

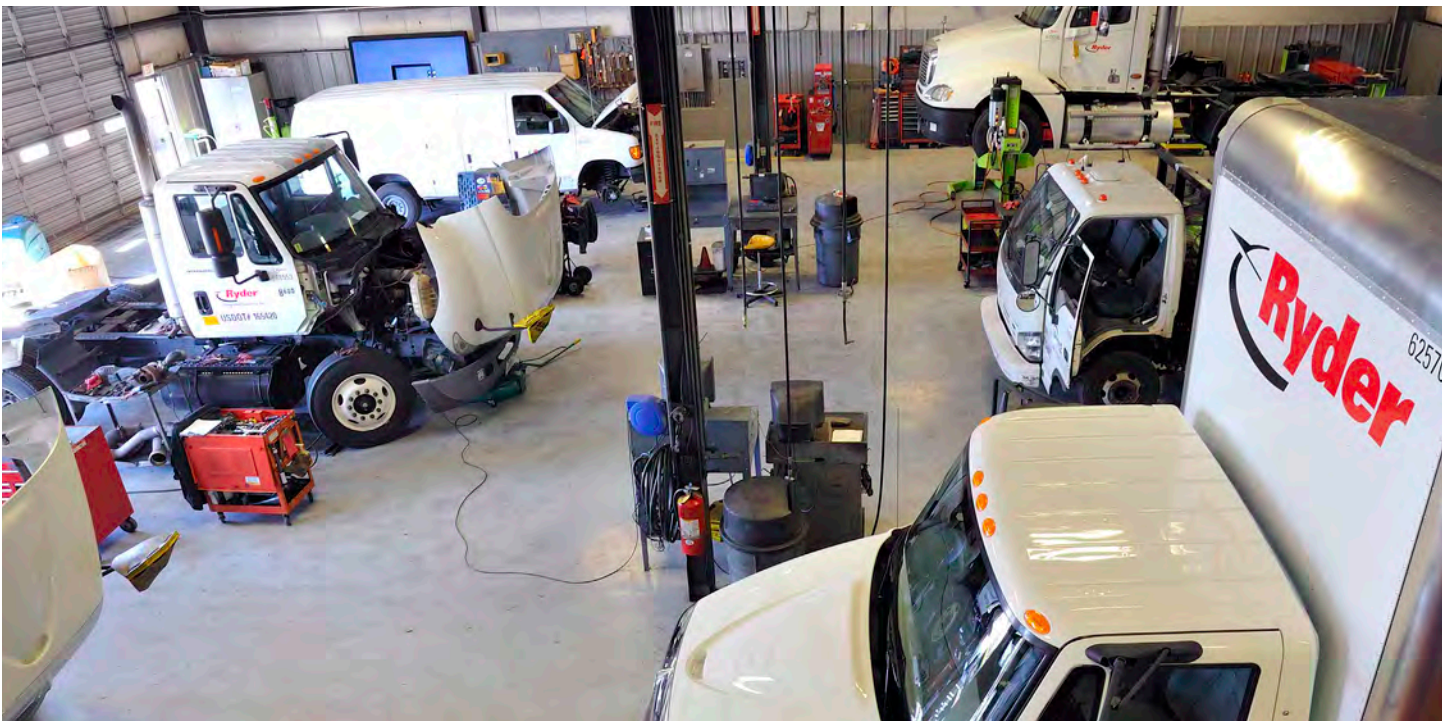
THE NEW MAINTENANCE LANDSCAPE FOR MODERN COMMERCIAL FLEETS

An up-close look at five mega trends driving up maintenance costs, adding complexities, impacting fleet uptime, and what fleet operators should be asking themselves to tackle them.



THE NEW MAINTENANCE LANDSCAPE FOR MODERN COMMERCIAL FLEETS

Companies of all types and sizes are reeling from the impact that more complex engines designed to reduce carbon emissions are having on their maintenance and service costs. They are doing their best to plan for otherwise unpredictable service as their fleets age. Grappling with the prospect of yet another phase of emission regulations on the horizon as early as 2017, they're calling into question all they thought they knew about today's fleet maintenance landscape.



This report will provide insights into today's maintenance landscape, its challenges and the unintended consequences that could sideline your fleet and stall your transportation network. The five mega trends we will explore are:

- 1. New emissions and fuel standards:** getting ahead of the curve
- 2. The technician shortage:** putting the brakes on your uptime
- 3. The hidden costs:** driving up total cost of ownership
- 4. The power shift:** from manual to automatic transmission
- 5. Big Data:** more complexities ahead

1 New emissions and fuel standards: getting ahead of the curve



At a time when many fleet operators are still grappling with the 2014 engine technology and its related service and maintenance regimen, the EPA has introduced another wave of “Phase II” proposed regulations to reduce carbon emissions. The proposed rules will apply to vehicles built from 2018 to 2027. The objective is to achieve reductions of one billion tons of greenhouse gases and save about 1.8 billion barrels of oil and \$170 billion in fuel costs.¹ The overarching goal of the new regulations is to dramatically reduce carbon by using less fuel, so nothing will be off the table.

The policies expected to be adopted by manufacturers to produce more energy-efficient vehicles means escalating investments in new components, axle ratios, and aerodynamic enhancements, extending all the way up to entirely new engine platforms.

“ Fleet operators can expect Phase II standards to have a much greater impact on the overall configuration of the power unit and the trailer than they have in any prior iteration of regulatory change. ”

– *Scott Perry*
Vice President of Supply Management and Global Fuel Products, Ryder

The EPA estimates the cost of improving vehicle fuel-efficiency technology will be \$10,000 to \$12,000 per vehicle for the largest trucks and somewhat less for smaller trucks.

The best opportunity for the transportation industry to meet the new targets is to get ahead of the need for targets. To do that, the industry needs to take an active role in looking at:

- Total freight efficiency
- What fuel types generate the best CO₂ g/ton mile
- How to impact trailer weight and length laws that currently limit productivity while still focusing on improving safety
- How to ensure fleet operators can still select the right fuel, engine, powertrain, and trailer configuration to best meet their application while still complying with regulatory mandates

Bottom Line: Regulations are here and fleets can expect more to come. These new rules can create more complexity and potentially more cost; therefore, it is essential fleets understand what they have to do to achieve compliance. Nevertheless awareness isn't enough. To stay ahead of the curve, fleets will have to develop a proactive compliance strategy that addresses freight efficiencies, optimal vehicle configurations, and the best fuel types that, of course, limit CO₂.

¹New York Times

2 The technician shortage: putting the brakes on your uptime



The diesel engine and its components have dramatically evolved over the last decade. Because of new emission standards and technologies, one can safely say the industry has entered the diesel electronic age.

It should come as no surprise then that the job of diesel ‘mechanic’ has evolved into something entirely new. Being a prodigy with specialty wrenches and calipers or being able to assemble and disassemble an entire engine is no longer enough. Today’s mechanic needs to have a core understanding of electrical components, including computer systems and software programs.

Higher levels of skills are required for today’s mechanics – which has resulted in a challenging recruitment environment!

According to The National Institute for Automotive Service Excellence, only 3,500 diesel-and-truck technicians enter the market through technical schools annually. That’s simply not enough to mitigate the following two trends:

- Over a million jobs exist today in the auto, diesel, and collision repair industries with growth of 17 percent projected through the year 2020.²
- The American Trucking Associations (ATA) also predicts a shortage of between 5,000 and 10,000, heavy-duty diesel technicians in the next five years.



To add further impact, truck dealers, equipment dealers, independent repair garages, and fleets are all in need of new technicians, and all recruit from the same labor pool.

Bottom Line: Less technicians and growing demands for service equals the perfect storm for longer service and wait times. Longer wait times means longer idle time. And longer idle time means lost opportunity cost as vehicles are not earning money making deliveries, and that certainly will influence customer satisfaction rates.



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3 The hidden costs: driving up total cost of ownership



Frost & Sullivan reported that the average cost of a new tractor-trailer is estimated to range between \$140,000 and \$175,000.³ In an ever-changing, highly-regulated environment, there are additional “hidden” factors which can relentlessly drive up the total cost of ownership (TCO) of those vehicles.

Despite the recent decline in diesel prices, fleet owners’ focus is shifting more broadly to TCO calculations which encompass fuel and equipment costs, maintenance and service, regulatory fines and opportunity costs associated with having idle equipment.

As previously covered in the technician shortage trend, modern diesel engines are now extremely complex to repair and maintain. To keep them running at their best requires unique service procedures, and new diagnostics by technicians who are essentially system analysts. As well, it’s important to remember that engine technologies and diagnostics are changing so rapidly that technicians must be continually re-trained. Taken in totality, these factors create the perfect storm for rising costs that can have a significant impact on your bottom line.

Yet another factor that can increase TCO is violating one or more of the mounting list of regulations. This is becoming a regular occurrence for modern fleets – and is more costly than ever. For example, according to the Federal Motor Carrier Safety Administration (FMCSA), the fine to employers when a Commercial Driver License (CDL) driver violates an out-of-service order has increased from a maximum of \$16,000 to \$27,500; a substantial increase of 72 percent.⁴



Finally, there are other “unaccounted costs” to factor in. For example, the general public has access to all FMCSA enforcement cases once they are settled. This information publicly displays the violations and fines paid, which could have a potentially disastrous impact on a company’s brand and image.

Bottom Line: In this new high efficiency, electronic environment, there are ever-increasing factors driving up TCO. They include new emission engines, the cost to train and recruit new techs, increasing violation costs and lengthier repair times. It’s no stretch to say, it’s never been more important to completely understand and evaluate all of the observable and not-so-obvious costs, of ownership in order to develop a clear and comprehensive strategy to keep maintenance costs in check.

³Fleetowner.com; ⁴Federal Motor Carrier Safety Administration

TOTAL COST OF FLEET OWNERSHIP (TCO)

Identify up to 15% savings off your total fleet cost with an evaluation from Ryder.

When purchasing a vehicle, or an entire fleet, there are many known costs the purchaser includes in their decision. However, there are several costs that are not included, which makes it difficult to determine your total cost.

FINANCING

What you include:

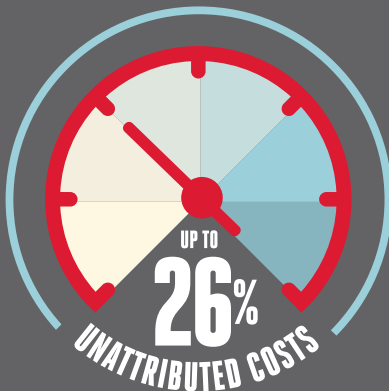
- Procurement costs
- Financing method
- Taxes & licensing fees
- Interest

What else should you include?

- Opportunity costs of not investing elsewhere
- Vehicle disposal & salvage fees
- Limited purchasing power for assets
- Reduced return on asset



MAINTENANCE



What you include:

- Fuel
- Parts, supplies, labor hours
- Repair & rental vehicle
- Asset management system

What else should you include?

- Cost of downtime for poor maintenance
- Roadside service
- Cost of breakdowns
- Increasing costs as fleets age

ADMINISTRATION

What else should you include?

- HR costs to recruit drivers & technicians
- Training costs
- Personnel to manage capital & depreciation





4 The power shift: from manual to automatic transmission



In 2014, more than eight out of 10 Class 8 trucks in Europe were sold with electronic automated transmissions (AMTs); in the U.S., that figure was three out of 10 and growing. It is estimated that the trucking industry is already at the watershed moment when the majority of tractor-trailer transmission specs will be AMTs versus manual.

The EPA has stated that, “the ‘Phase II program,’ includes AMT-related mandates, would significantly reduce carbon emissions and improve the fuel efficiency of heavy-duty vehicles, helping to address the challenges of global climate change and energy security.”⁵

“ In a perfect world, the most fuel efficient transmission when driven by the most experienced driver is a manual transmission. But we don’t live in a perfect world, so the new AMTs mimic how the most experienced driver would perform. ”

– *Mike Dennis*
Group Director of Maintenance, Ryder

The North American Council for Freight Efficiency (NACFE) estimates that the potential benefit of AMTs starts with a “conservative” fuel savings of one to three percent. Industry experts, however, have indicated that because AMTs electronic platform integrates with the truck’s engine, axles, and other systems, there is the potential for further fuel savings.

A common sense factor in the drive to AMTs may be the fact that many young drivers view learning to use manual transmissions as nothing more than a novelty. Research shows that this trend began long ago when General Motors released the first automatic transmission in 1940. Since that time, automobile manufacturers quickly moved away from manuals. By 1957, 82.7 percent of American-made cars were equipped with automatic transmissions, currently manuals account for only about 4 percent of American car sales.⁶ This prevailing attitude has surely had a hand in limiting the available driver pool for heavy-duty vehicles in the United States.

In fact, it’s been reported that 90 percent of transportation carriers cannot find enough drivers to meet their needs. The trucking industry is short 30,000 professional drivers and according to the ATA that number is expected to rise to 330,000 by the year 2020.

Bottom Line: In addition to improved fuel economy, AMTs help in finding, recruiting and retaining commercial drivers who cannot drive manual transmission vehicles. There are also added safety benefits such as fewer distractions for drivers, and the fact that drivers can maintain both hands on the wheel. The downside is that AMTs require an upfront cost that can range anywhere from \$3,000 to \$5,000 more per vehicle. Computer diagnostics for AMTs, if not performed correctly, could easily serve up false positives causing repeat garage visits, emergency tows and lost uptime.

⁵New York Times; ⁶Driving Magazine

5 Big Data: more complexities ahead



Built-in Intelligence (BI) models will soon be a part of all commercial vehicles. BI will provide data that tracks maintenance schedules, life expectancy of parts, and even driver behavior.

New intelligence gathering mechanisms are changing vehicle servicing and replacing it with predictive maintenance, based on the data on wear and tear.

This new level of sophistication informs when it is time for a part to be replaced, and when the part displays characteristics suggesting it is coming to the end of its useful life. Even component makers use the analysis of mass of data from individual components to make improvements and monitor their performance.

One new innovative technology is the Cummins diagnostic tool. It functions by gathering repair information from around the world, accumulates it into a database and creates “smarter” troubleshooting trees based on hundreds and thousands of similar repair patterns. The ultimate goal is to reduce the number of diagnostic steps required by as much as 50 percent. Most impressive is that the tool can frequently locate the root cause of an engine issue in as few as three diagnostic steps. Starting with the most likely solution that the tool proposes, technicians can execute a much faster and more efficient repair.⁷

Another solution comes in the form of an information-sharing platform. Decisiv™ provides large fleet managers instant access to maintenance and activity data from multiple vendors in one single location. This real-time visibility allows them to more accurately measure and manage “days out-of-service,” and improve asset utilization and capital efficiency.



Accessible from any computer or mobile device, more and more fleets are adopting these time-saving technologies to streamline frustrating administrative tasks, increase productivity, eliminate waste, and reduce downtime.

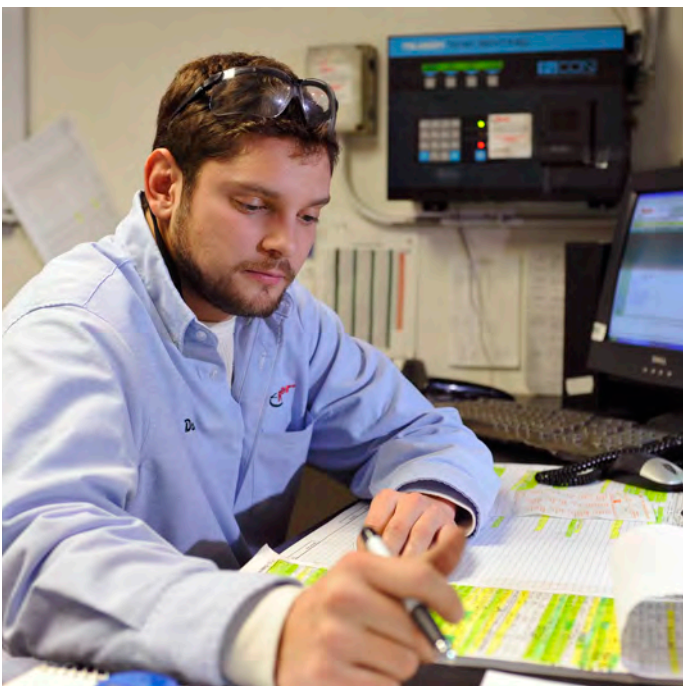
Bottom Line: It has been reported that the trucking industry’s average profit margin from big data technologies is about 3.6 cents on the dollar. Fleets will need to progressively invest more in management systems that can handle variable data from multiple vehicle and component manufacturers in a consistent way. It’s estimated that the average payback or break-even point for an investment in BI technologies is roughly 12 to 18 months.

⁷ Cummins Insite™

Tackling today's maintenance challenges

Here are 10 key questions every fleet operator should be asking about maintenance in their company:

1. What maintenance-related regulations apply to the vehicles in my fleet?
2. What are the new, proposed regulations and when will they become effective?
3. What will it cost for me to comply with the new vehicle emission standards?
4. What service and repair records am I required to keep?
5. Are there any changes to how I get my Certificate of Roadworthiness (CRW)?
6. How do I keep up with maintenance and repairs to minimize downtime?
7. Are my technicians skilled and educated to service the latest engine technology?
8. What is my technician turnover rate and how does it benchmark against the industry overall?
9. What's the impact of technology advancements and big data on my fleet operation?
10. What are the hidden costs associated with maintenance that I may not be considering?



Complexity: driving the need for an alternate route

The five mega trends covered in this special report are causing quite a dilemma for fleet operators. As technology speeds ahead, trucks will become more and more computerized and complex, yet many technicians today aren't sufficiently trained to diagnose and work on the current vehicle systems.

Even when fleets can obtain a reliable diagnosis, depending on the vendor, it could take several days to get the parts necessary to complete the repair. The challenge compounds when adding hundreds of maintenance vendors to the mix. More often than not, the quality, dependability, and cost of service tends to be inconsistent at best and difficult to manage.

Many of those same providers still rely on phone calls, faxes, and handwritten invoices which often turn into telephone tag, jammed faxes, and time wasted on administrative tasks. The result for many fleets is a daily logistical nightmare.

Simplicity: the sound choice in an increasingly complex environment

Because of the increasingly complex environment many commercial fleet owners are asking themselves: "Do I really want to be in the fleet maintenance business?" Fortunately there is a better choice. Ryder has developed a series of maintenance services which include Comprehensive, Preventive, and On-Demand Maintenance. Fleet owners can take advantage of convenient access to Ryder's North American service and fuel network with access to a staff of 5,000+ expertly trained technicians.

Ryder delivers consistent service at predictable rates with the ease of a single source for billing and administration. Available on select plans, fleets can also centralize access to their vehicle repair and compliance records with Ryder's maintenance and repair exchange platform powered by Decisiv™.

At Ryder, we are dedicated to simplifying the new maintenance landscape amidst today's increasingly complex requirements. Discover how outsourcing with us can improve your fleet management and supply chain performance at ryder.com.

www.ryder.com

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