heavy-duty, residential and commercial floor fan. Designed in the U.S. and crafted with durable, rugged components from Patterson's tried-and-true, industrial-grade, high-velocity fans, the Blue 2200 is perfect for residential and commercial areas such as garages, basements, workshops, and kitchens. Weighing only 32 lbs., the floor fan is easily portable and features a 3-speed controller. Order online with a flatrate shipping fee of \$25.

For more information visit FleetMaintenance.com/53069635

H Comes in black with a multicolor eagle graphic

Snap-on's **Auto Darkening Welding Helmet** (No. YA4609) offers both security and style with its four wide-angle arc sensors and multicolored eagle graphic. The helmet features dual-adjustable shade modes (#6-9, #9-13) for sensitivity and delay that can be adjusted with a knob, and a grind lockout feature that doubles as a face shield and welding helmet. Able to be powered with solar energy and lithium batteries, this helmet also includes a 3.73" by 3.34" viewing area and is a comfortable fit for long hours in the shop.





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PRODUCT SPOTLIGHT

Advanced driver assistance systems (ADAS)

>> Hunter Engineering ADASLink Diagnostic Scan Tool

The ADASLink Diagnostic Scan Tool from Hunter Engineering features ADAS calibration and secure FCA gateway capabilities. This complete solution integrates with Hunter's WinAlign software, providing the technician with quick access to specific calibration procedures for more than 25 million vehicles. ADASLink guides the technician with step-by-step onscreen instructions, ensuring the calibration is completed accurately and according to OE requirements. ADASLink enabled Complete Collision Center in St. Robert, Missouri, to do all their own ADAS work and ultimately expand their operations, their shop owner said. "It's topof-the-line equipment, and when you put good support with it, it's a double win," he added.

For more information visit FleetMaintenance.com/53079521

Autel Intelligent ADAS IA900WA Wheel Alignment and ADAS Calibration System

The Autel Intelligent ADAS IA900WA Wheel Alignment and ADAS Calibration System integrates wheel alignment and ADAS calibration into an all-in-one, space-saving device. It features a folding crossbar and six in-frame, high-resolution tracking cameras that automatically monitor vehicle height on the shop lift, and robotic frame movement for alignment reading accuracy to 0.02 degrees. Alignment coverage is offered for U.S., Asian, and European vehicles 1996 and newer. The system guides the user through the complete process with illustrated instructions, live readings, and required tools.

"Because of the Autel IA900's ability to calibrate most vehicles, we average about 30 more jobs per month," said Mark Allen Murphy of Murphy's Auto Glass in Orangeburg, South Carolina. "Month-to-month profit has increased by 30%."

For more information visit FleetMaintenance.com/53079523

» Bosch DAS 3000 ADAS Recalibration System

The Bosch DAS 3000 ADAS Recalibration System guides technicians through steps to calibrate ADAS systems, giving them the confidence to accurately repair advanced vehicles quickly. Designed for current and future ADAS technologies, the DAS 3000 is fast to set up and works with a large range of different vehicle makes and models spanning back to 1995. The DAS 3000 system includes 13 camera targets covering the most popular OEMs, recalibration fixture and distance markers, Bosch ADAS Positioning System (BAP), floor mat calibration targets, dual purpose Volkswagen radar and camera board, technician training for easy set-up and use, and a storage box.

"We auto-ID the vehicle with a scan tool, and it comes up on screen and walks you through the requirements. It really makes it simple and easy for the technician to perform the calibration and know they are doing it correctly," said Scott McKinney, Bosch product manager for ADAS diagnostics.

For more information visit FleetMaintenance.com/21161561

TEXA USA Navigator TXT Multihub with IDC5 Truck

The TEXA USA Navigator TXT Multihub with IDC5 Truck advanced diagnostic software provides faster and easier vehicle system access, including ADAS Calibration when paired with the RCCS3 Calibration system. The solution provides single screen visual dashboards to confirm test data easily and secure the coding or pass-thru programming ability needed by today's professional repairers to complete complex projects. Operating from a TEXA tablet or laptop, the IDC5 software guides the technician through all diagnostic steps, from error detection to providing the repair solution.

"This superior vehicle coverage provided by TEXA diagnostics will bring in new repair ability to any shop looking to responsibly expand their vehicle service," said Fabio Mazzon, TEXA USA technical manager.

For more information visit FleetMaintenance.com/53079666













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