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AUGMENTED REALITY

REAL SHOP USE CASES

Augmented and assisted-reality solutions are now available, but are these high-tech tools boosting shop productivity?

Page 18



DEER STRIKES REPAIR & MITIGATION

Page 12



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p. **8**

Equipment

Tire roundtable: Spec'ing by duty cycle

Experts from leading tire OEs fill you in on what to consider when spec'ing tires.

p. **12**

In The Bay

Oh, deer!

Deer-vehicle collisions are often unavoidable, but fleets can mitigate damage and decrease downtime with a few changes.

p. **18**

» ON THE COVER

Shop Operations

Shop reality gets an assist

Augmented and assisted-reality solutions are now available, but are these high-tech tools boosting shop productivity?

SPOTLIGHT ON...

p. **30**

Lubricants

Simplifying engine oil sampling

How fleets can take preventive maintenance up a notch with the right oil sampling tools and techniques.

p. **32**

Technology

Curbing cargo and component theft with technology

Due to the threat of thieves stealing cargo and components such as catalytic converters, fleets and shops must become more vigilant by relying on cargo and security cameras to catch bad actors in the act.

Want to contribute? Contact us at editor@FleetMaintenance.com

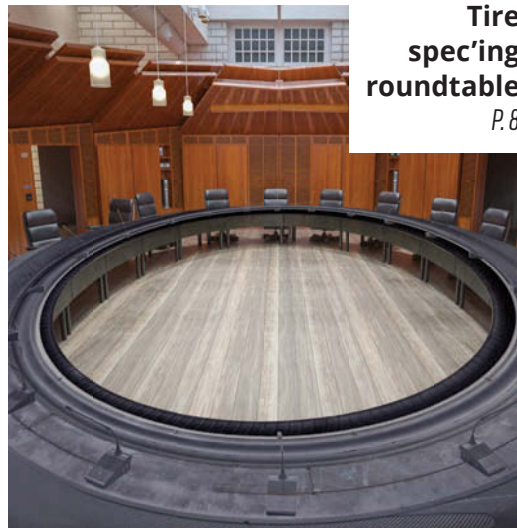
→ **Cover photo:** MHS Truck & Bus



Efficiency gets boost from AR

P. 18

MHS Truck & Bus



Tire spec'ing roundtable

P. 8



Mitigating deer hits

P. 12

VIEWS FROM THE EXPERTS



26 Diagnostics

Rise of diagnostic tools in the shop

By Mindy Long

CONTRIBUTING EDITOR



27 Safety

NFL QB's death puts trucking maintenance on trial

By John Hitch

EDITOR-IN-CHIEF



34 Guest Editorial

In the midst of change, trucking needs to foster excitement

By Ed Chipalowsky

NACFE

DEPARTMENTS

FROM THE EDITOR

6 Hitched Up

Maintenance in the age of complacency

35 Fleet Parts & Components

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

38 Tools & Equipment

A roundup of the latest tool and equipment offerings.

42 Product Spotlight: Oil Spill Solutions

→ EXCLUSIVES

Visit the official website of *Fleet Maintenance* for more information from stories in this issue, plus online exclusives on pertinent topics in the fleet maintenance management industry.



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ARTICLE

CVSA's 2023 changes to OOS criteria are in effect

Nine changes to the Commercial Vehicle Safety Alliance's North American Standard Out-of-Service Criteria for 2023 went into effect on April 1.

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ARTICLE

Fleet Maintenance hires Associate Editor Cris Beaulieu

Beaulieu, an experienced multimedia journalist and daughter of an automotive shop owner, will focus on telling stories critical to commercial vehicle maintenance leadership in new ways.

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ARTICLE

When is the ideal time to replace an asset?

It's important to remember that different assets may have different life cycles. Here are four elements to consider when determining the proper useful life of fleet assets.

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ARTICLE

How AI can help diagnose trucks

As has been shown in other industries, artificial intelligence can be leveraged by shops to increase diagnostic efficiency.

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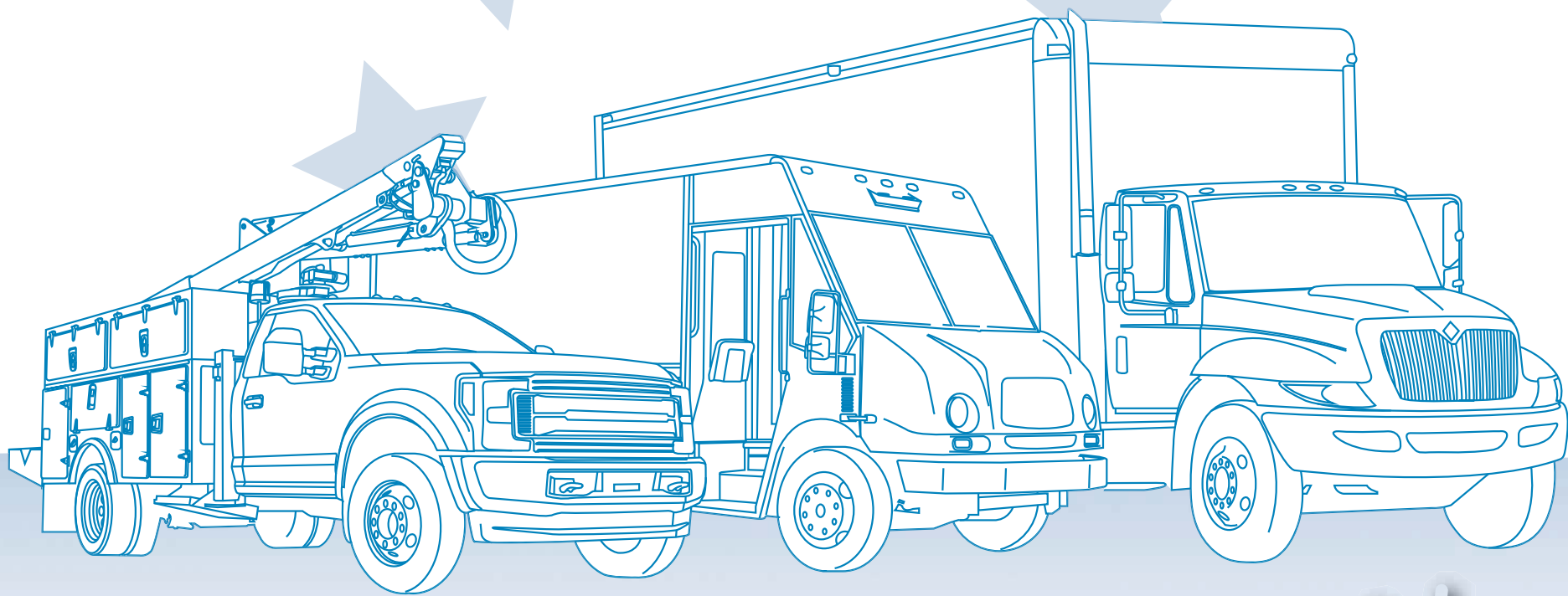


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Maintenance in the age of complacency

The stakes are too high for complacency in the shop.



By **John Hitch**
Editor-in-chief



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In the American sitcom “The Office,” Dwight

Shrute once revealed he doesn’t tip for services he can do himself, like cutting his own hair. He grants gratuity to his urologist, though, for Dunder Mifflin Scranton’s assistant to the regional manager is “unable to pulverize [his] own kidney stones.” If that’s how life really operated, I would always give a healthy tip to the technicians who perform brake service on my car. Because I can write story after story about brakes and explain how they work (or quote people who can), but I’ll be damned if I ever change them myself. There’s just too much at stake, as one little oversight, or under-torqued bolt, could lead to my brakes failing and my family dying. For this type of work, someone more experienced and less neurotic should be securing my wife and children’s future.

It’s a crazy but essential burden we place on maintenance providers, when you think about it. If I miss a typo (and oh, how I hav), no one is hurt. If a truck technician fails to securely tighten a trailer tire wheel-end after a blow-out, the vibrations from the road may rattle the 110-lb. wheel off the spindle and send it careening down the highway. High stakes, indeed.

Even a pickup’s tire can cause catastrophic damage. A viral video in March taken by Tesla driver Anoop Khatra’s dash cam caught a 2011 Chevy Silverado’s front drive tire rocketing off its axle and directly in front of the Kia Soul passing in the left lane. The compact car drove over the tire, which through a wicked act of physics, catapulted the Kia several feet in the air. It landed on its roof, then bounced and rolled right-side up again. Luckily, the driver was a Soul survivor, sustaining only minor injuries, according to police.

The true cause has yet to be determined, but whether the cause was faulty maintenance or lack of routine maintenance, this event shows how little things, like a fatigued bearing, can create big-time crashes. It’s an extreme example, of course, but illustrates how we as a road-faring society are all connected through this maintenance circle of life. It’s a huge responsibility, and one we in the commercial vehicle industry are so used to, that it could be taken for granted. Because of this, complacency remains one of the industry’s biggest threats.

It’s fortunately the easiest for management to take on. The correct steps to fix things, of course, are meticulously defined by the OEMs and industry sources such as the Technology & Maintenance Council’s Recommended Practices. The technician has to follow those



1415760863 | rachasuk | Getty Images

instructions, though. If they don’t learn the right way, or choose to take shortcuts, that could trigger an avalanche of apathetic quick fixes when new technicians mimic their mentors. And like a game of telephone, the message could get more and more corrupted with each new batch of hires. Before you know it, wheels are flying off every vehicle and in every direction. Morning commutes will be like playing reverse Frogger. OK, maybe not that bad, but it won’t be good.

I mentioned before that maintenance folks deserve a tip, so here’s one: Kick the tires on augmented reality tools for the shop (Pg. 18). They have proven to boost efficiency and accuracy. For instance, Peterbilt has reported its ARTech software can save 15 to 30 minutes per electrical repair.

And the RealWear Navigator 500, a high-tech wearable computer, allows technicians unfamiliar with a repair or troubleshooting task to call a remote expert for help. This expert can see exactly what the technician sees via a 48-megapixel camera, streamed over a wireless network. The Navigator has a small monocular display from which they can reference work instructions, or view relevant files and images sent from the remote expert’s computer. Unlike a tablet, they also never have to put it down to do the actual work. Very handy and hands-free.

RealWear defines this version of AR as assisted reality. I call it a complacency killer. A savvy shop will have their most experienced technicians don the voice-controlled headset, tell it to “record,” and then correctly perform preventive maintenance or part repairs. After a while, that company has created a complete library of training videos.

Each device costs about \$2,500, comparable to many diagnostic tools. If you can use it

to shave off a day of downtime for a truck by finding an issue faster, you’ve likely recouped most of your money right there. As a bonus, the digital natives you want to hire out of auto and diesel schools appreciate cool gadgets like these and will be more likely to want to work for you. Just remember innovation is a natural predator of complacency.

That’s half the battle. The other part is getting drivers to recognize issues during pre-trip inspections and have an easy way to promulgate that info to the shop. Using electronic driver inspection reports can help here.

“It’s really easy to get complacent,” noted Fred Fakkema, VP of safety and compliance at Zonar Systems to *FleetOwner* last year. “I always tie it into my law enforcement days when you see people have an ‘Oh no’ moment because they weren’t really paying attention. And it’s the same concept when driving a truck: You get comfortable. And once you’re comfortable, you get a little complacent and then that’s when mistakes can happen. That’s when you overlook something.”

And when bad things already happened, complacency makes it worse. The trucker who fatally struck NFL player Dwayne Haskins last year is getting sued (Pg. 27), as are his employers, due to some maintenance issues found during the investigation. I doubt this particular case will have a nuclear verdict-style ending, but tens of thousands die on U.S. roads every year, and there are plenty of chances for lawyers to bleed the life out of fleets.

We might not ever know how many accidents on the road are truly avoidable. We do know, however, that maintenance leaders can and do save lives simply by ensuring things are done the right way on every vehicle, and striving to improve more tomorrow. It’s a tough job, but I trust you are all up to the challenge. ▀

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EQUIPMENT

TIRE ROUNDTABLE: Spec'ing by duty cycle

Experts from leading tire OEs fill you in on what to consider when spec'ing tires.

By Seth Skydel

[TIRE & WHEEL]

Years ago, spec'ing tires was a lot simpler. Fleet managers would half-jokingly say tires only needed to be "round, black, and have plenty of rubber." Many of those fleet managers never actually thought one type of tire was much different from another. Size mattered, but price ruled the purchasing decision even more, as tires consume a large portion of a fleet's parts budget.

Today, the considerations fleets must take into account when spec'ing tires have become much more detailed and complex. Tires are now developed for specific applications, duty cycles, and types of equipment. Tread compounds and designs are crafted for regional, on-highway, local, on/off road, and other types of operations, and for different types of terrain and climates. More recently, they're being built for specific types of powertrains as well.

Not surprisingly, fleets remain mostly secretive about their tire choices and spec'ing practices. In fact, nearly a dozen different operations turned down an invitation from *Fleet Maintenance* to speak about this subject. Fortunately, though, tire manufacturers are much more receptive, so we asked a number of them to help us out. The Tire Industry Association also chimed in.

The questions we asked were simple and straightforward, ranging from how to match tires to duty cycle to the best ways to measure tire performance.

The respondents included:

- Kevin Rohlwing, Chief Technical Officer, Tire Industry Association
- Matt Schnedler, Senior Product Manager, Truck & Bus Radial, Bridgestone Americas
- Tim Kelly, Original Equipment & National Account Manager, Double Coin
- Tom Lippello, Senior Director, Commercial Marketing, Goodyear North America
- Jim Garrett, Product Category Manager, Michelin North America
- Brian Sheehey, Senior Vice President, Ralson Tire North America
- Tom Clauer, Senior Manager of Commercial Product Planning, Yokohama Tire

Fleet Maintenance: How can fleets best match tires to their equipment and duty cycles?

Kelly: The best thing a fleet can do is to collaborate with their tire manufacturer or dealer to match tires for specific applications. Tire testing is a great way to determine what products can produce the best overall performance and lowest cost per mile.

Lippello: The first step in finding the right tires for your fleet's duty cycles is understanding the type of vehicle and applications the tire will be used for and deciding which performance features will help you get the job done. Also consider specific operating and underfoot conditions such as load carrying requirements, weather conditions, and environmental considerations.

Rohlwing: Working with local dealers and tire manufacturers can help determine what is working in similar applications. Constantly

testing tires and retreads is also helpful, so it's a good practice to periodically try new tread designs and measure the results.

Schnedler: Fleets should match tires by application and position because they are designed with specific patterns, compounds, and casing configurations. For instance, while there are both linehaul and on/off road drive tires, the linehaul tires will maximize wear and fuel efficiency while on/off road tires will maximize traction and cut/chip resistance.

Sheehey: Fleet executives should review the actual duty cycle for their equipment. Keep in mind that duty cycle is the time the vehicle is used, not the application or the conditions it is operated in. An example of significant operational changes is fleets involved in port transportation. With recent congestion issues and scheduling backups, their vehicles are spending considerably more time waiting than during pre-pandemic operations.

Garrett: Understand that your vehicles, routes, maintenance practices, and company objectives are all crucial factors when choosing the correct tires. Prioritize what is important to your fleet, whether it's fuel mileage, traction, driver satisfaction, long life, even wear, retreadability, or durability.

Clauer: Know the area where the equipment will be operated. Is it regional or long haul? Is it in northern or southern states? What are the weather conditions, such as snow, wet or dry roads? Will the geography be flat, mountainous, or both? Then there's weight. Will the vehicles be loaded all the time, or part time? What is the anticipated average loaded weight? All this information

can be used to drill down to the right tire for the equipment and the operation.

Summary: It's all about total cost of ownership. Today, tires are highly engineered components designed to perform specific functions, so matching the right tire to your fleet's individual needs is the key to getting the performance you require and maximizing your return on investment.

“Tire testing is a great way to determine what products can produce the best overall performance and lowest cost per mile.”

Tim Kelly, Original Equipment & National Account Manager, Double Coin

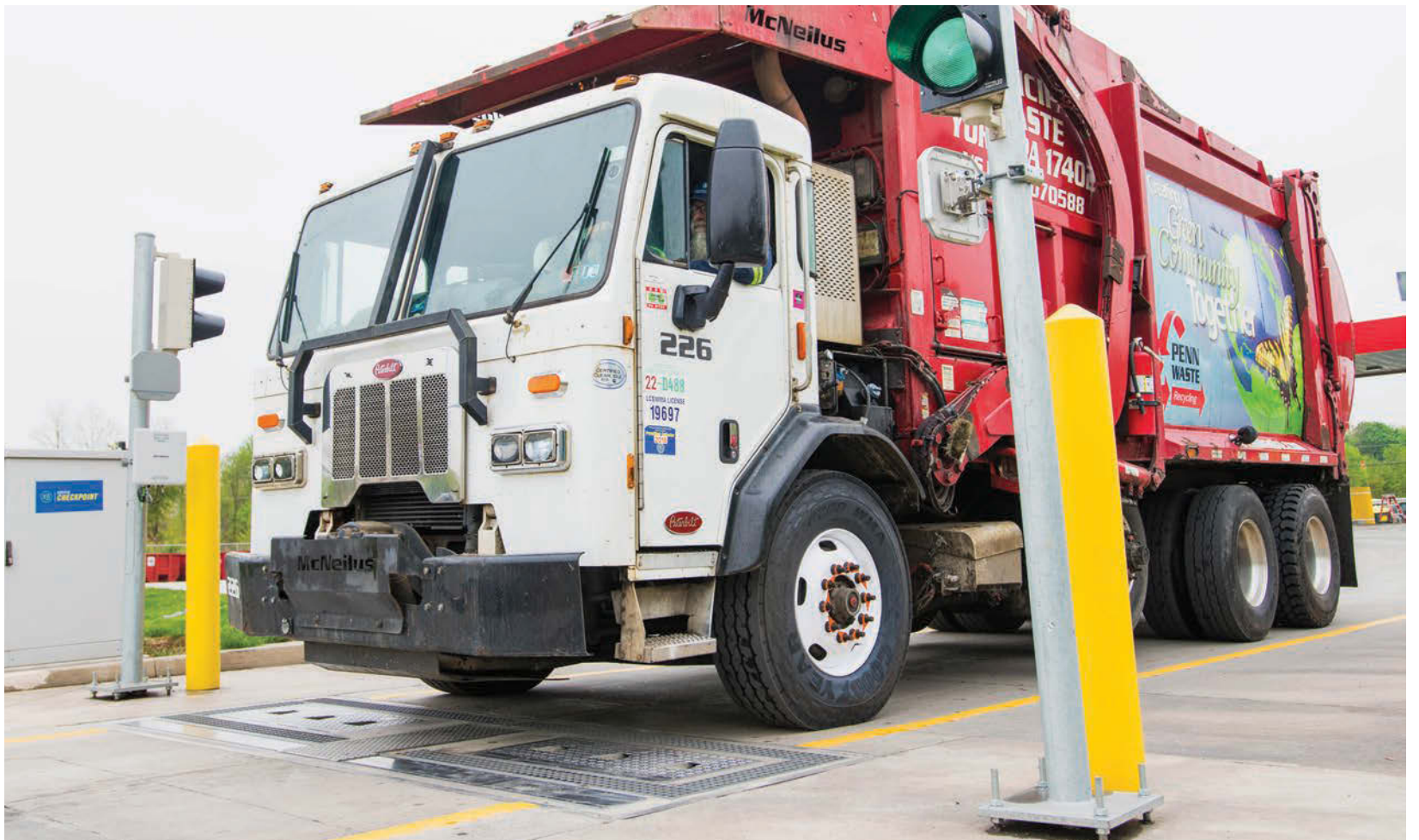
FM: Do the types of powertrains, brake systems, or the use of TPMS/ATIS impact tire specs?

Garrett: Powertrains can have an impact on tire choice. For example, for today's electric trucks certain tires are designed to manage higher torque. Brake systems and the use of

» Tom Clauer of Yokohama Tire advises fleets use tools that track tire metrics “to minimize cost and maximize efficiencies.”

Yokohama





» In-ground tire tracking solutions such as Goodyear's CheckPoint Drive-Over Reader instantly capture tread depth and pressure data.

Goodyear

TPMS/ATIS do not have a significant impact on tire selection. However, they can have a major impact on tire performance.

Kelly: Fleets need to consider what works best with all the various technologies that will be employed. It's always good to get input from your tire manufacturer.

Clauer: Knowing the capabilities/performance of each type of equipment is vital to tire selection. Several years ago, the introduction of low rpm/high-torque diesel engines had a dramatic effect on drive tire selection and that remains a valid concern, including with electric powertrains. Torque values have considerable effect on drive tires, but that can be addressed with proper tire selection.

Lippello: The type of powertrain a fleet uses should be a consideration when deciding what type of tire is needed. When fleets upgrade vehicles, incorporate new services, or transition to EVs, the tires need to change.

Rohlwing: Early reports on tread mileage for electric trucks are not promising, as fleets are experiencing accelerated treadwear on drive axle tires. Manufacturers are working on drive tires for electric drivetrains,

» Bridgestone's M863 all-position tire can simplify spec'ing for fleets with on- and off-road trucks.

Bridgestone



but the same mileage as diesel powertrains cannot be expected. TPMS and ATIS won't have much of an impact on tire specs, but they will extend tire and casing life by limiting the amount of time that the tires operate in an underinflated condition.

Schnedler: While we continue to learn about the differences between internal combustion engine and electric commercial vehicles, there appear to be some differences that can affect tire specs. Two important parameters for tires going on electric vehicles are load capacity, because batteries increase vehicle weight, and low rolling resistance, which will increase range. When considering the impact of TPMS/ATIS, all tires are designed to operate at the proper air pressure, so tire spec selection does not really depend on having the correct air pressure.

Summary: As technology on trucks changes so does the impact on tires. For example, with automated manual transmissions higher torque led to increased heel and toe wear. With EVs, torque values have risen further, leading to even more questions.

FM: How can fleets measure tire performance?

Schnedler: Depending on the fleet, it can be important to measure tread wear life, fuel consumption, or the number of times a tire is retreaded. Measuring performance can get more sophisticated by combining several of these measures into total life cycle cost.

Lippello: When it comes to tire performance, the most important thing to check frequently is tire pressure and treadwear, because those two factors directly influence fuel efficiency, performance, and ultimately, the costs for fleets.

Rohlwing: Cost per mile is a good indicator of performance, and while it's not a sophisticated formula, it requires attention to regularly check



» Delhi-based Ralson Tires made its debut in the North American commercial vehicle market in 2022. "We are not taking a tire that does well in India and just dropping it in the United States," said Jim Mayfield, EVP, Ralson Tire North America. "We have built a product that is going to work well in the environment it was made for."

Ralson Tires

“Knowing the capabilities/performance of each type of equipment is vital to tire selection.”

Tom Clauer, Senior Manager of Commercial Product Planning, Yokohama Tire

and record tread depth and mileage. In some cases, fuel mileage is also factored into the equation because fuel-efficient tread compounds may save enough to offset tire costs.

Sheehy: There are both active and passive processes available. The simplest method is inspection and review at a certain time interval or during scheduled maintenance. Inspections should also be done at removal for a condition review. An application review needs to be done as well, as your business model may be shifting but your tire spec hasn't changed.

Clauer: Utilize tools that can track miles, identify developing conditions, calculate miles per 32nd, and help make selection choices to minimize cost and maximize efficiencies.

Kelly: Most fleets use cost per mile or cost of ownership to ensure they are maximizing their tire use. Recording installation mileage and periodic checks to track tire performance of different tread designs and manufacturers is important.

Garrett: Look at measurables that match your priorities such as fuel mileage, driver feedback, removal mileage, retreadability, and roadside events. Some of these are more difficult to measure, but putting a little extra effort in will always pay off.

Summary: Depending on the performance metric a fleet wants to measure, testing can be done in-house for things like tread life. Most important for a fleet is to manage by the averages. Measurements like cost per 32nd, for example, can help keep comparisons simple and level the playing field between tire brands and models.

FM: What best practices for tire spec'ing can you recommend?

Schnedler: Begin by first determining the most important parameter for your fleet, whether it be fuel efficiency, wear, traction, etc. Then refer to the application guides provided by the tire manufacturer to select the appropriate tire to meet those requirements.

Garrett: One of the most important things to look for is if the tires match the truck OEM's recommendations in terms of size, load, and speed rating. Also, be sure you are using the right wheel size. While the tires that come on your vehicle from the OEM will work, they may not be properly optimized for your particular operation. It is suggested you contact your tire dealer or tire manufacturer representative. They will be truly knowledgeable concerning items to consider when matching tires with vehicles.

Kelly: Understanding your business, what has worked in the past and asking a lot of questions to find out what specific routes, road surfaces, and loads you run are all important to know in order to find the right tire for a specific application.

Clauer: Work with the equipment manufacturer to understand the performance values of your equipment. Reach out to a tire professional to help match the right tire to maximize the equipment and load for the operational/geographical area this equipment will be used in.

» Michelin and Benore Logistics Systems tested out the Nikola Tre to understand how electric truck tires perform and wear.

Michelin

Lippello: There are a number of best practices that fleet owners can implement to ensure optimal tire performance and save on costs. The first step to ensuring you're selecting the right tires for your fleet, whether it's off-the-road, mixed service, long haul, or another application, is to understand the types of products that will work best and will ultimately play a significant role in driving down overall tire costs.

Application aside, consider specific operating conditions such as load carrying requirements, weather conditions or environmental inputs. If you're not sure which tires are right for your fleet, commercial tire manufacturers and dealers can assist in finding the right tires.

Sheehy: The best practice for tire spec'ing is to get information from and involvement with your manufacturer and dealer representative. To maximize your tire spec results, it is important to review all current brand offerings and ask for information or demonstrations. They can provide common sense solutions based on data and improved technology for enhanced performance, increased longevity, and reduced tire life-cycle costs. The only requirement from the fleet is an open mind and a willingness to share past and current experience and discuss future needs.

Summary: Expert advice is valuable in all areas of fleet management, and especially for items like tires, which continue to constitute a high cost area for fleets. One common piece of advice for fleets is simple—ask the experts.

The Bottom Line

For all manufacturers, their advice for maximizing the value of the tires centers on considering all the variables. And that goes beyond the operational considerations they have already discussed and even the proven performance of their current and expanding product offerings.

Other suggestions, for example, include asking tire dealer or manufacturer representatives to meet with the capital decision makers in your fleet as well as the maintenance managers at



» Weather should also be a factor when spec'ing tires. Double Coin's REM-2S all-weather/snow radial OTR tire offers versatility for vocational trucks in snow, ice, gravel, and sand.

Double Coin

your company to provide a holistic review of your assets' tire needs.

Manufacturers also universally agree that effective tire management and maintenance programs are absolutely essential for achieving long tire lifecycles. For example, when it comes to tire performance, the most important things to check frequently are tire pressure and treadwear since those two factors directly influence fuel efficiency, performance and ultimately, overall tire costs for fleets.

Once a fleet has outfitted their vehicles with the tires that best suit their needs, the manufacturers added, it is highly recommended to implement a comprehensive tire management program to reduce cost, prolong vehicle uptime, and maximize the return on your fleet's tire investment. ■

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IN THE BAY

Oh, deer!

Deer-vehicle collisions are often unavoidable, but fleets can mitigate damage and decrease downtime with a few changes.

By John Hitch



[COLLISION & REPAIR]

Ah, springtime in the Midwest! The time of rebirth, renewal, and warmer weather. Blossoming trees of pink and white paint the hills, while the air is filled with their sweet fragrance, along with bustling birds making nests and busy bees collecting pollen. But there's also a danger that should strike fear into the hearts of fleet maintenance managers. Deadly animals—who also know plenty about the birds and bees and got busy last fall—are starting to spawn new deceptively adorable offspring that will soon terrorize the roadways, indiscriminately throwing their weight and antlers around like they own the place. Yes, we're talking about deer.

According to State Farm, 1.9 million collisions between deer and vehicles occurred in the U.S. between July 2021 and June 2022, with the most auto claims made in Pennsylvania (156,176). But

you are more likely to hit a deer in neighboring West Virginia, where the country roads are far more precarious than John Denver would have you believe. You have a 1 in 35 chance of striking a deer or other animals there. This not only results in deer becoming roadside venison, but puts people's lives at risk. The Ohio State Highway Patrol reported that from 2017 through August 2022, there were 101,912 deer-vehicle collisions and 31 people were killed in the Buckeye State. Twenty of these were riding motorcycles, but deer can instill a sense of dread in the heavy-duty trucking sector.

"It's a little unnerving at night when you're looking out and you just see these eyes looking back at you all along the side of the road," sighed Taki Darakos, VP of maintenance at Pitt Ohio, a carrier that often performs linehaul operations at night through West Virginia.

Darakos feels uneasy because he knows even hulking heavy-duty trucks are at risk when these hoofed menaces dart across the highway. A solid deer impact won't total one of Pitt's Mack Anthems but could damage the hood, body, and grille. And these collisions lead to extended downtime—on average two days or more—and expensive repairs. That's why fleets should go beyond telling drivers to just be more alert during certain times of day and year; they should also take preventive action through spec'ing grille guards and preparing the technicians in the bay for the inevitable mess with a proper action plan.

The damage

"Typically, if there's a deer strike without a grille guard, there's a good chance that truck can be immobilized," Darakos said. "You could lose the radiator charge air cooler—if you're running collision mitigation, there's a good chance you're gonna take out the radar unit. Depending on just where the deer is when you hit it, you could have a \$10,000 or \$12,000 strike."

And during the deer rutting season in October and November, Darakos said Pitt will hit upwards of 150 deer. The fleet has 800 Class 8 tractors and 600 straight trucks. Many of these operate in city delivery applications where speeds are slower and deer scarce. Even considering that, 10% of Pitt's trucks hit deer per year.

"A big reason why we're so susceptible to deer strikes is that we run about two-thirds of our tractor fleet in linehaul operations, heading out in early dusk," he said. "That's just when a lot of the deer are moving and it just exposes us."

Robert "Bert" Derrick, manager of fleet maintenance at Pitt Ohio, noted that more than half of the fleet's 150 deer hits are not severe, though. But even if only 70 are, that leads to \$700,000 in repair costs and at least 140 days of uptime lost. This also puts more stress on the body shop, parts department, and other areas of the company.

"The damage today is much more expensive than 25 years ago because the deer used to bounce off the bumper," said Derrick, because truck OEMs implemented fiberglass bodies and bumpers over sturdier metal components for lightweighting purposes. "Now it just crushes the bumper."

Internal components can also suffer and lead to major repairs. Derrick said transmission cooler lines have been torn off, destroying the powertrain.

"We've actually lost transmissions due to the transmission fluid coming up," he said, adding the collision avoidance systems on the front of the trucks also can increase repair costs.

At one point, radar sensors had cost up to \$3,000, though now have come down in price. During the pandemic, these were also difficult to get, extending downtime.

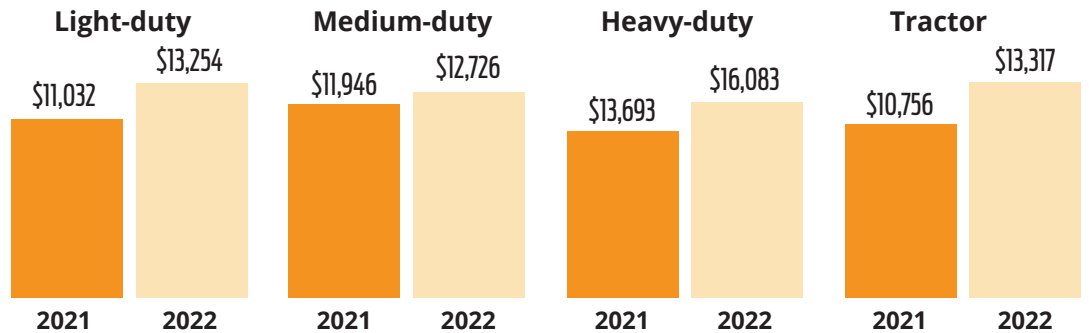
According to industry data compiled by PPG's



2020-2022 Industry average collision repair cost (part prices, supplies, materials, etc.): \$10,785.73

Cost of front-end damage* (front, left front, and right front)

*includes part prices, supplies, materials, etc.



Source: PPG AdjustRite

AdjustRite commercial estimating system, the cost of repairing front-end severity, which includes parts, supplies, materials, etc., is on the rise for Classes 1 through 8. Factoring for any front-end damage (left front, front, and right front), AdjustRite reported increases YOY from 2021 to 2022. Tractor repairs rose the most with 24% to \$13,317, and medium-duty the least at 6% to \$12,726. Light-duty rose 20% to \$13,254 and heavy-duty 17% to \$16,083.

The fix

So what should shops do if they receive a truck covered in fur and blood?

The first thing is to clean the body, advises Ben Cole, the lead estimator and office manager at Fleet Fast. He's also the Akron-based commercial vehicle body shop's unofficial "deer guts remover."

"Make sure that the truck is washed prior to the techs performing repairs," Cole said. "Deer can spread blood, excrement, and ticks across the body of the vehicle. If not sanitized, this can cause health issues for techs including Lyme disease."

If the truck is drivable, Fleet Fast runs the vehicle through a truck wash before taking it to the shop. After that, the assigned technician suits up head to toe in PPE (typically worn for painting) and pressure washes the affected areas.

"Mild detergents like dish soap will typically work to remove the organic matter, but for stubborn spots, enzyme-based cleaners can help break down the organic matter," Cole said. "Then we always follow up with spraying all the parts down with isopropyl alcohol to sanitize for tech safety."

On the estimating side, Cole said to "perform a detailed inspection of the damage, including the frame, suspension, steering components, and cooling system" and take photos and videos.

"When estimating a deer hit specifically, make sure to check locations on the truck for damages other than just the primary impact spot," Cole continued. "When a deer hit occurs, the carcass can be thrown across the vehicle and sometimes damage parts as far as the rear of the vehicle when the primary impact was on the front end. It can also damage the undercarriage by driving over the carcass."

He also recommends using estimating software to account for labor, part costs, and other services needed, and to reduce errors. Fleet Fast uses the AdjustRite system.

When making repairs, Cole said to follow OEM practices, use quality parts, and, of course, test drive the vehicle to ensure proper alignment.

Pitt Ohio's Derrick downplayed the messiness of these incidents, saying, "Maybe there's a little bit of blood and guts," but for the most part, the deer bounce off. There was that one time though where a Pitt truck hit two cows on the highway.

"That was a mess," Derrick recalled. "Deer hits, not so much."

The biggest mess could be parts availability, but Pitt mitigates this by having adequate inventory. For example, they stock two or three spare hoods for each type of truck they run at the main warehouse in Pittsburgh. Because linehaul trucks head out to each terminal from Pittsburgh every night, it's easy to load those parts, like a replacement hood, in the trailer and have them the next day.

"They'll switch the hoods and send that damaged hood back and we'll rebuild it and put it back in inventory," Derrick explained.

This means the average downtime due to the hood is only two days, but the total time can be much more. According to AdjustRite data, last year the average labor hours for a heavy-duty truck front-end collision were:

- 👉 Body: 20.7 hours
- 👉 Frame: 12.9 hours
- 👉 Mechanical: 15.1 hours
- 👉 Paint: 12.5 hours

That's a total of 61.2 hours if all areas need to be repaired. Independent shops like Fleet Fast would welcome that kind of business, but fleets would do well to avoid major damage altogether.

Mitigation

To brace for deer crashes and other front-end damage, three years ago Pitt began spec'ing Ex-Guard grille guards on all new linehaul tractors and retrofitting the existing assets. They cost about \$1,200 and it's an expense that Darakos gladly pays.

"If there is a deer guard on, typically we've found the truck keeps on going," he said, adding



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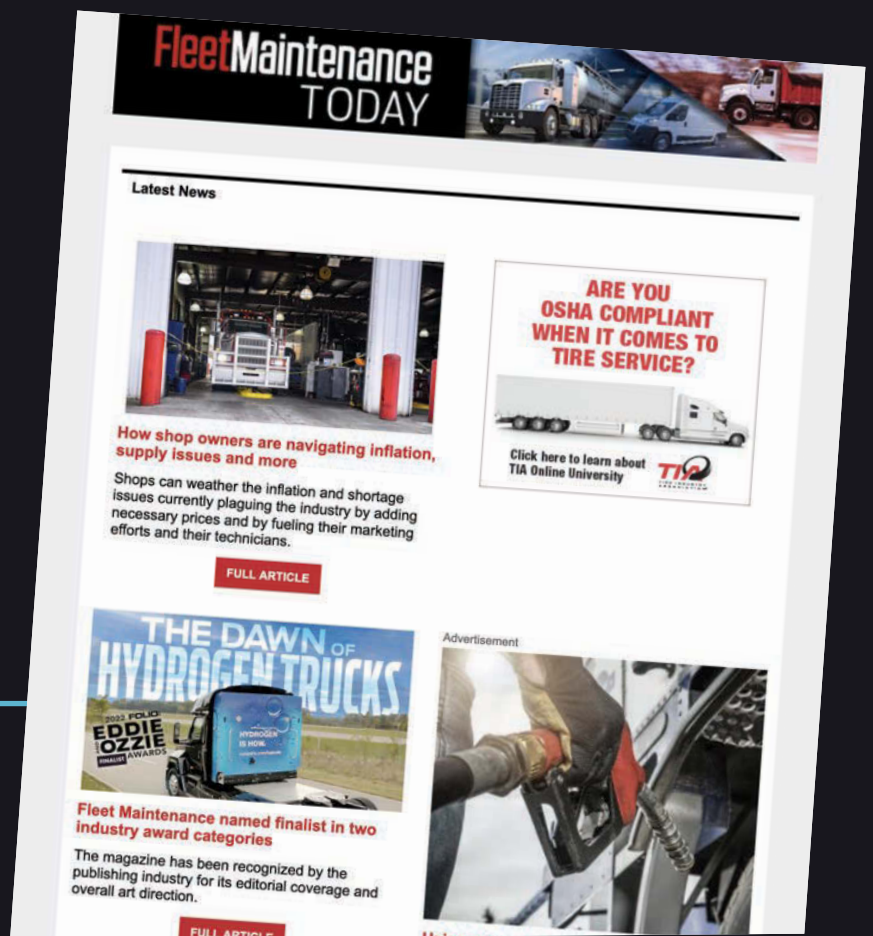
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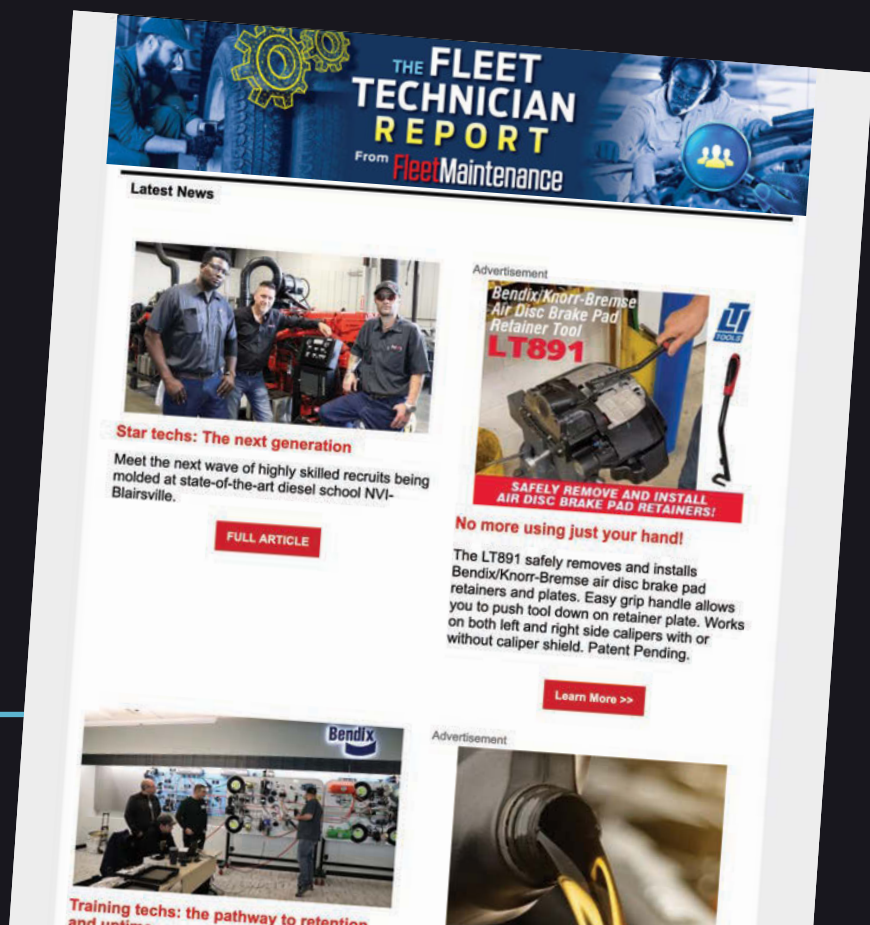
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» Deer guards can be a useful tool to mitigate, or even eliminate, damage from front-end collisions, and can take as little as 20 minutes to install.

Fontaine Modification



» Pitt Ohio says its trucks collide with 150 or more deer per year, so they outfit their linehaul fleet with Ex-Guard grille guards.

Pitt Ohio

Bug Out Bag

Deer aren't the only animals pelting trucks on the road. Far more insects lose their lives on the highway every day, especially in the summer, leaving their pulverized exoskeletons and gooey innards all over the hoods, grilles, headlights, and windshields of once-beautiful trucks across America. And after baking in the sun for a few hours, those caked-on bug guts aren't easy to get off.

It's a problem chemist Vann Brown sought to address when he invented BullSnot! VisABull glass cleaner, an enzymatic compound that can be used to clean anything from mirrors to the body.

"You spray it, give it 15 seconds, and wipe it off," explained Brown, the CEO and founder of Brown Ox Ventures, which manufactures BullSnot! products. "It takes off any kind of organic material—bugs, resins, bird poo, even DEF fluid because that's almost chemically the same as cat urine."

Brown says to use microfibers when wiping the cleaner off to avoid swirl marks and scratches in the paint. He's releasing non-woven microfiber replacements as early as next year. The name, of course, will be Snot Rags, he said.

The Georgia native said he initially set out to formulate a chemical to remove love bugs, as a substitute for all the "truckers out there with razor blades trying to get bugs off." This summer, VisABull will be available in a new delivery system. Called VisABull Rocket Spray, the aerosol will increase from the typical 12 to 18-inch range to 15 feet, to help truckers better clean their windshields.

Brown said his products do cost more, but are gentler on the truck.

"You can get glass cleaner for \$5, but you get ammonia, alkaline, or an acid," he said. "You're not getting the same technology, and they don't take off the bugs."

because Pitt's trucks are already red, the front end doesn't look like "a horror film festival," though the driver may be a bit shaken up from the jump scare.

The repair costs are far less as well. "We've seen strikes where there's no damage, and we've seen strikes with maybe \$500 of damage—but it's a pretty drastic reduction," Darakos commented.

The extra level of protection isn't just for big rigs. Ex-Guard also provides van guards for Ford Transit, Mercedes-Benz Sprinter, and Ram Promaster vans.

"Contrary to the name 'deer guard' that is applied to front-end guards, animal collisions make up less than 2% of reported collisions (according to FMCSA)," noted Nathan Holt, marketing manager at Ex-Guard. "They actually protect trucks from more fixed object collisions than animal collisions and prevent even the smallest collision from sidelining a truck or van."

He also noted they take as little as 20 minutes to install and fold down for hood access using a single-hand release or dual cam latch system.

Holt said because one in nine trucks experience a collision each year, the ROI for a grille guard is about 18 months.

"To calculate an ROI, include lost revenue from truck downtime and the 4+ weeks wait for replacement parts," he said. "Also, most individual front-end parts cost more than an Ex-Guard."

Fontaine Modification has found deer guards have grown in popularity in the medium-duty segment. The upfitter offers a new grille guard for Chevrolet Silverado trucks from Luverne, a manufacturer of accessories for light- and medium-duty pickups and vans. According to Jennifer Sweet, Fontaine Modification's VP of work truck sales and business development, only 2 out of 30 Silverado customers chose not to spec the guard.

"From a return-on-investment standpoint, it's a no-brainer to say, 'I'd rather spend \$1,100 upfront than \$10,000 and two months of downtime due to deer damage,'" Sweet said, adding that the downtime cost would be an additional \$3,000 depending on the truck's job. "And it doesn't necessarily

have to just be a deer [collision], because they protect from anything."

Fontaine assisted Luverne with the Silverado grille guard, which uses a magnetic system and tilts, making access under the hood and any preventive maintenance easier. The toe hook area can also be accessed. The total install time takes about 30 minutes.

"It may not totally negate all problems [of hitting a deer], but it's gonna take most blunt force without damage, and you're not gonna be stuck with a huge bill," said Zach Walls, the Fontaine Modification sales engineer who worked on the project.

Walls pointed out that upfitters and dealers should know which grille guard will not interfere with front-end collision mitigation, but the customer should always ask what components a grille guard could interfere with.

"Grille guards are great for deer hits or minor collisions," agreed Tim Matheny, president of Matheny Motor Truck Company, a dealership network based in Parkersburg, West Virginia, which "sees quite a few deer hits."

Matheny said downtime for severe hits can reach a couple of weeks, with a bill of \$12,000 for parts and \$5,000 for labor.

He suggested that on some occasions, though, the grille guard may not prevent at least some moderate repair work.

"If the deer strikes the center of the grille, that can still create a good amount of damage," he said.

The best way to avoid the mess and downtime is to simply not hit the deer, which is easier said than done.

There are also various gadgets that claim to work, such as the Night Owl Plus thermal camera from Speedir. The company says the infrared camera detects heat signatures up to 3,000 ft. beyond the scope of the headlight beams and provides an audible warning up to 400 ft. away. The ADAS technology costs about \$1,900.

Deer whistles, which mount to the grille and claim to make a noise to scare deer away, are a far cheaper option. A 2018 research paper from Iowa State University questioned their efficacy, though.

Driver training is likely a better investment than any bells or whistles. Derrick mentioned that along with the physical protection, Pitt Ohio's safety department will remind drivers about deer season during monthly meetings.

According to the Ohio Department of Insurance, a few tips to tell drivers for rutting season include scanning the road ahead for deer and employing high beams when no other vehicles are present. Also, avoid swerving if a crash is unavoidable, as this could create a more dangerous situation. A driver who swerves out of the way of the deer and hits something else could be held liable.

That shows there's really no avoiding the inevitable sometimes. But as long as fleets prepare for the coming deer season now (remember, it's October and November) with a mix of driver training, solid protection, and sound repair practices, you'll make sure one scary moment won't turn into weeks of headaches and thousands of dollars. ■

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SHOP REALITY GETS AN ASSIST

Augmented and assisted-reality solutions are now available, but are these high-tech tools boosting shop productivity?

By Alex Keenan

[TECHNOLOGY]

» A MHS Truck & Bus technician works on a vehicle with help from his RealWear HMT-1 headset.

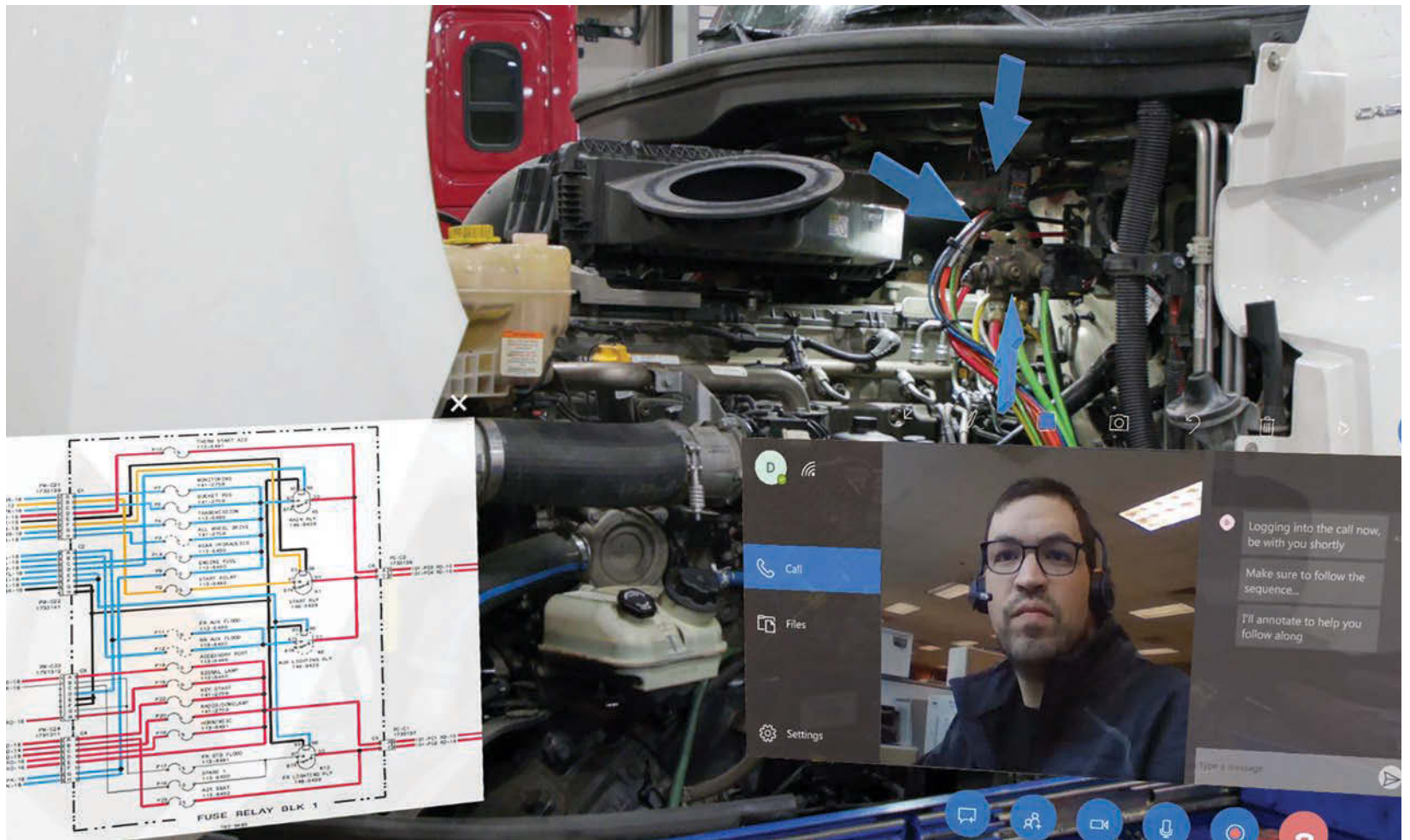
MHS Truck & Bus

Managing and operating a commercial vehicle repair shop can feel like a juggling act where there are too many balls and never enough hands, literally due to the lack of labor. And the problems range from A to Z—aftertreatment to zero emissions.

However, maintenance teams don't need to face these issues on their own, help is here in the form of augmented reality (AR). Currently, shops have several ways to access the productivity-boosting technology, from smartphones and tablets to sophisticated wearable computers. Applications running on these devices can extend shops an extra hand by enhancing a worker's environment with contextual visual data. This can be as simple as work instructions and as complex as a holographic brake assembly. And when that is not enough, the wearable devices, using WiFi, Bluetooth, or 4G, can call an expert who sees what the tech sees and provide guidance.

Several maintenance operations, mostly at the dealer level, have already found the benefits of their workers using the new data and remote expertise provided by these tools to diagnose issues and complete repairs faster.





“I think it won’t be long before everyone realizes that if they don’t have their shop outfitted or their technicians connected, they’re going to be at a significant disadvantage,” said Andrew Chrostowski, chairman and CEO of RealWear, which makes industrial wearable headsets. “They’re going to be less productive, perhaps working less safely.”

RealWear’s HMT-1 ruggedized wearables, launched in 2018, have already found their way into all Ford dealerships to offer high-tech help in the bay, the CEO said.

And the cost of adoption has come down while the technology, and wireless connectivity in the shop, have improved.

“The device cost thresholds are now at the same place of ruggedized tablets of any kind,” Chrostowski noted. “Connectivity is ubiquitous; it’s not like you can’t afford internet at your shop.”

The goal is always to perform better quality work in a shorter amount of time. And that’s what Peterbilt has apparently achieved with its proprietary ARTech to help with electrical maintenance and troubleshooting. The software tool re-conceptualizes 2D technical information (wiring diagrams) as full-scale 3D objects created from CAD models. Technicians can point their iPad’s camera at a Model 579, for example, and ARTech populates the screen with dozens of colorful lines weaving around the image representing the flow of wiring.



» A substantial benefit to the HoloLens system is the ability for the call center representative to bring in a subject matter expert when needed. The ability to have multiple people with “eyes” on the issue and particular expertise addressing the matter leads to clearer communication and expedited processes.

DTNA

As of Spring 2022, Peterbilt deployed 200 of the AR tools throughout its dealership network.

“Instead of having to carry a laptop, an adapter, and other tools to be able to pull information up on a laptop, now you’re carrying an iPad with all of the information in one convenient location,” said Mike Lacey, western regional product support manager at Ohio Peterbilt, last year. “This has been a huge timesaver in pinpointing and troubleshooting codes and issues, speeding up the process, and getting our customers’ trucks back on the road as quickly as possible.”

So far, the results have been promising.

“We have anecdotal information of [technicians] being able to save anywhere from 15 to 30 minutes on an electrical repair,” noted David Yin, product manager for ARTech at Peterbilt. “Now, I have heard a handful of cases where it’s saved them over eight hours, simply because you’re trying to break down and communicate where certain things are, but you can’t see it.”

And this is just the beginning. What would have seemed like science fiction when many managers first stepped foot in the bay is now poised to elevate the industry in a big way.

» Peterbilt’s ARTech overlays reality with digital wiring diagrams for a specific Peterbilt chassis, which speeds up the diagnostic process.

Peterbilt

But are these just cool gadgets or the next big thing in shop efficiency? To better understand the real-world benefits of AR, *Fleet Maintenance* asked three early adopters to share their stories.

Use Case 1: Peterbilt Truck Parts & Equipment

Overall, Peterbilt dealer service technicians have reported time savings of up to 15 to 20% when using ARTech for repair work.

Peterbilt Truck Parts & Equipment, a dealership in Sparks, Nevada, has seen these benefits firsthand. But service manager Marty Makrdichian said the technology, while useful, was not quite what he had anticipated.

“I thought most of the diagnostics would be done through the tool,” Makrdichian said. “Years ago, I had seen another version that another OEM had used overseas. And I expected it to be a little bit more like that. But over here, we don’t necessarily need it the way they use it.”

The Sparks dealership largely uses the tool for visualizing digital wiring diagrams on physical vehicles. This simplified training.

“It’s extremely easy to use, it’s very straightforward,” Makrdichian explained. Indeed, the system was so easy that all the shop needed for training was “a couple of demonstrations from Peterbilt in early August.”

Given that ARTech is specifically meant to provide technical information on Peterbilt vehicles, the only early issue the Sparks location experienced was accessing updated technical information for their various assets, because Peterbilt uploads vehicle schematics into the program as they’re built. This meant that some truck series were included early on but others weren’t until the company could catch up.

Since then, the Sparks location has found ARTech to be invaluable in terms of diagnosing vehicles and speeding up the troubleshooting process, especially by removing the need to leave a vehicle and go through Peterbilt’s online program to find wiring diagrams.

“This is 10 times faster,” Makrdichian asserted of the ARTech process.

Makrdichian has also found the technology very useful for mobile repair applications.

“You may not have quick internet or you may be using the hotspot off your phone, but now, before you go, you can pre-load the truck that you’re going to work on, then you’ll

have all of the schematics you need,” Makrdichian said. “And in Nevada, there’s a lot of remote areas, so it’s very helpful here. We’ll be out in a gold mine somewhere, and there’s no service, making this a very helpful tool.”

As a result of this utility, the Sparks service manager reported that they expected to see more ARTech-enabled iPads in their shop soon.

“We’re expanding our facility right now and adding another 20 bays,” Makrdichian said. “There will absolutely be a couple more of these implemented. And every mobile service vehicle that we have is equipped with one, so any additional mobile service units that we have, I will put one on their truck as well.”

“We have anecdotal information of [technicians] being able to save anywhere from 15 to 30 minutes on an electrical repair. Now, I have heard a handful of cases where [ARTech] saved them over eight hours...”

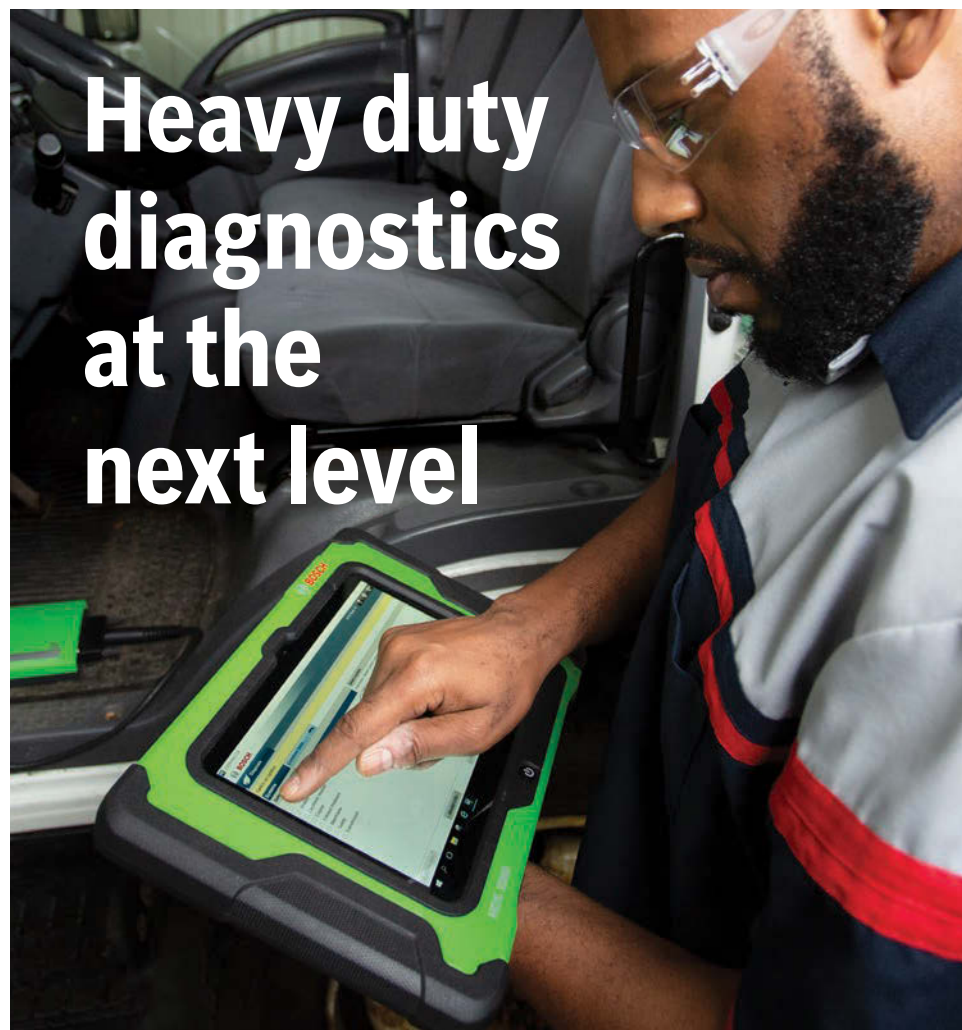
David Yen, ARTech product manager at Peterbilt

Use Case 2: MHS Truck & Bus

MHS Truck & Bus, the sole distributor of MAN commercial vehicles in Romania, has nine locations across the country, the closest of which is almost 200 miles from the company’s Bucharest headquarters. One of its newer shops is 365 miles away in Oradea, and it’s not easy for a technical expert from HQ to get there to assist with complex repairs or issues. While certainly a picturesque journey, the route is filled with precarious mountain roads and can take nine hours.

The company has stated that travel time for their two seasoned technicians can equate to roughly 40 hours and 1,200 miles per month. That’s a lot of added downtime and

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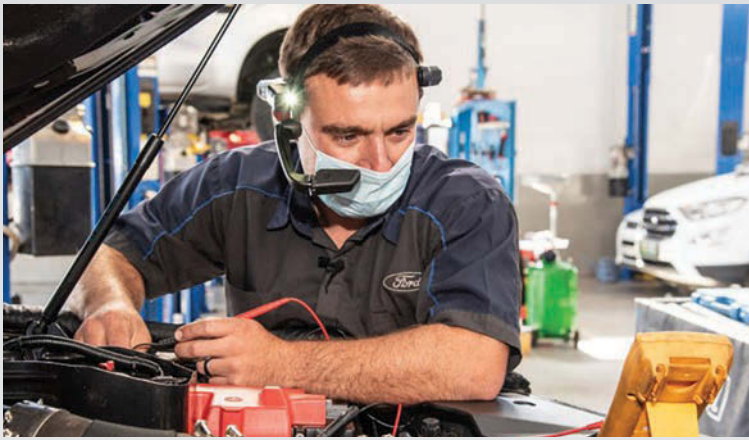
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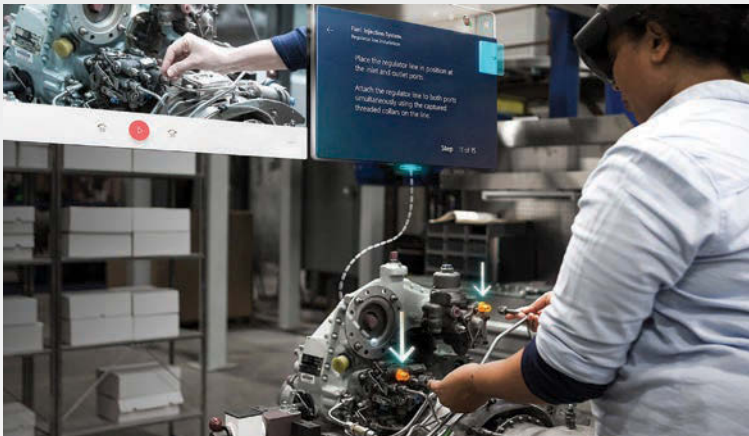
» During the pandemic, Ford dealership techs used the RealWear HMT-1 to virtually collaborate with remote experts on service.

Ford Motor Co.



» Peterbilt's ARTech tablets give their techs 'x-ray vision'.

John Hitch | Fleet Maintenance



» The industrialized HoloLens 2 employs what Microsoft calls "mixed reality," laying 3D images and text on top of a user's field of vision.

Microsoft



» With AR, Penske techs can copy an instructor's work at their own shop.

Penske

The many meanings of AR

Augmented reality can be delivered via different forms on devices.

By Fleet Maintenance staff

Augmented reality enhances the user's environment by overlaying digital information on what a camera sees. It gained popularity via video games such as Pokémon Go, where players could capture digital Pokémons in the park. But there's more to AR than fun and games, with the technology being used across several industries to provide more context to jobsites, from hospitals to factories and even vehicle repair shops.

And there's more than one way to augment the job. Peterbilt technicians use the traditional mode of AR, using tablets enabled with ARTech software to determine how wires run through a truck, giving them artificial X-ray vision.

"The idea has always been around trying to help service technicians locate harnesses without having to read a book describing where it is," explained David Yin, ARTech product manager at Peterbilt. "Instead, [AR is] showing them where it is. And now we have the technology and the hardware to be able to give it to them on an iPad."

Assisted Reality, meanwhile, is a simpler form that requires a wearable computer headset, such as RealWear's Navigator 500. The user sees the world as normal, but can access information to aid their work through a small monocular display. According to RealWear, this design choice was inspired by Star Wars bounty hunter Boba Fett's rangefinder. The ruggedized wearable can be operated completely handsfree by voice commands. A technician can pull up work instructions or make a call to remote expert, who can see what they see through a camera, to talk them through a process, using virtual communication software such as Microsoft Teams, Zoom, or TeamViewer.

The Microsoft HoloLens 2 represents the most immersive form: mixed reality. This wearable headset can place 3D images (holograms) within a user's full field of view. Simple hand gestures such as tapping or pinching motions operate the digital interface.

Through various software applications, these high-tech tools aid in enhancing productivity, while

decreasing the likelihood for mistakes. During the pandemic, when safe distancing was the "new normal," Daimler Truck North America used the HoloLens 2, paired with Dynamics 365 Remote Assist and Teams, to connect service technicians with DTNA's experts.

"This is one of the many solutions we are exploring to address the growing concerns of technician training and availability, with the added benefit of allowing for better social distancing," said Stefan Kürschner, SVP of Aftermarket at DTNA when the technology was being piloted in 2021. "The HoloLens technology could be a game-changer for driving 24-hour or less repair turnaround, reducing the training time for technicians, as well as time spent in the service bay focused on vehicle repair and throughput."

The remote expert aspect is key to improving uptime.

"From the moment the technician puts their headset on, at a minimum, they have a call center on the other line guiding their repair and leveraging augmented reality to be able to parlay into the discussion service bulletins, service manuals, anything necessary for that particular issue that they're facing, and fault codes that they see that they want to show the technician documentation of on the fly," explained Daoud Chaaya, director of field service, DTNA to *Fleet Maintenance* in 2021. "This also allows for subject matter experts to be a part of that call. If we're talking about an HVAC issue, and I want to rope in my HVAC engineer, they can also be virtually part of that call – this way, you get to bring in expertise, as needed, into a particular repair."

Training also greatly benefits from all forms of AR. With RealWear's device, a technician can simply say "Record" while completing a preventive maintenance task and the shop now has a quick training video saved to the cloud.

With Design Interactive's XRmentor software running on a HoloLens 2, trainers can livestream first-person lessons full of virtual elements like diagrams to several other technicians who can see on a smart device or laptop. As the HoloLens 2 costs \$3,500, this is more economical than providing each employee with one.

efficiency sacrificed on the altar of in-person communication, let alone while in the midst of a pandemic.

But Marius Scutaru, MHS' head of customer service management, and business partner Mihai Danila, GM at Seth Dynamics SRL, were certain that this did not have to be the organization's status quo.

In 2021 MHS Truck & Bus became aware of RealWear's HMT-1. But the voice-activated device doesn't work quite the same way as ARTech. Instead, contextual information is provided through an adjustable monocular display attached to the headset. Here, the wiring diagram stays 2D, but it is always in the tech's field of view and the user's hands are always free to perform the PM or repair.

The selling point for MHS was the connectivity aspect. Through Wi-Fi, 4G, or Bluetooth, a tech stumped by a diagnostic issue can verbally command the HMT-1 to connect to a specific expert anywhere in the world for help. The expert can then see the tech's point-of-view from a laptop or tablet and talk them through the repair while attaching relevant files or marking up screen shots to target areas of interest.

"We saw that this device could help us overcome some issues that we have in our network," Scutaru said.

In November 2021, MHS began piloting the HMT-1 and sent headsets to the Oradea shop, where they deemed that the need was highest. This was partly to address the massive travel times, but it was not the only issue MHS Truck & Bus hoped that their AR program would address.

Each location was receiving more and more trucks with increasingly complex after-treatment systems to meet growing emissions requirements, as well as customer calls for increased fuel efficiency, advanced driver assistance systems (ADAS), technology integration, and fleet maintenance management, Scutaru noted. This is what led to the company contacting RealWear.

"The main reason was the continuously increasing gap between the complexity of the vehicles and the experience and expertise of our technicians," Scutaru said.

By making updated vehicle information and expert assistance readily available for the Oradea workshop via the HMT-1, MHS Truck & Bus hoped to cut the downtime of the vehicles in the workshop.

After three months with the initial headset, the feedback was so positive that Scutaru decided to implement the technology in their other locations

as well, which the company later reported helped reduce the diagnosis time of vehicle repairs by 75% and travel time by 50%.

"We've experienced lots of benefits in terms of travel time and fuel consumption for our experts and also our customers, who have already had the benefits of shorter downtime for their vehicles at every workshop they visited," Scutaru affirmed.

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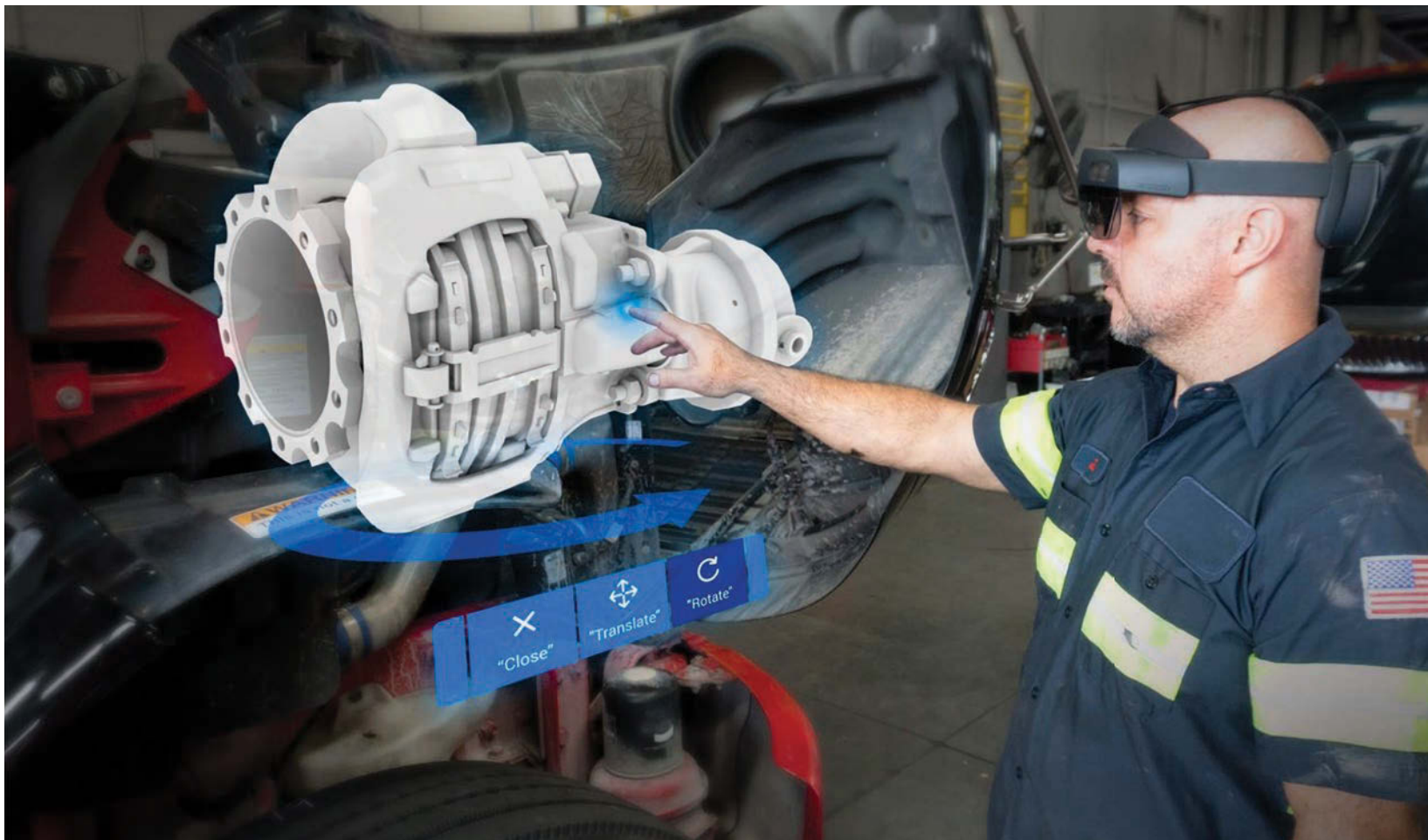
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The total hardware investment for the 10 units purchased was about \$22,000, Scutaru noted. This cost does not entirely account for the training and delivery logistics of obtaining more HMT-1 headsets, for which MHS Truck & Bus partnered with Danila and his team at Seth Dynamics.

“The training was done more or less for workshop managers in every location, one by one, depending on their timetable because they are pretty busy guys with lots to do,” Danila recalled. “It was hard to get them all in one place. Ninety percent of the training was actually done online.”

During the process, Scutaru found that the company also had to work around some employees’ resistance to change.

“To be honest, the most important challenge was to overcome the reluctance of the people in using new technologies, because I know they prefer traditional communication channels like phone, WhatsApp, email, etc.,” Scutaru explained.

The techs also had grown accustomed to their Windows phones. “They were managing to do their job well from their perspective, but not my perspective,” Danila offered.

Danila found another challenge was establishing the necessary infrastructure, as the live feed wasn’t reliable.

“There were some network connectivity problems, which we solved in each location,” Danila said. This was done through additional infrastructure investments.

After the initial installation, both Scutaru and Danila found that their technicians in each location were consistently using the HMT-1 headwear roughly 2 to 3 times per month.

“You are using the devices less and less because you are more knowledgeable,” Danila explained. “And you can solve things much more easily. You

are only using it when something is changing, when you have to deal with new things or you need a higher level of support.”

But even with their devices experiencing peaks and valleys of use, from Scutaru and Danila’s perspective, the continuous evolution of the repair industry guarantees AR technology’s viability in MHS Truck & Bus’ shops and, just as importantly, on the road.

“We are planning to extend the application on remote repairs in case of breakdowns,” Scutaru noted. “When we have calls from our customers and we need to allocate a technician to go there, we might have very little information regarding the vehicle, and sometimes we cannot allocate a technician whose expertise and experience is strongly correlated with the complexity of the damage. That’s why they should have the possibility to use this device to solve the problem without coming back to the workshop.”

Use Case 3: Penske Truck Leasing

Penske first began its foray into the world of AR during the pandemic, which complicated the company’s training operations.

“During the pandemic, as a technical training team with an audience of technicians, we learned very quickly that using certain types of virtual platforms for engaging with associates in a training atmosphere was not really the best scenario for learning,” said Holly Gerke, VP of maintenance, technical training, and development, Penske Truck Leasing.

As such, the company began to explore other ways to deliver its training and began using Design Interactive’s XRmentor platform in September of 2021.

» Design Interactive’s mixed reality improves training efficiency.

Design Interactive

“To be honest, the most important challenge was to overcome the reluctance of the people in using new technologies because I know they prefer traditional communication channels like phone, WhatsApp, email, etc.”

Marius Scutaru, head of customer service management, MHS Truck & Bus

“The real expectation, once we learned more about the technology, was that we were trying to upskill our entry-level workforce at a much quicker pace than we’ve ever been able to realize before,” Gerke said.

However, Penske needed to ensure their infrastructure was ready for the demands of AR before they could reap the rewards.

“There was some lifting with technology as far as our infrastructure, working with other teams in our organization like security, IT, and working on the network, so there are some things that we had to really look at,” Gerke said. “When you insert a piece of technology like this into a training infrastructure that already consumes so much band-

width, you're putting another piece of technology on top of something that's already strained."

But verifying that their network could handle the increased demands of XRMentor's visual streaming was critical, "because the benefit of XRMentor and this technology is its live feed," Gerke emphasized. "Supporting that live stream within our locations was honestly the biggest thing that we had to solve for, because if it wasn't streaming correctly, then we all know what happens to the end-user experience: It degrades, things are choppy, you can't hear everything. And during our pilot, that's what we were really stress testing: the infrastructure across the organization."

But once these hurdles were overcome, Gerke reported that implementing XRMentor with Penske's incoming class of entry-level technicians was very smooth, especially as they took to the new technology far faster than Gerke and her team expected.

"A lot of them are used to electronic devices, they're used to learning through a virtual experience," Gerke stated. "So, getting their support was quite easy."

Even more so, the feedback Gerke has received from their technicians using XRMentor has been overwhelmingly positive, with technicians stating that their training through the AR technology has been engaging, clear, and a very different experience from gathering eight people around a single vehicle. Even more so, Gerke stated that the company has cut its training time in half.

However, Gerke and her team were concerned that the effectiveness of the virtually-assisted training might pale in comparison to the depth of learning that an entry-level technician might get from a fully in-person experience. But the repair data and inspection rates with technicians after their XRMentor sessions have revealed positive rates in accuracy and completion.

"Not only are we getting the training to them more quickly, the most incredible thing that we are seeing in our repair data is that it's working, it's actually effective," she said.

But along with these benefits, Gerke also stressed that

AR's potential for shops partially resides in its flexibility, a flexibility that Penske's program needed to succeed.

"I would recommend that the smaller companies who may not have the ability to invest should start really small," Gerke explained. "And also not necessarily use the technology as it's been marketed to do. When we entered it, we were not

comfortable making an investment where every technician in the shop would be wearing these devices. However, we were able to work with Design Interactive to limit the number of people who had the device." ■

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» A technician from A. Duie Pyle performs diagnostics on a truck.

A. Duie Pyle

Rise of diagnostic tools in the shop

Maintenance professionals discuss the need for more diagnostic tools in the shop.

By Mindy Long

As vehicles are becoming more complex, shop managers are increasing the number of tools per technician to help ensure technicians have the tools they need when they need them. Noregon's *Unpacking the Commercial Vehicle Diagnostic Market 2023* report found that there were four technicians per every one diagnostic tool in 2021 versus 6:1 in 2016. That gap is expected to further narrow to 2:1 by 2026.

Fleet Maintenance recently spoke to three shop operators to learn more about how their use of diagnostic tools and their technicians -to-tool ratio is changing.

These include: Bill Hill, owner of Mighty Auto Pro, an auto mechanic and auto repair center in Medina, Ohio; Dan Carrano, VP of fleet maintenance for A. Duie Pyle, a West Chester, Pennsylvania-based freight and logistics services company with 21 shops; and Tom McGuire, chief operating officer for Precision Diagnostics, a Madison, Wisconsin-based collision sublet provider providing service to more than 850 shops in the Midwest.

Here's what they had to say:

[The following has been lightly edited for clarity and length.]

Fleet Maintenance: Are you increasing the number of diagnostic scan tools available to technicians?

Hill: We have probably one-and-three-quarter tools for every technician. That is indicating

the vehicles we're working on are becoming so complex that we need more specialty tools for them. The pace of change is definitely increasing, and I expect the trend to continue.

Carrano: We are increasing diagnostic tooling and other shop tools. We used to have one laptop per shop, then we went to two and then three. We're in the process of purchasing more handheld devices for technicians. We believe that will aid us in providing more diagnostics. Without the right tools, it can delay a tech getting to the diagnostic part of the job. There is so much diagnostic testing that is done and the last thing you need are techs that can't do their job because they don't have the tools.

McGuire: Our physical sites see more shared diagnostic tool usage among technicians, and depending on the tool, we are closer to 2:1 in our physical locations. There are certain diagnostic tools that we run a 1:1 ratio on to improve overall efficiency as well as driving technician ownership of process and workflow. Our mobile fleet does truly elicit more of 1:1 ratio with each mobile technician generally being deployed with multiple diagnostic service tools to ensure OEM coverage and capability without delays to our end-user customer.

FM: How does tooling benefit technicians?

McGuire: The more access a technician has to tooling in "real time" the more efficiency opportunity is generated. The maximization of labor

and efficiency is also a byproduct of the skillset of the individual tech.

The more familiarity and the more exposure the technician has to tooling and fluency in that tool's workflow, the greater the efficiency and labor output will be recognized.

Carrano: You gain efficiency with technicians being able to start and finish a particular repair without having to stop and wait for a tool. Depending on the shop's capacity, moving job to job and moving trucks is inefficient. It isn't just the inefficiencies. If you're short on diagnostic tools, it builds a level of frustration for a technician. Having enough tools really lowers that frustration.

FM: Are shops purchasing the tools or are technicians buying them on their own?

Hill: I purchase the tools and all of the ongoing updates, which can vary in price from \$1,200 to \$1,800 per subscription. With the price of these scan tools—the last one I bought was \$6,800—I have to preplan for it. What usually drives me to buy a tool is how many times I don't have what I need. I also let my staff give me their input on what they'd like to see next. A lot of shops require technicians to have their own scan tools. In my opinion, when you have to buy the scan tool and then the ongoing subscription, you have to make sure technicians are making enough to make it worth purchasing it on their own, and that can be hard.

McGuire: With the cost of diagnostic tooling and general updates and training, we supply all our team with their tooling. To really focus on growing with the industry need, we want to be sure that the burden of tooling is left on us as a company and that our technicians are free to focus on repairing vehicles correctly.

We attempt to understand and make the investments needed to outfit our team members with every piece of equipment anticipated to drive customer resolution. I believe the trends the industry is beginning to see reflect the increasing complexity and dynamics of the diagnostic segment. To scale the diagnostics business and provide timely and accurate solutions, companies performing diagnostics for a living are going to have to increase their spend on tooling solutions.

Carrano: The shop purchases the diagnostic tools. Pyle has been supplying the shops with diagnostic tools ever since electronic controlled engines were introduced to the industry, which was at least 20 years ago. It's imperative that the techs have the necessary tools to properly diagnose complex electronic or electrical issues. Without them, they are just guessing until the problem goes away. We provide the latest diagnostic software that also allows us to follow OEM diagnostic procedures, which is generally the most effective and efficient process. Having the correct diagnostic tooling, and in many cases the latest/newest model, does help with retention because the techs like to see that Pyle is willing to invest in the tooling for them to do their job in the most proficient manner. ■



NFL QB's death puts trucking maintenance on trial

The civil lawyer representing the family of Dwayne Haskins, the Pittsburgh Steelers backup QB killed while crossing a highway, says poor maintenance and driver training may have contributed to the tragic death.

By John Hitch

A year after Pittsburgh Steelers quarterback

Dwayne Haskins was struck and killed by a dump truck while walking across a highway in Fort Lauderdale, Florida, the Broward County law firm representing his family filed a civil suit naming 15 different defendants, including the truck driver, owner of the truck, and trucking company.

Rick Ellsley of The Ellsley Law Firm, who filed the suit on behalf of Haskins' wife, Kalabrya Haskins, suggested undermaintained brakes and tires contributed to the 24-year-old's death.

"This truck was going faster than the speed limit, carrying excessive cargo, had brake system problems, and was traveling on low tread tires with separated sidewalls," noted Ellsley. The lawyer is a native of Columbus, Ohio, where Haskins shined on the field for the Ohio State Buckeyes.

A Level 1 inspection completed of the red 1994 Kenworth T800 truck three days after the incident did reveal brakes and tire issues that would have resulted in out-of-service violations had they been inspected prior to the crash.



» Dwayne Haskins, who had a record-setting year at Ohio State in 2018 and was named a Heisman Trophy finalist, was killed in April 2022 after his vehicle ran out of gas and he was struck on a Florida highway by a dump truck.

134041981 | dwong19 | Dreamstime

Ellsley pointed out that "the [police] report also notes that the driver refused to provide a blood sample to the police at the scene and still has not provided the alcohol test results."

This is also true, though police on the scene did not suspect the veteran driver, Oriel Patino, 46, to be intoxicated. Post-mortem blood tests did find high levels of alcohol, along with ketamine, in Haskin's system. He also violated the Florida statute barring pedestrians from walking on the highway. The Florida Highway Patrol determined Haskins was at-fault for the accident and no criminal charges were filed.

Because it involves a commercial vehicle and a dead NFL quarterback, fleets everywhere should be watching closely how this case plays



» Rick Ellsley, the lawyer representing Dwayne Haskins' family, is a native of Columbus, Ohio, where Haskins was a prolific quarterback for Ohio State Buckeyes and a Heisman Trophy finalist.

Courtesy of Rick Ellsley

out. This is the age of nuclear verdicts, after all, where liable trucking companies may be on the hook for multi-million-dollar payouts.

To help educate and protect fleets, here are the facts behind the case, followed by expert-recommended best practices to help fleets prepare for these worst-case scenarios.

The proliferation of nuclear verdicts

A 2020 ATRI report found that between 2010 and 2018, the awards received by plaintiffs in truck-related suits increased from \$2.3 million to \$22.3 million—about a 1,000% jump. From 2010 to 2019, Florida, Texas, and New York combined to have 575 verdicts over \$10 million, according to the U.S. Chamber of Commerce Institute for Legal Reform.

And nuclear verdicts damage the industry as a whole.

“There are other consequences to nuclear verdicts and inflated settlements,” explained Alix Miller, president and CEO of the Florida Trucking Association to *FleetOwner* last year. “They drive up insurance rates, divert money away from increasing companies’ workforce, and can delay purchasing new trucks and safety technologies. Ultimately, this affects everyone: the health of the economy, the supply chain, and cost to transport all of the goods we use.”

“[Verdicts] drive up insurance rates, divert money away from increasing companies’ workforce, and can delay purchasing new trucks and safety technologies.”

Alix Miller, president and CEO of the Florida Trucking Association

The fear of these payouts raises insurance premiums and makes it harder for commercial vehicle operators to stay in business. In 2022, lawsuit abuse reform was at the top of fleets’ concerns, according to American Transportation Research Institute’s rankings. The American Trucking Associations has taken an aggressive stance in speaking out against nuclear verdicts and advocating for tort reform as well.

The Haskins crash facts

The accident took place on April 9, 2022, at 6:36 a.m. while the 24-year-old Haskins was attempting to cross the westbound lanes of Interstate 595 (State Road 862) in Fort Lauderdale. His rented pickup truck was parked on the northern shoulder of Interstate 95 (State Road 9), a little less than a half-mile west from the crash site, where it had run out of gas. Video surveillance from 30 to 40 minutes

prior to the accident showed Haskins made it to a 7-Eleven on the south side of State Route 84, one mile from his disabled vehicle. The report noted he was visibly intoxicated and had trouble keeping his balance while filling the gas canister.

A toxicology report from the Broward County Medical Examiner’s Office revealed the former NFL first-round pick had a blood alcohol content (BAC) as high as 0.24—three times the legal driving limit in Florida. Haskins had been at four drinking establishments that night, most recently an all-hours nightclub, according to witnesses in the report.

Instead of making it back to the parked rental vehicle, Haskins ended up on I-595, where he was eventually hit by Patino’s truck.

The Florida Highway Patrol conducted a Level 1 inspection of the Kenworth T800 on April 12, 2022, and found three out-of-service violations. These included brake systems pressure loss, tire tread and/or sidewall separation, and an audible air leak from the right rear tire. The FHP investigative report noted “because [Patino] did not have time to react and apply the brakes to [the truck], these violations did not contribute to this traffic crash.”

Law enforcement did not charge Patino, who had driven commercially in the area since 2006 and the 1994 dump truck for the last two or three years. Police at the scene found no signs of Patino being intoxicated. He started his shift at 3 a.m. The Florida Traffic Crash report noted that Patino’s actions did not contribute to the accident. Patino declined the voluntary blood test and told investigators his company would administer one, per their policy. Ellsley said he has not seen these results yet.

The investigation, which included a statement from several witnesses, concluded Haskins himself, along with poor visibility, caused the accident. At the time of the collision, he was wearing a black shirt and black pants, was walking in the center lane, and was under the influence of drugs and alcohol.

The highway also lacked streetlights and the sun had not yet risen, which made it difficult for vehicles to see Haskins until the last moment. A few witnesses reported having to swerve to narrowly avoid him. Patino told investigators he saw other cars swerving and upon seeing Haskins in the center lane and attempted to do the same. The left-front side of the truck collided with Haskins, who hit the asphalt and slid for 168 feet. Patino told police he was going 55 mph; the speed limit was 65 mph.

A forensics investigation of the engine control module (ECM) could not determine the speed, and the imaging done by Kears Kinetic Engineering and Accident Reconstruction yielded “only generic information and nothing that was specific to this traffic crash,” the report stated.

The civil complaint was dated March 23, 2023, and filed with the Broward County’s 17th Judicial Circuit. The suit named Patino, along with truck owners Pedro Diaz and Sorrell Enterprises—which hires owner-operators as drivers—as defendants, along with the Florida

Department of Transportation, and the four businesses where Haskins was served alcohol. Haskins’ companions, who Ellsley suggests may have “targeted and drugged [Haskins] as part of a blackmail and robbery conspiracy,” were also named in the suit.

The justification for the suit

After filing the civil suit, Ellsley spoke to *Fleet Maintenance* to explain why he is pursuing the case.

He stressed that while “overregulation is never a good thing,” the transportation industry needs sensible rules and standards “to help ensure public safety.”

And oftentimes, he said, the public is at risk. “What we see frequently in South Florida are old, undermaintained trucks operated by very small mom-and-pop carriers, brokers, and drivers, that would not know where to even look for safety regulations,” explained Ellsley, who has been practicing civil law for 23 years and is a board-certified specialized lawyer. “I see aggregate trucks going from Port Everglades to Medley on a daily basis that are a complete mess.”

The truck in this case was nearly 30, though many old trucks can still perform their jobs safely. To uncover if the driver or trucking company could—or should—have done anything to prevent Haskins’ tragic death, such as provide better maintenance, the civil suit was necessary, Ellsley said.

“Subpoenas will help us get more information about this particular truck and driver, as far as the maintenance records, the alcohol testing, and cell phone records, which we cannot do without a subpoena power provided by a lawsuit,” he said.

Ellsley also said he understands his job puts him at odds with the trucking community, for whom he said he has great respect, but he wants truck operators to consider public safety as a very high priority and also their financial liability before putting any undermaintained truck on the road.

“There is a consequence to putting these vehicles on the road with all these violations,” Ellsley said.

Lessons learned

In this case, despite the plaintiff’s lawyer’s claims, the reports written by law enforcement concluded that no driver was culpable. Still, there is no telling what a jury will decide. Or if the trucking company named will settle to avoid trial.

After a high-profile truck crash in 2014, Walmart is believed to have settled for more than \$90 million after one of the retailer’s trucks hit a bus limo carrying actor Tracy Morgan and other passengers. Morgan sustained severe injuries and another passenger, James McNair, was killed. The driver, who was fatigued at the time, pleaded guilty.

Settling doesn’t always follow guilt. In 2020, police did not hold Werner Enterprises’ truck

driver responsible in a Texas crash that killed two children, but Werner settled for \$150 million. The company stated it was liable for \$10 million of that, with insurers covering the rest of the payment.

The trucking companies involved are nowhere near as big as Werner, which has 10,000 tractors. According to FMCSA records, truck owner Pedro Diaz has a fleet of seven power units. Sorrel claims to have a fleet of 250 owner-operated dump trucks. Litigating the suit will likely take a lot of time and money, neither of which many fleets can spare.

Patino appeared simply to be in the wrong place at the wrong time, but there are actions fleets can take to protect themselves.

Foremost is ensuring preventive maintenance and pre-trip inspection records are beyond reproach. Even if not at fault, a truck involved in a crash that is found to have maintenance violations opens the door for lawyers to subpoena more records.

Ellsley explained his goal as part of pursuing the case is to obtain the trucking company's safety, maintenance, and training records.

This is now common practice with accident lawyers.

According to defense attorney Rob Moseley, founding partner at Moseley Marcinak Law Group, plaintiff's lawyers "are willing to work hard to understand the trucking business and willing to try a case."

They look up FMCSA records and scour through any and all relevant documents to seek out negligence and/or malfeasance.

"They try to find things that you would have found if you were doing what they contend you should do," Moseley explained in a 2020 *FleetOwner* webinar on nuclear verdicts. "Big verdicts are usually preceded by some sort of conduct, not from the driver, but from the motor carrier management."

Ellsley said he does "a fair amount of trucking cases" and noted he has been recognized for his ethics and professionalism. And unlike billboard lawyers, does not advertise on billboards, television, or radio, relying on referrals.

Moseley said a trucking company should hope to recognize the opposing lawyer's face

from oversized highway posters. "The best day for you is if you get sued by one of the billboard lawyers because they're likely not going to do the things that need to be done to put you on the ropes," he said.

Plaintiff's lawyer Jeff Burns, founding partner of Dollar, Burns & Becker, advised that the best defense is to spend the money on safety, which

means driver training, spec'ing and properly maintaining adequate brakes and tires, and adding collision mitigation technology.

"If the reason for the failure was [the motor carrier] was putting profits over the safety of the motoring public, the closer I can get to showing malice or indifference to safety and shooting for punitive damages," Burns said. ▀

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Simplifying engine oil sampling

How fleets can take preventive maintenance up a notch with the right oil sampling tools and techniques.

By Gregg Wartgow

While a dipstick offers technicians a few visual indicators about an engine's oil—such as volume and viscosity, and if it needs to be changed—a properly executed engine oil analysis will provide valuable insights they cannot see. These insights can help fleets not just in the moment, but for a long time after. Data provided from such an analysis will provide a fleet maintenance manager the confidence to extend out drain intervals when conditions are favorable or take corrective action when issues like oxidation, contamination, or metal wear are discovered. This, in turn, keeps trucks on the road and technicians from chasing new problems.

But when to start?

Steve Bowles, senior product specialist for lubricants at Citgo Petroleum, said it is wise to begin regular sampling after the first couple of oil changes.

"It's important to establish a baseline," Bowles said. "Oil analysis is largely based on historical

trends. Once you have a baseline, you can start to see when things are climbing or going down, alerting you to the fact that something is going on."

Once a vehicle is through its initial break-in period, an efficient approach is to draw an oil sample at every oil change. Bowles said some fleets choose to do it even more frequently.

Whatever the case, consistency is the key.

Mastering the collection method

There are a few ways to collect an engine oil sample.

"Whichever method you're using, it's always important to clean the surface around where the sample is being taken," Bowles said. "You also want to take a sample after the engine has been running for 15 to 30 minutes. That way, the oil is still hot and representative of what it's like inside the engine."

A common method is to use a vacuum pump and go in through the dipstick tube. Though far

less common and typically not recommended, a technician could also take the sample out of the drain port.

"If you take your sample when the oil is being drained, wait at least five seconds before catching it midstream," said Karin Haumann, OEM technical services manager for Shell Lubricants. "That way you won't be collecting heavy metals or other deposits lying at the bottom of the pan."

Some fleets choose to install an oil sampling valve. Products like the KP Pushbutton from Checkfluid can help save time while enhancing the consistency.

"A pushbutton valve with a built-in probe takes a lot of the potential variability away," said Bernie Hall, general manager of Checkfluid. Since the probe is built into the valve and the valve stays on the engine, there is less risk of cross contamination.

Once a valve is installed, the technician simply pushes a button to draw a sample into a bottle.

"Be sure to thoroughly purge the sample valve and related tubing prior to filling the oil sample container," noted Darryl Purificati, Sr., technical advisor, OEM/automotive for Petro-Canada Lubricants, an HF Sinclair brand. "Also confirm that the sample container has been kept clean prior to taking the sample."

"Sometimes a technician wants to wait and send in 10 samples at once. But that doesn't work if a couple of those samples have to sit around the shop for a couple of weeks. They can start to oxidize more if left in the sun, for example."

Steve Bowles, senior product specialist for lubricants at Citgo Petroleum

First, a fleet has to install the valve. Predetermining where to install the valve helps ensure that the right valve and thread type are chosen. Valve manufacturers like Checkfluid can provide guidance. Fleets could also look to their lubricants providers for advice.

Purificati said it's a good idea to install a sampling valve after the engine oil pump, but before the oil filters. Then it comes down to personal preference and the technician's quest for efficiency.

"With a good plan in mind and a bit of wrench turning, you're typically looking at a 15-minute install, at the most," Hall said. Sometimes a "remote access solution" is needed, which

involves routing a high-temperature hose from the engine port to a location where the valve can be more conveniently mounted.

“With a properly installed sampling valve, it might take a technician a couple of minutes from start to finish to take a good sample,” Hall said. “Using a vacuum pump might take 15 or 20 minutes.”

That doesn’t mean a vacuum pump can’t be an effective method, too. The key is making sure it is used correctly.

Ryan Stark, president of Blackstone Laboratories, a provider of oil analysis programs and products, said the tube should be inserted slightly past the head in the pump. This helps ensure that the oil goes directly from the tube into the bottle, avoiding a mess the technician has to clean up. It’s also important to draw the sample in a controlled fashion so the bottle isn’t overfilled. According to Stark, the typical technician won’t need more than a few minutes of training to get the hang of it.

Stark also said it’s important to make sure the tubing is clean to avoid cross contamination between samples. Some fleets choose to use new tubing every time. Stark said that should not be a deterrent to using a vacuum pump.

“The 1/4-inch tubing is inexpensive and readily available at any hardware store,” Stark pointed out. “But I don’t think you necessarily need to change it every time. I drain my tubing at home into a paper towel and just reuse it. In my mind, the risk of cross contamination is minimal if all the oil is completely drained out.”

Whichever collection method is used, a shop’s oil sampling processes should be geared toward one thing: consistency.

“It’s helpful when you can keep things as consistent as possible,” Citgo’s Bowles said.

If possible, have the same technician pull the sample each time. Also, be sure to draw the sample the same way and from the same location each time.

“Consistent samples lead to consistent results,” Bowles reminded.

No time to waste

As critical as it is to get it right, collecting a sample is just the first step. Fleets also need good processes around getting that sample analyzed. Time is of the essence when sending a sample into a lab.

“Any snags usually happen on the front end,” Bowles said. “Sometimes a technician wants to wait and send in 10 samples at once. But that doesn’t work if a couple of those samples have to sit around the shop for a couple of weeks. They can start to oxidize more if left in the sun, for example. Plus, if there is an issue going on with the engine, the fleet loses time in taking corrective action. With oil sampling, you want the results as quickly as possible. A good lab will usually knock it out in a day or two once they receive the sample.”

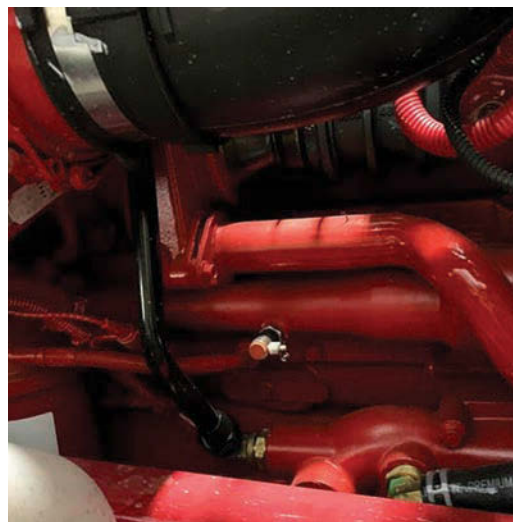
For that to happen, though, the technician needs to fill out all of the paperwork correctly.

“Information like vehicle ID, engine oil brand and viscosity, mileage, etc. is important to give



» When using a vacuum pump, it’s important to make sure the tubing is fed slightly past the head of the pump to ensure that all of the oil goes into the bottle.

Blackstone Laboratories



» A Checkfluid KP Pushbutton Pressurized Oil Sampling Valve installed on a Cummins X15 engine. To draw a sample, remove the cap on the spout; no oil will come out until the valve is activated. Rotate the spout downward or sideways to the desired fill angle into the bottle. Then push to open and release to close. The valve shuts off instantly and automatically with no drips or mess, the company said.

Checkfluid



» The MicroLab 40 On-Site Oil Analyzer can help some fleets bring oil analysis in-house, especially fleets looking to test a large volume of oil samples each month.

Ametek Spectro Scientific

to the lab,” Bowles said. “If the lab doesn’t get that information, there isn’t much they can do with the sample. The better the information you send in, the better the information you’ll get back.”

Working with a good lab is also important. Bowles said a good indicator to look for when selecting a lab is an ISO/IEC 17025 accreditation for testing and calibration laboratories.

In certain instances, it might make sense for a fleet to consider bringing oil analysis in-house. We’re not talking about those test strips that cost one or two bucks apiece and check for the presence of coolant in fluids. Companies like Ametek Spectro Scientific manufacture high-tech fluid analysis equipment designed to bring the lab to the shop.

Bob Wopperer, senior director of business development for Ametek Spectro Scientific, said their most popular machine for fleets is the MicroLab 40 On-Site Oil Analyzer.

The acquisition cost is around \$100,000. Thus, a fleet would want to consider the volume of oil samples it plans on testing, along with the other inherent benefits of bringing oil analysis in-house. Wopperer said most vehicle fleets using their equipment are maintaining several hundred vehicles.

One of the inherent advantages of in-house oil analysis is time savings. The technician draws a sample just like he or she would if working with a lab. But instead of having to package that sample and mail it to a lab, the technician simply sets it on the in-shop machine, attaches a sipper straw, enters a bit of information, and presses start. The technician can then get back to working on the vehicle while the machine runs its test, which Wopperer said takes 10 to 15 minutes.

Another benefit is having the ability to get immediate results and take immediate action. Even with the best processes in the world, a fleet will end up waiting at least a few days for results when mailing samples to a lab. With in-shop equipment, a thorough report with maintenance recommendations is just minutes away.

Whether working with a lab or attempting to run an oil analysis program entirely in-house, Petro-Canada’s Purificati said many fleets feel like they simply don’t have the time. Others lack confidence in their ability to interpret the data.

“We always recommend seeking advice from a lubricants expert, like a technical service advisor, who can use their expert insight and experience to provide analysis and highlight trends in a report’s findings,” said Purificati, who is also the current chair of the American Petroleum Institute’s lubricants committee.

Speaking of reports, Purificati said the best labs and technical advisors will take advantage of digital diagnostic tools that provide 24/7 access to reports and data. This adds further value for a fleet.

“Digital oil diagnostics can help fleets stay one step ahead, proactively tracking where maintenance is needed while making predictions about where it will be needed in the future,” Purificati said. That, in essence, is what good engine oil analysis and preventive maintenance in general is all about. ■



95012773 | Getty Images

Due to the threat of thieves stealing cargo and components such as catalytic converters, fleets and shops must become more vigilant by relying on cargo and security cameras to catch bad actors in the act.

By Faith Boone

There's nothing new about thieves targeting commercial vehicles and their freight. But the theft of cargo is on the rise. And even when not holding cargo, commercial vehicles' valuable components, like catalytic converters, still make them prime targets. Now more than ever, management must consider the risk of theft wherever these trucks are parked and take preventative measures by adding cameras to detect and implicate any criminals trying to pilfer your goods and assets.

First, let's look at the negative trend. Data from CargoNet, a theft prevention and recovery network, indicates a yearly 17% increase in thefts involving a semi-truck or semi-trailer, with cargo thefts increasing by 20% year-over-year, from 2021 to 2022. CargoNet also reported that almost 1,800 theft claims were made by its members in 2022. That 15% increase from 2021 totaled a more than \$223 million loss.

According to Danny Ramon, intelligence and response manager at logistics solution provider Overhaul, there's an increase in high-value pilferages when cargo is stolen from a trailer, as opposed to the trailer itself being stolen. What was once a typical 10% or so pilferage of a 53-ft. trailer is now seen with nearly 90% or more of the cargo stolen.

Chris Corlee, product management director at trailer technology provider Orbcomm, said losses from cargo thefts in the U.S. are estimated at over \$30 billion annually. The FBI has stated in the past that the number is about \$15-30 billion annually.

"While it's challenging to get accurate data on the exact number of cargo theft incidents, indus-

try reports suggest that the number of thefts has been increasing in recent years," Corlee says. "In the United States and Canada, thefts are typically attempted when trucks are parked at insecure locations, either breaking into the trailer or taking the vehicle. Hijacking remains the leading type of cargo theft in North America, accounting for 69% of all recorded cases in 2020. Idle times across the industry drove a significant uptick in cargo theft at rest."

One of the troubling stories Corlee remembers involved hijackers targeting reefer trailers as they traveled near the U.S. border.



» Orbcomm's CS-500 camera sensor allows users to see the inside of the trailer and validate the state of cargo to prevent damage and theft. Pairing with a door sensor also lets fleets know if an unauthorized person has gained access to valuable cargo.

Orbcomm

"The reefers are whisked across the border, contents emptied, and then the trailer is used for human smuggling and unauthorized immigration," Corlee said.

Location and part targets

Cargo is not the only thing thieves are after. The vital components of commercial vehicles, particularly catalytic converters, are also fair game.

"In the United States, catalytic converter thefts have skyrocketed, with some areas reporting more than a 400% increase in thefts between 2019 and 2020," noted Brian Joseph, Jr., operations manager at an Akron, Ohio-based body shop called Fleet Fast.

Joseph, Jr. said one reason for the rise in catalytic converter thefts from fleets is the increase in value for precious metals like platinum, palladium, and rhodium. He noted that thieves target fleets and repair shops, and that not investing in parking and security cameras can be quite costly.

"We experienced theft of a DPF system before we started utilizing secured lots for overflow parking," he said. "That was an expensive mistake."

Some of these thefts lean on the more dangerous side, with Joseph, Jr. recalling stories locally and nationally about thieves using weapons such as firearms to forcefully take catalytic converters and DPF systems during the day.

Phillips Connect CEO Rob Phillips agreed there is a rise in cargo and catalytic converter thefts in recent years, with thieves targeting valuable commodities such as electronics, pharmaceuticals, and metals.

Phillips Connect specializes in trailer telematics and connectivity, and its line of SmartLock products focus on ensuring only designated personnel can move or unload a trailer.

"Fleets should be aware of this trend and take steps to secure their cargo and vehicles," Phillips says. "Cargo theft has become increasingly common, and thieves are often using more creative and sophisticated methods to carry out their crimes. A thief removing and then welding back swing doors is a prime example of this. Thieves may also use hydraulic tools or cutting torches to gain access to cargo or other valuable parts of the truck."

Corlee said there are other items on trucks thieves are also interested in, such as fuel and tires.

"Fuel theft is an ongoing issue faced by fleets, often occurring with assistance from internal resources," he noted. "Fuel is siphoned from the truck's tank and sold, or on occasion, company-provided cards are used to fuel other vehicles."

How cameras can prevent cargo theft

Joseph, Jr. said cameras are a visible deterrent, they can gather evidence, and they can alert you due to motion or suspicious activity through the use of AI. This makes cameras a key component of fleet security.

"Innovative technology can help curb cargo thefts," Corlee agreed. "Fleet managers can now count on many tech resources to increase the visibility of their assets."

Phillips said choosing the right location for the cameras is essential. Installing a camera at the back door of the semi-trailer can be particularly effective for monitoring the cargo and detecting any attempts to tamper with the door or steal the cargo.

“Pairing the cameras with a door sensor can trigger camera events whenever the door is opened or closed,” he said. “This can help to ensure that the camera is capturing footage at the right time and can provide a more complete picture of what’s happening in and around the trailer.”

Types of cargo theft cameras and sensors

There are several solutions to address the rising theft problem.

For example, Phillips’ Connect1 fleet analytics platform offers complete insight and management of a fleet. Phillips said the Connect1 user interface can be customized to send alerts if multiple tires on the same trailer show fast deflation, which can indicate tire theft. Using tools and techniques like this can help fleets proactively prevent tire theft and protect their assets.

“Storing the camera footage in the cloud via Connect1 can provide an additional layer of security, as the footage cannot be lost or removed,” Phillips said. “This can be particularly important in the event of a theft, as it can provide valuable evidence for law enforcement and insurance purposes.”

According to Joseph, Jr. these cameras can help prevent parts from being stolen, including batteries, windshield wipers, mirrors, and even grilles.

Both Phillips and Joseph, Jr. said the key to using cameras effectively for cargo security is to choose high-quality cameras. Phillips said to look for ones designed for use in semi-trailers specifically and

to pair them with other security measures such as door sensors and alarms. Joseph, Jr. mentions a few good features to look for in a security camera: night vision, wide-angle lenses, motion detection, two-way communication, weatherproofing, and remote access.

“Configure the camera system to send notifications or alerts to fleet managers or security personnel when suspicious activity is detected,” Joseph, Jr. says. “This can be done through email, text message, or app notifications.”

Joseph Jr. said teaming up with a security company that provides years of experience with cameras and troubleshooting is the way to go. He said it has helped Fleet Fast keep its cameras up and running.

Orbcomm’s door sensor solutions, Corlee said, allow for identifying unauthorized door openings and closing to capture potential theft. They can also define the locations for open or closed doors by setting geofence perimeters. And cargo camera sensors can be installed to see the interior of the trailers and check cargo integrity.

“Therefore, with technology, [drivers] can easily be informed about any unauthorized or unplanned access to their cargo and take immediate action to mitigate loss,” Corlee said.

Corlee explained that Orbcomm’s solutions are “purpose-built and ruggedized for the demands of the transportation industry” and are made to be maintenance-free.

“In the event of damage or mishap, the units are designed for a simple remove-and-replace process that minimizes the required downtime between loads.”

AI-powered cameras bring a new wave of security for fleets, docks, and shop yards. Choosing the right camera can also depend on the kind of range and accessibility you need to accomplish the goal.



» Phillips Connects’ SmartLock Door replaces the standard seal on a trailer door and can only be unlocked by authorized fleet personnel, or automatically in designated locations via the Connect1 platform. It installs in about 5 minutes.

Phillips Connect



» Orbcomm’s solutions monitor unauthorized cargo access via geofencing on a trailer’s doors.

Orbcomm

The Nio, an AI-driven camera from iDter, can detect intrusions before a crime occurs. Truck dealerships use the device to catch thieves trying to lift fuel or other parts of their trucks. Nio can sound an alert, flash lights, and have a voice say the police are being notified. And, they actually will be called. If you need a camera to detect motion in combination with video analytics, the Nio has both features. ▀

What to do if a theft occurs

Rob Phillips, CEO of Phillips Connect, said there are several best practices to follow after a theft has occurred.

- 1. Secure the area:** If possible, secure the area to prevent further loss or damage.
- 2. Preserve evidence:** Avoid disturbing any potential evidence and document the scene as thoroughly as possible, including taking photos or videos.
- 3. Notify stakeholders:** Notify any relevant stakeholders, such as the fleet owner, insurance company, and cargo owners.
- 4. Review security measures:** Review the security measures in place to identify any weaknesses.
- 5. Cooperate with law enforcement:** Provide police with any information that may be helpful in their investigation.
- 6. Conduct an investigation:** Conduct an internal investigation on how the theft occurred and how to prevent it.

Taking these steps can help minimize the impact of a theft and increase the chances of recovering assets.

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In the midst of change, trucking needs to foster excitement

As we plug our way through the messy middle of zero emissions and technological transformations, it's important to keep the industry's younger members engaged.



By Ed Chipalowsky

VEHICLE SERVICE AND SUPPORT MANAGER

Ed Chipalowsky is a vehicle service and support manager for the North American Council for Freight Efficiency (NACFE), where he reaches out to OEMs, fleets, vendors, and municipalities to learn about their challenges in developing curriculum for EV technicians and recruiting more. Chipalowsky has more than 40 years of experience as a technician manager and trainer, including serving as a diesel technology instructor.

No one has ever claimed that trucking was a risk-free and easy occupation. But many have proclaimed that their love for trucking runs in their veins. In order to weather the storms the trucking industry faces, we must remain curious and cautiously optimistic.

On the last day of the vendor displays at the American Trucking Associations' Technology & Maintenance Council's 2023 Annual Meeting, I passed three young technicians carefully clutching all the free hats they had picked up from vendors who were happy to give them away. Their smiles and laughter were infectious to others who watched them pass by, struggling to hold on to all their treasures. I mention this because it represented the excitement of many who are witnessing a transformation in trucking technology—the likes of which we have never seen before. As managers, it is your responsibility to share a level of excitement and optimism with your employees so that they can successfully navigate these turbulent times.

An article from Schneider, *How technology is transforming diesel technician careers*, identifies six ways that new technologies are transforming technicians' careers, such as how they can ease their physical burden. The caveat: this technology also increases the need for additional education in multiple disciplines, including electrical. The article concludes that "...overall, the advancement of technology has made trucks more fuel efficient, driver-friendly, and safe."

This is wonderful to hear since it projects all the great efforts that go on behind the scenes to maintain a positive morale within the Schneider organization. Technicians are often falsely accused of only caring for the paycheck, but in many cases their primary concerns are with customer satisfaction and doing a job well.

Jane Clark, VP of member services at NationaLease, wrote in a blog titled, *Ensuring Your Technology And Technicians Are Compatible*, "Techs are already having to learn new technology constantly, including telematics. Now, these technicians will have to learn to operate on two kinds of engines, diesel and electric."

The powertrain options are growing in leaps and bounds with hydrogen fuel cells (HFC), hydrogen-injected internal combustion engines (H2ICE), biofuels, biodiesel, compressed natural gas, and more being added to diesel and battery electric vehicles (BEV).

With all these choices, I wonder if your technicians have the love for learning and excitement of discovery for the future. They sure will need it in order to be effective in the future.

Let's look at some U.S. truck technician demographics and statistics from ZIPPIA, a career expert site. Of the 22,839 truck technicians pulled from 30 million profiles, 3.6% were female and 96.4% were male with an average age of 42 years for all techs. The article also had statistics about ethnicity of technicians with 66.2% White, 15.6% Latino, and 9.6% Black. The average salary for a tech was \$44,554. One disparaging note was that female technicians earned \$2,000 less than similarly qualified males. That's one statistic that may prevent women from entering the field and needs to be corrected immediately.

With my background of more than 45 years as both a truck technician and educator in diesel technology, I have experienced my fair share of managers that always had your back, and others who always rode it. But that was in a time when all trucks were mechanical, and skills were mostly gained via on-the-job training.

We can talk and learn all about the new zero-emission vehicles that are being designed, but if we fail to get technicians excited about working on them, our efforts, reports, and charts will be useless.

The acronyms used today—BEV, H2FC, NG, H2ICE, CARB—are worlds apart from yesterday and are the new norm that technicians must not only understand but embrace. Along with this is a growing positive public perception of the skill level required to become a truck technician and wages that are beginning to match knowledge levels. Technicians of today are highly skilled and embrace technology. They can even learn better and quicker utilizing augmented reality as their method of choice. Technician excitement can be fostered via technician skills competitions, mentorship, and working with your local career and technical education public high school.

Remember the young techs with their hats from the beginning of this article? I bet they brought them back to their shop and passed them out to all their buddies while laughing about how they got them and raving about all the incredible technology they saw at TMC. Their enthusiasm will encourage others to see and learn more. Let's hope they get the management support they need to keep the excitement going. ■



FLEET PARTS & COMPONENTS

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

» Provides additional traction in mud and snow

Continental's Conti Scandinavia HD3 tire

is a drive axle tire designed to perform in extreme weather conditions. Featuring two-stage sinusoidal siping and two-layered tread construction, the tire is suited for bearing long-haul and regional vehicles through both snow and mud. With its Generation 3 winter compound and directional tread, the HD3 encourages even wear and traction and is also Three Peak Mountain Snowflake certified. Additionally, the tire's casing includes an extended fourth belt for greater retreadability, with the matching retread ContiTread Scandinavia HD3 size 210-240. The Conti Scandinavia HD3 tire is available in two sizes: 11R22.5 and 11R24.5, load range H, and has a tread depth of 27/32". Finally, the tire is also available with monitoring sensors if desired.

➔ For more information visit FleetMaintenance.com/53057143



» Monitors real-time and post-storm data

The **FleetPilot Connect** system from **Certified Power Solutions (CPS)** is purpose-driven to provide real-time and post-storm updates for snow-removal fleets. The system includes integrated spreader control systems and backwards compatibility to other Certified Power and Cirus Controls devices, allowing upgrading over time. Additionally, FleetPilot Connect provides telemetry data across an entire fleet, allowing equipment managers to better address winter road maintenance and streamline operations.

➔ For more information visit FleetMaintenance.com/53058170



» Designed for maximum efficiency and run time

The **e910 Series Electronic Power Take-Off (ePTO)** from **Parker Chelsea** can be installed on either BEV-electric or hybrid-electric vehicles. Although it is the smaller product of the ePTO series, the company stated that it produces 10kW nominal power and offers several gear ratios to maximize output torque. Designed for light-medium duty applications, the e910 Series features an efficient Denison Vane Pump that can be configured for multiple flow rates and pressures and utilizes internal lubrication to prevent overheating with oil-bathed bearings and pressure-lubed gears.

➔ For more information visit FleetMaintenance.com/53058165



» Safe and ergonomic operation

FoldPro Shelving from **Safe Fleet** offers effortless shelving functionality for Transit, Sprinter, Promaster and Box Truck vehicles. The shelves are made of lightweight aluminum that achieves 60 lbs. per linear foot weight capacity, the company stated, and that can be operated one-handed with a latch mechanism that holds itself closed. When not in use, the shelves can be stored vertically and can be adjusted by height for maximum safety.

➔ For more information visit FleetMaintenance.com/53058159



» Detects and alerts for drowsiness

MobileMule AI from **Safe Fleet** is an AI-powered dual dash cam that can upload footage to the cloud while monitoring for drowsiness, sleeping, seat belt usage, distracted driving, and phone usage. The product includes facial recognition software that connects drivers to their routes and vehicles, as well as records external events such as sudden braking, excessive acceleration, and harsh cornering. However, the software still protects the driver's privacy with blurring or blackout options, and includes an easily accessible panic button.

➔ For more information visit FleetMaintenance.com/53058155

» Maintains proper shoe-to-drum clearance

Motor Wheel's Automatic Brake Adjuster

reduces the time techs spend beneath a vehicle and includes several features to ensure trucks are up to code and operating safely. Easily installable in the shop or in the field, the actuators include heavy-duty internal components with a clearance-sensing clutch, protecting the adjusting components during normal brake applications. Among the adjuster's main features is its AUTO-CHECK, an optional element that lets a tech check the air chamber stroke without going under the vehicle, a high-strength gearset for durable operation, and a blue powder coating for winter weather.

➔ For more information visit FleetMaintenance.com/53058138



» Includes everything to install a 4x4 TR-4050 5-speed 4WD transmission

American Powertrain's Square Body Chevy/GMC 4x4 kit for the TREMEC TR-4050 5-speed, 4W manual transmission is designed to fit 1973-1987 pickups and SUVs. This includes Suburbans, Jimmys, and Chevy Blazers. Included in the kit is an aluminum Bellhousing, a Hydramax hydraulic clutch and components, flywheel and bolts, trans mount, pilot bearing, harness and shifter, shifter knob, a transfer case adapter for the 10-spline NP205, and all other necessary hardware. Available upgrades include the shifter, clutch, and more.

➔ For more information visit FleetMaintenance.com/53058148





» Provides capacity and durability

Maxon's **GPT series liftgates** are meant to handle high-capacity loads of up to 5,000 lbs. and are constructed of lightweight, rust-proof aluminum, the company stated. Featuring a large platform of 60" by 80" for palletized cargo and torsion springs for easy access, these liftgates also can include recessed dual cart stops on request. All Maxon lifts include a galvanized finish and can come with single or flexible step kits.

For more information visit FleetMaintenance.com/53058161



» Offers precise control functions

The **Allied Touch** from **The Godwin Group** is an all-in-one, entry-level open loop electronic control hydraulic system. This base model 9-channel mobile hydraulic system offers incremental control for dump and plow vehicles, as well as 2- or 3-channel spreader controls. The system also includes bi-directional tarp functions and auto safety shut-down circuits for low oil and Power Safety circuits in case of electrical issues.

For more information visit FleetMaintenance.com/53058168



» Includes Bluetooth functionality

Cobra Electronics' 75 All Road is a wireless CB radio that includes push-to-talk (PTT) functionality with its built-in BlueParrott Button. This radio uses Cobra's dual-mode AM/FM CB with Digital Signal Processing (DSP) to provide clear sound with nine different BlueParrott headset model configurations, providing hands-free communication. The device also connects to smartphones and is waterproof, allowing for customized noise reduction levels.

For more information visit FleetMaintenance.com/53058153

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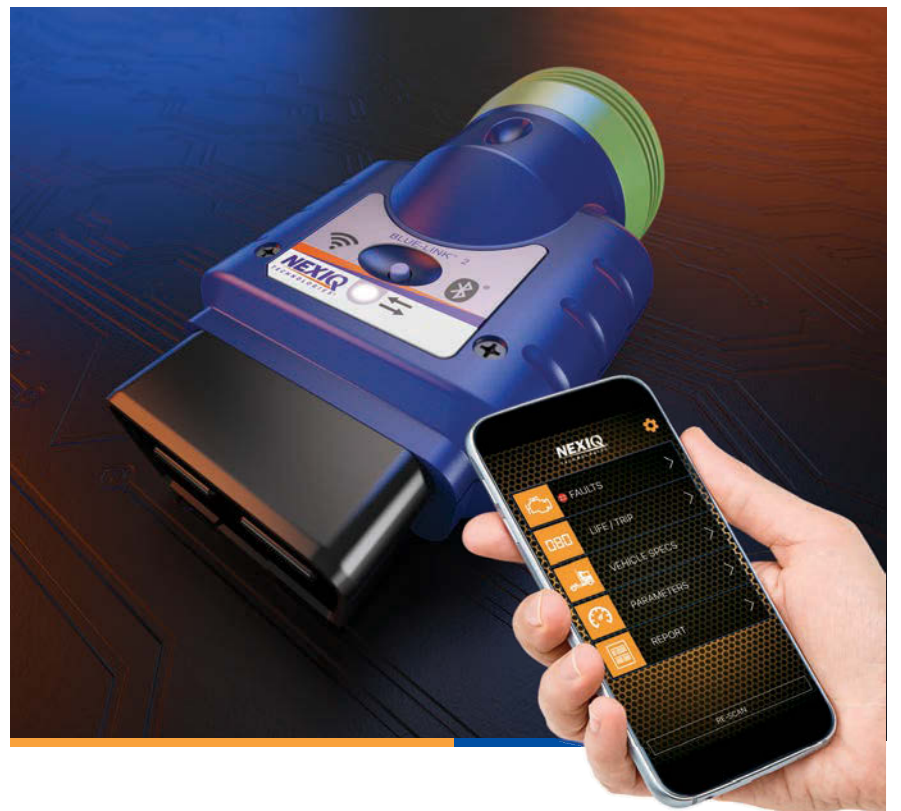
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» Provides improved mileage and efficiency

Bridgestone Americas Inc.'s Firestone FD694

drive tire is currently available in size 295/75R22.5 and will soon be available in three additional sizes: 11R22.5, 11R24.5, and 285/75R24.5. The tire features a deep and high-rigidity tread pattern

with a solid shoulder design that offers long, even wear across a wide range of applications; a wear-resistant tread compound; a cap/base compound engineered to enhance retreadability by protecting the casing from heat; wide shoulder and center grooves to help provide solid grip on wet roads; a casing optimized to fight irregular wear; and stone rejector platforms to help protect against hazards penetrating the belt layer.



For more information visit FleetMaintenance.com/53058133

» Integrates with traditional ICE and EV chassis

The **7,000W/240V inverter and Power Distribution Hub** from **Volta Power Systems** includes NMC li-ion energy storage packs that can scale from 6.7 kWh to 100+kWh. As well as this, the inverter includes a secondary alternator and customizable distribution, and is surge-rated to 15,000kW. Meanwhile, the Power Distribution Hub integrates either a 3,200W or the new 7,000W inverter-charger, and includes a custom DC conversion and optional MPPT solar controls to simplify energy distribution.



For more information visit FleetMaintenance.com/53058163

» Replaces tire valve cap

JohnDow's TPMS Retro Kit Sensors are for vehicles without manufacturers, the company stated, and can work with any air-filled tire. Available in External (DY-BLE-E) and Internal (DY-BLE-I) options, these sensors work with the Dynamic BLE app, allowing users to program and assign up to 36 sensors. The External sensors replace a tire's valve cap, and the Internal sensor is installed inside of the tire as normal. Together with the app, these sensors can provide alerts that warn of fast leaks, high/low pressure, high temperature, and sensor low battery from a phone or tablet.

For more information visit FleetMaintenance.com/53058146

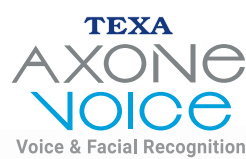


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TOOLS & EQUIPMENT

A roundup of the latest tool and equipment offerings.

» Weighing in at just 5.11 lbs

The **B360 and B360 Pro Fully Rugged Laptops** from **Getac Technology Corporation** features include an upgraded Intel Core 12th generation i5/i7 processor with integrated Intel Iris Xe graphics, an upgraded USB 3.2 port, a Thunderbolt 4 Type-C port, an upgraded HDMI 2.0 port, and the addition of a mini-SIM card slot. The B360 Pro has optional NVIDIA GeForce GTX1650 4GB discrete graphics controller and an optional media bay. Both laptops weigh 5.11 lbs.



➔ For more information visit FleetMaintenance.com/53028139

» Does not use any sliding parts

The **ARI-Hetra Heavy-Duty Platform Lifts (HDPL)** do not use any sliding parts thanks to their unique geometric configuration. Not only does this avoid wear on wheels or slide blocks but also eliminates the need for lubrication. Their maintenance-free joints are also designed to reduce machine downtime and there are no structural elements between lifting platforms, providing maximum accessibility in the working area. The lifts feature a mechanical locking device with automatic engagement and pneumatic release on each piston as well as electronic sensors that synchronize the pistons with auto-leveling and independent load distribution. Additionally, with an electronic control system and LCD screen, height per leg and adjustable maximum height limit is displayed.



➔ For more information visit FleetMaintenance.com/53042239

» Available in various colors

The **Cornwell Quality Tools ARCA Tool Storage** lineup consists of a 57" 8-Drawer Double Bank Roller Cabinet and a 79" 13-Drawer Triple Bank Roller Cabinet, along with canopies and lockers. The ARCA tool storage features dual-roll cage construction, Accuride drawer slides, a lock mechanism, 6" by 2" glass-reinforced casters, and a textured mid-gloss finish. The drawer slides operate well under load and reduce drawer droop when the drawer is at full extension. Latching also works well even if the box is on an uneven floor. Available in various colors: ignition orange, lighting yellow, torch blue, vapor, smoke, storm, and shadow.



➔ For more information visit FleetMaintenance.com/53057002

» Extended 11" reach

The **Matco Tools 8-pc Long Reach Pliers Set - Blue**, No. LRP8SETB, is designed to enhance the ability to reach the job at hand and access cramped, confined areas with an extended 11" reach for each plier. The pliers feature a dipped handle for added grip and comfort. The set includes long nose, 20 degree, 45 degree, and 90 degree bent nose, duckbill, 1/2" and 3/4" hose grip, and diagonal cutters.



➔ For more information visit FleetMaintenance.com/53056990

» Straightens tubing up to 3/8"

The **AGS EZ Fit Adjustable Tubing Straightener** is designed to straighten tubing including NiCopp, copper, aluminum, stainless steel, and plastics up to 3/8" in diameter. It can be used by hand or in a vice. It also has a wheel, allowing users to run it along a workbench or floor surface. Constructed of a corrosion-resistant plated steel body and eight stainless-steel rollers with nylon bearings to ensure smooth tube rolling. The adjustable open side entrance allows users to straighten lines that are already flared. Simply open the jaws, insert the line, use the hand lever to adjust to the tube diameter, and squeeze the handle.



➔ For more information visit FleetMaintenance.com/53042237

» Offers a quick-release mechanism

The **Snap-on Stubby Ratchet Line-up** now offers a quick-release mechanism to its 1/4" and 3/8" drive Dual 90 Technology stubby handle ratchets. With the quick-release mechanism, technicians have a positive locking feature that holds sockets securely in place but easily decouples with a push of a button, even if oily from use and when working in tight places, the rugged reverse lever makes for a smooth change of direction.



➔ For more information visit FleetMaintenance.com/53057000

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» Compatible with all DeWalt 20V Max tools

The **DeWalt POWERSTACK 20V Max 5Ah Compact Battery** is lightweight, weighing in at 1.5 lbs., to provide tool maneuverability, high precision, and reduced fatigue when used in tight workspaces. It features an impact-resistant, rubber over molded base and includes a charge indicator with three LEDs. The POWERSTACK 20V Max 5Ah Compact Battery offers 50 percent more power than DeWalt's previous 20V Max 5Ah Battery (DCB205). Battery is compatible to work with all DeWalt 20V Max tools and chargers.

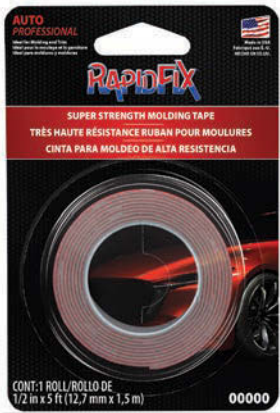
» For more information visit FleetMaintenance.com/53056981



» Reaches a maximum length of 77"

With 2,000 lm and a UV function, the **NextLED UV Detachable Underhood Work Light**, No. NT-EF2200LF, provides optimal lighting to help users get the job done. The 8000mAh battery ensures long-lasting use and the retractable design allows for a maximum length of 77", fitting any hood size. Plus, it comes with two separate light bars, both of which can be rotated 360 degrees when hanging on the improved cast aluminum frame design which can withstand weight up to 10 lbs.

» For more information visit FleetMaintenance.com/53058037



» Bonds to most surfaces

The **RapidFix Extreme Bond Molding Tape** is an acrylic dual-sided tape system. The durable tape bonds to most surfaces and can withstand extreme temperature fluctuations and weathering. Automotive uses include attaching trim, window muntin bars, body side moldings, rocker panels, emblems, and cladding. The tape's strong adhesive surface can also be used to pull dents, patch holes, and make minor automotive repairs.

» For more information visit FleetMaintenance.com/53058038



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TOOLS & EQUIPMENT

Has a built-in OBD-II

The **Matco Tools Maximus TPMS 3.0 Diagnostic Tool**, No. MDMAXTPMS3G, provides functions like suspension diagnostics, fuel economy, oil life, and more. The pocket-sized TPMS tool features an icon-wireless touchscreen, one-touch wireless Wi-Fi updates, built-in OBD-II, and a customizable background color interface. Additionally, it's able to read all vehicles equipped with TPMS through 2022, offers upgrades and software updates, and keeps customer records including stored history and record storage.



For more information visit FleetMaintenance.com/53042228

Charges battery packs of up to eight batteries at once

The **AutoMeter Fully Automatic Heavy Duty Smart Charger**, No. BPC-100, features a switching power supply design that allows for high-efficiency charging of a single battery, or battery packs of up to eight batteries at once without the need to separate the pack. With fast charge and full charge options, users can safely charge both standard/flooded and AGM batteries. The BPC-100 can accept input voltages ranging from 100V to 240V AC and has a charging output of up to 100A. The counter feature displaying remaining charge time and automatic shut off facilitate optimal utilization of shop labor. It includes a carrying handle, 2 gauge cables with heavy-duty clamps, and an audible charge completion alert.



For more information visit FleetMaintenance.com/53028140

Shatter-resistant polycarbonate lenses

The **Coxreels Industrial Duty LED Lights for PC10 Series** feature a 50,000-hour rating, internal light diffusers, and shatter-resistant polycarbonate lenses. Designed for PC10 Series reels, the LED lights are available in three models to compliment a variety of applications and include adjustable steel hooks for handsfree placement. The line includes: a compact LED (-M), an LED with additional power source (-K), and an industrial-duty, UL-listed LED (-H).



For more information visit FleetMaintenance.com/53042231

ADVERTISER INDEX

Advertiser	Page	Advertiser	Page
Autel US Inc.	23	Mohawk Lifts (LiftPoint USA)	40
BendPak	43	Nexiq/Snap-on Diagnostics	2, 36
Cojali USA, Inc	5	Noregon Systems	44
Continental Tire the Americas, LLC	17	PPG Commercial Coatings	39
Eberspaecher	36	Robert Bosch (Automotive Service Solutions)	21
FleetPride	41	Technology & Maintenance Council	33
Gray Manufacturing	29	TEXA USA	37
Kafko International	38	Yokohama Tire Corporation	25
Launch Tech (USA) Inc.	7		
Martins Industries	Insert		



» Ideal for greasy gears, floors, and more

The **WD-40 Specialist Degreaser and Cleaner EZ-Pods** are ideal for greasy wheels, gears, floors, and surfaces, including concrete and stainless steel. Made from a concentrated, industrial-strength formula, the pods are portable, easy to store, and easy to use. Simply drop one EZ-Pod in 32 oz. of water for a ready to mix-and-go solution that dissolves in minutes. The pods work in any temperature water but dissolve best in warm water and can be used in a variety of applications like spray bottles, buckets, and power washers. The EZ-Pods can be used on sensitive surfaces like plastics, rubber, neoprene, carbon fiber, copper, aluminum, chrome, and painted areas.

» For more information visit FleetMaintenance.com/53042254



» Offers two hex sizes in each socket

The **Lisle Corporation 4-pc Flip Socket Set**, No. 13050, is designed to remove standard and damaged lug nuts from vehicle wheels. The double-ended, six-point impact flip sockets offer two hex sizes in each socket and are made from chrome moly steel with a black oxide finish. Set includes a punch, 18.5mm/19.5mm, 21mm/21.5mm, 22mm/22.5mm. Comes in blow molded case for storage.

» For more information visit FleetMaintenance.com/53042265

» Offers up to 9 tons of force

The **H&S Autoshot SPR-Pro Self-Piercing Riveter**, No. UNI-6800, rivets aluminum and steel panels with up to 9 tons of force (adjustable 4T-9T). The cold-forming process doesn't require heat or pre-drilled holes. The cordless tool features an LED and intelligent trigger for quick adjustments as well as an LCD display to show the tool's battery, usage, and rivet pressure. System includes ABS storage case, starter rivets, 16-pc die set, two 18V Li-ion batteries and charger.

» For more information visit FleetMaintenance.com/53056984



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Oil spill solutions

» Oil Eater's Overnight Stain Remover

The **Overnight Stain Remover** from **Oil Eater** treats oil and grease stain surfaces found in shops everywhere that might otherwise be difficult to clean, including concrete, asphalt, and brick. Technicians need only to apply the remover, let it dry for 12 hours, then sweep away the remains. The substance works for both exterior and interior environments, including fuel pads, parking garages, and driveways.

"I have tried other more labor-intensive products in the past with limited success, so I was skeptical about the performance claims of the Overnight Stain Remover," said Greg Dunker, GM of Dennis K. Burke's Lubricants Division. "After using the Overnight Stain Remover I was very impressed by the product's ease of use and ability to eliminate stubborn stains that even our powered floor machines had not been able to remove."



» Andax Industries' Big Containment Pac

Andax Industries' Big Containment Pac can handle even the largest spills with its all-in-one functionality and 110 gallons of containment. With its 18" by 15" by 5" vacuum-sealed package, the Pac is easy to store and can handle non-aggressive chemicals, chemical & HazMat, oil, and oil-based fluids. Included in the kit are three 48" oil-selective Sorb-Sox (mini-booms), 20 15" by 19" oil-selective absorbent pads, a disposal bag and tie, protective gloves, and a 60" by 10" high pop-up containment pool with a carrying case and CO2 cylinder.

"All the benefits of the Andax Pac compact spill kit are combined with our really big containment pop-up pool," said Patrick McAtarian, Andax Industries GM.



» SpillTech's Universal 65-Gallon OverPack Salvage Drum Spill Kit

The **65-Gallon OverPack Salvage Drum Spill Kit** from **SpillTech** includes a variety of sorbents for oils, coolants, solvents, or water, all within a 65-gallon DOT-approved salvage drum with a twist-on, double-wall lid with a closed-cell gasket. Made of polyethylene, the drum is durable and secure enough to protect its sorbents from moisture, dirt, damage, and rust.

"Greases and oils are very, very slippery—and you have a lot of people walking around," said Susan Naser, VP of sales and marketing, SpillTech. "So, you need to make sure those floors are clean and dry and oil-free so that you don't have slips and falls, which is the No. 1 worker comp[ensation] situation in most facilities. Drips lead to slips."



» Tub O' Towels Heavy Duty Cleaning Wipes

FedPro's Tub O' Towels Heavy Duty Cleaning Wipes come with a powerful cleaning agent formula that is just as good for hands as it is for messes in the shop. 100% soaked in solution that contains lanolin, aloe vera, and vitamin E, these 10" by 12" towels are applicable for grease, ink, thread sealant, and more, and come in a container with a VaporLock lid to minimize evaporation. Includes 90 sheets per container.

"One of the hardest aspects of being a repair shop on wheels is having to deal with oil-based messes at a client's home or place of business," noted Richard "Chuck" Fasulo, owner of Check Engine Chuck. "We always keep Tub O' Towels on hand in order to clean spills in, or around, engine bays, on our equipment, and of course, our hands!"



How do you plan to service **EV battery** packs?

BendPak's revolutionary **Mobi-EVS™** is a full-rise battery powered mobile scissor lift table that is perfectly suited for Electric Vehicle Service and EV Battery Pack replacement. With its compact design, this space-saving scissor lift can be easily transported anywhere in the workplace, making it ideal for multi-bay facilities or workplaces with confined areas. To learn more visit www.bendpak.com/mobi-evs

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