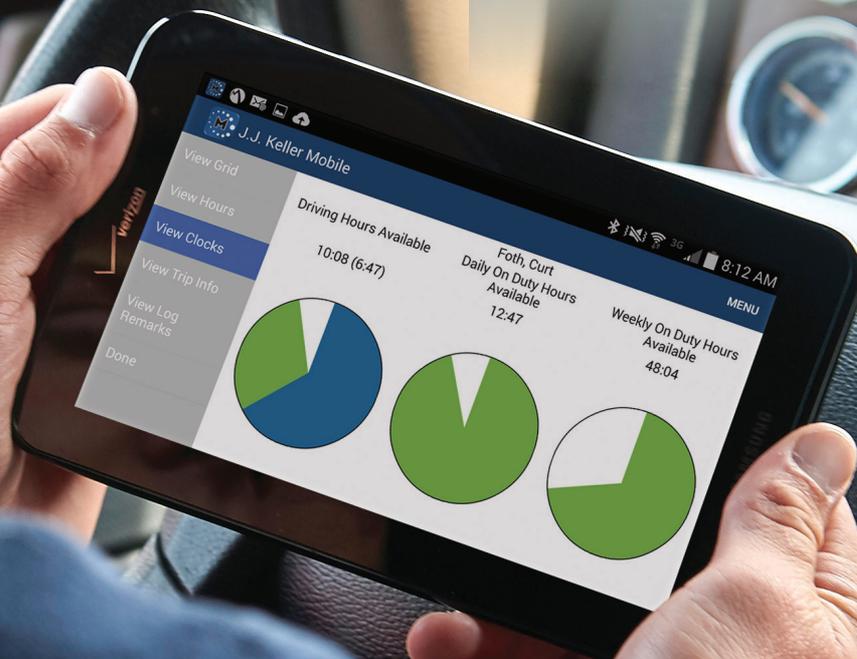


Special Report:

ELD MANDATE

Do you need an electronic logging device on your trucks? Not knowing could cost you.



Scramble or gamble?...**p1**

How to get started...**p6**

The many benefits of ELDs...**p8**

What to know before you buy...**p10**

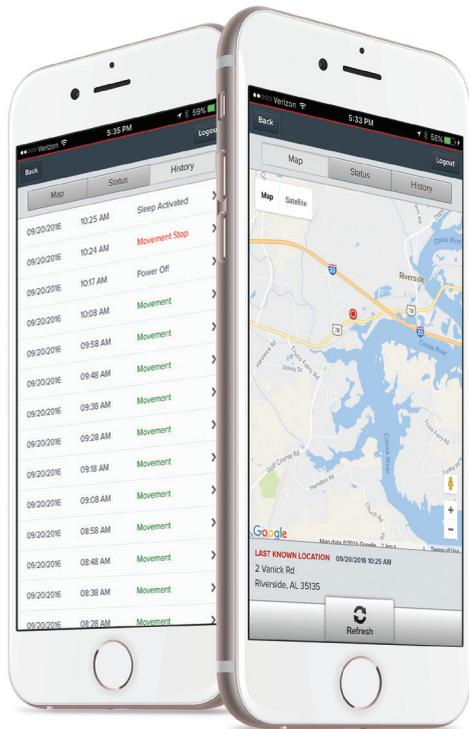
ELD Products...**p15**

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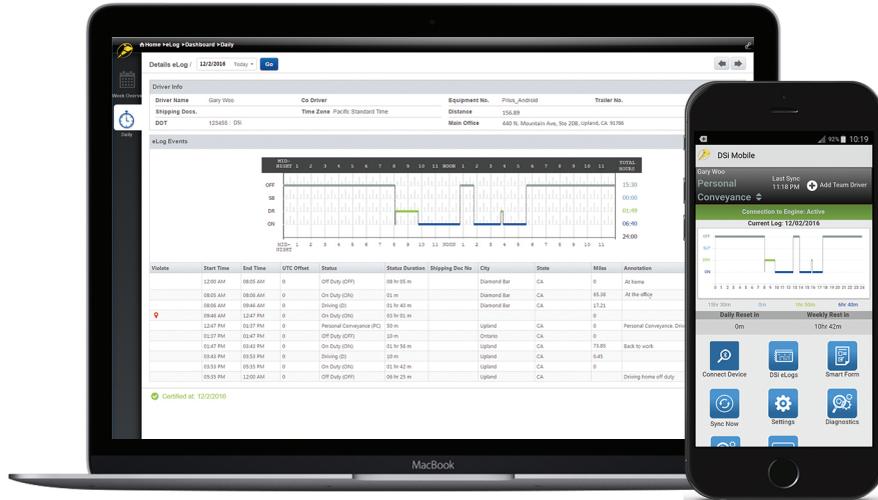
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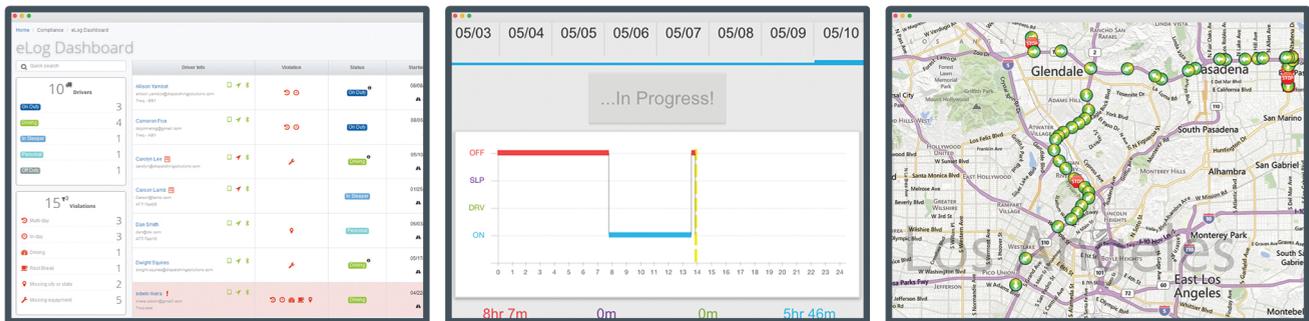
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SCRAMBLE OR GAMBLE?

If you operate construction trucks you may fall under a new mandate requiring electronic logging of your drivers' hours – and time is running out to comply. Failure to do so could lead to fines and lower safety scores. Here's how to know if your business is at risk and what you can do about it.

By Tom Jackson and Don McCloud

Contributors to this report include James Vogel, Linda Longton, Todd Dills, Max Heine, Tony Brock and Marcia Gruver Doyle.

“It’s like a nightmare,” says Brian Winkler, president of Wm. Winkler Company, a civil and concrete construction business in Newman Lake, Washington. “You’re hoping it’s one of those things where you can close your eyes and make it go away. But that’s not going to be the case.”

What’s keeping Winkler up nights is a new federal mandate that requires all truck drivers who currently keep a paper Record of Duty Status to use an electronic logging device (ELD) – a system that records truck drivers’ time behind the wheel using GPS signals and cellular communications. The mandate, published by

the Federal Motor Carrier Safety Administration (FMCSA), goes into effect December 18, 2017.

Mandating ELDs, FMCSA argues, will help ensure truck drivers don’t violate the Hours of Service (HOS) regulations by cheating on paper logs. The intent is to keep tired drivers in big rigs off the road, whether they be long-haul truckers or construction workers driving vocational vehicles.

In fact, more than 230,000 construction operations (contractors, material producers and equipment dealer/rental companies), running more than 1 million trucks could fall under the mandate, according



Virginia DOT

Inspection result in a violation? There’s a 31% chance it’s for Hours of Service.

Estimated fleet size	Total number of inspections that resulted in a violation	HOS violations	% of HOS violations in total number of inspections
1-9 trucks	55,993	30,063	54%
10-<50 trucks	65,416	18,114	28%
50 trucks and over	73,202	11,524	16%
Total ▶▶▶	194,611	59,701	31%

The smallest guys are more likely to be the hardest hit with an HOS violation, according to data from RigDig Business Intelligence. Operations with an estimated fleet size of 1-9 trucks received more than 50 percent of the HOS violations. Within our defined universe of construction operations, 18,082 companies had an inspection that resulted in an Hours of Service violation.

Construction truck fleets received more than 59,000 Hours of Service violations in a recent 24-month period.



Log books: 40% of HOS violations

Log book violation	24,162	40.5%
Violations of daily driving limits	6,342	10.6%
State/local HOS violation	438	0.7%
Violations of cumulative weekly/more than weekly cycle limits	276	0.5%
All other HOS violations	28,483	47.7%
Total ▶▶▶	59,701	

Log book violations – either not having a log book, not keeping a log book current or having false information on a log book – made up 40 percent of the Hours of Service violations in our defined segment of construction operations.

Bigger trucks, more HOS violations

Heavy-duty (Class 6-8)	53,419
Medium-duty (Class 3-5)	4,945
Unknown	1,337
Total ▶▶▶	59,701

Heavy-duty trucks made up 89 percent of the vehicles receiving an HOS violation within our defined segment.

to RigDig Business Intelligence, a sister company to *Equipment World* that tracks truck and driver inspections. Over a recent 24-month period, nearly half a million of those trucks received inspections resulting in 1.6 million driver or vehicle violations and 59,000 HOS violations.

Come December, if you fail to have compliant ELDs on your trucks, you risk one more potential violation and the fines and driver out-of-service violations that come with it.

Fortunately, there are many solutions available to help you comply, from the simple to the robust, and many offer benefits well beyond ELD compliance (see “What to know before you buy,” page 10).

Despite the risks, many operations have not given the mandate much thought, says Thomas Reader, director of marketing with J.J. Keller. “I don’t think there is a lot of awareness at this point. It’s going to be a rude awakening in December when they get pulled over for an inspection and don’t have an electronic log.”

It's complicated

ELD mandate aside, the HOS rules themselves can be convoluted, especially when it comes to governing construction truck operators – those who drive vocational trucks, crane trucks, concrete pump trucks, and mechanics trucks that are licensed to travel on paved Department of Transportation roads.

“In a long-haul truck, the driver is going to be in the truck eight to 10 hours a day,” says Willie Schlacks, president of ES Track, and an ELD provider. “In the construction world, you have guys who are jumping in and out of the trucks all day. One week they might be hauling for five days and off for two, or six and one. There is a lot more complexity. There is not a straightforward schedule for one driver and one truck.”

Under the HOS rules, interstate drivers of commercial motor vehicles are limited to 11 hours of driving within a 14-hour daily on-duty window. During the 11-hour limit, drivers must take a 30-minute break after eight hours of continuous driving. (Drivers using the exceptions and extensions explained below need not take the break.) If your company operates trucks every day of the week, cumulative on-duty limits of 70 hours in eight days apply. If you shut down for at least one day a week, the 60 hours in seven days limit applies. Drivers can restart their hours on the 60- or 70-hour limit after taking 34 hours off.

Exemptions and exceptions

Recognizing contractors' unique work cycles, the FMCSA created exemptions and variations to the HOS rules for construction truck operators, such as a 24-hour restart for dump and cement trucks operating within 50 miles of the work location and the ability to stretch on-duty time to 16 hours once every seven days.

Most recently the FMCSA granted an exception for interstate concrete pump truck drivers. They no longer have to comply with the 30-minute rest break provision. Instead they can count on-duty attendance time toward the 30-minute break. This is to prevent them from having to shut down the truck in the middle of a concrete job.

FMCSA also offers exemptions allowing certain operations, including some in

States toughest on HOS violations

State		Number of HOS violations	Lanes miles of national highway system roads per state	Frequency of HOS violations by lane miles traveled
1	IA	3,773	10,781	35.0%
2	AR	2,346	8,685	27.0%
3	KS	2,733	10,813	25.3%
4	IN	1,905	10,449	18.2%
5	AZ	1,860	10,410	17.9%
6	CO	2,023	11,568	17.5%
7	CT	567	3,844	14.7% (tie)
8	NY	2,856	19,414	14.7% (tie)
9	MO	2,399	16,413	14.6%
10	TX	7,338	51,768	14.2%

States least strict on HOS violations

State		Number of HOS violations	Lanes miles of national highway system roads per state	Frequency of HOS violations by lane miles traveled
50	MA	184	7,382	2.5%
49	DE	36	1,381	2.6%
48	NJ	254	9,337	2.7%
47	RI	30	1,046	2.9% (tie)
46	IL	593	20,402	2.9% (tie)
45	CA	1,142	33,068	3.5%
44	MI	674	17,214	3.9%
43	OH	744	17,644	4.2%
42	AK	209	4,723	4.4%
41	TN	696	13,229	5.3%

Dividing the number of Hours of Service violations by the number of lane miles of national highway system roads in each state, the states where our defined segment is more and less likely to receive an HOS violation come to the forefront.

About the charts in this report: Examining RigDig Business Intelligence data, our editors selected 18,082 companies that had a recorded HOS violation during the 24-month period from Dec. 2014-Nov. 2016 and which owned construction trucks. These entities were selected using a combination of SIC codes, key words and set attributes. Construction operations include contractors, construction material producers and construction dealers and rental entities. RigDig gathers information on more than 1 million active U.S. medium and heavy duty truck owners, using a variety of information sources, including FMCSA inspections and accident reports, U.S. DOT reports, CSA scores, financing activity and Dun & Bradstreet Firmographics. Source: RigDig Business Intelligence, Randall-Reilly.

“I can't tell whether they have a trailer hooked up or not...It's easier to say, 'You're the driver of a crew cab truck, so you log in.' ”

– Bob Beck,
Reliable Constructors



construction, to operate without ELDs:

- Drivers operating truck model year 1999 and older vehicles, many of which don't have the engine electronic control modules necessary to track hours electronically;
- Drivers operating under the time-card exception to the hours recording rules – the 100- and 150-air-mile radius short-haul exceptions – exclusively;
- Drivers who occasionally keep a log book but do not do so for more than eight days in any 30-day period.

For more details on the HOS rules specific to construction operations, go to the web version of this article at: www.equipmentworld.com/ELD.

Further muddying the issue are state DOTs that have different, sometimes additional intrastate rules. For instance, Texas, California and Florida allow for more drive time (12 hours) and on-duty time (15 or 16 hours) in their daily HOS limits. Their cumulative limits are higher for those in-state haulers, too, and some states treat those limits slightly differently. There is some question whether all ELD makers' systems will be compatible with these state requirements. If your operation falls under the intrastate HOS rules, check with your ELD supplier to be sure you get the solution you need.

Pickups not immune

Additional confusion surrounds three-quarter-ton pickups. When a pickup used in interstate business operations hooks up to a loaded trailer and the gross vehicle weight rating goes over 10,001 pounds, it becomes a DOT-regulated vehicle under federal interstate rules, says Pete Allen with MiX Telematics.

But if that truck stays within a 150 air-mile radius (100 air-miles for Class 7-8) of its home base, it is exempt from the ELD mandate. Exceeding the 150 or 100 air-mile radius more than eight times a month, however, requires an ELD, making for uncertainty when tracking trucks remotely. Another complicating factor: Many states exempt such lighter combos from complying with intrastate hours and ELD rules by raising the starting weight to 18,001 or 26,001 pounds.

Given the nature of the work Reliable Constructors does with its Dodge Ram 3500 pickups, “I can't tell whether they have a trailer hooked up or not,” says Bob Beck, safety manager at the Sorrento, Florida, company. Whether or not the law requires it, the company may develop an internal policy that has drivers log in even if they are not pulling a trailer. “It's easier to say, 'You're a driver of a crew cab truck, so you log in,’” Beck says.

Roadside rules: 61% of all HOS violations construction operations receive occur during roadside inspections



Where do inspections take place? Construction operations in our defined segments were much more likely to receive an HOS violation during a roadside inspection than they were during a fixed location (weigh station) inspection.

The logo consists of a large, stylized white letter 'Z' above the word 'ZED' in a smaller, white, sans-serif font, all contained within a black square.

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Federal rules give construction and vocational trucks certain exemptions to the rules, but tracking hours is challenging.



Seattle DOT

“Driver fatigue is one of the big causes of accidents. Hopefully with the 30-minute break built in and the hours of service, that will cut down on driver fatigue and accidents.”



— Chris Cionek, KAT
Excavation & Construction

Where do you start?

When he began shopping for ELDs, Beck went beyond the sales pitches and talked to the companies’ technical experts. He wanted to make sure the device would suit his fleet’s needs.

“Our drivers work primarily with the crews during the week, so they’re not over-the-road truckers,” he says. “The challenge comes in for us at the end of the work week when they’re coming back home. They might have to manage the number of hours they work versus hours they can drive so they don’t go over the 14-hour max.”

Keep your company’s operational needs in mind when selecting from the dozens of ELD products on the market. The FMCSA maintains a list of “certified” ELD manufacturers,

but the government doesn't do the certification. Manufacturers are self-certified. "The responsibility is on the carrier (customer) to buy a compliant solution," says Josh DeCock, director of product management with Pedigree Technologies.

At press time, there were about 50 ELD suppliers listed on the FMCSA site. The names of some of the biggest companies were noticeably absent; however, most are expected to list their products soon. FMCSA has grandfathered current-generation devices for two years beyond Dec. 18, so being on the list isn't a crucial distinction for devices. Just make certain any supplier you're considering that is not listed has a plan for getting there within the two-year period.

Field trials

Once you've settled on a supplier, do a field test for a month or two. "Make sure your drivers know how to use it and are comfortable using it," says DPL's Tony Nicoletti. "They drive trucks, they're not electronic wizards."

Chris Cionek, dispatcher supervisor for KAT Excavation & Construction in Sour Lake, Texas, is testing ELDs on some of his fleet. The company's current telematics provider simply linked a phone app to the trucks' computers to meet the ELD mandate.

"It's very easy," Cionek says. "All the driver has to do is put in a user name and a password. The screen pops up. They just tap a few buttons, and they're ready to go."

Experts recommend leaving an additional six weeks or so to deploy the system company-wide to work out any bugs and to make sure your team is properly trained.

Beck is ahead of most. He started his research in December. In May, he had narrowed his choice to two vendors and was testing equipment on some of the company's trucks. It will be a scramble, but he expects to be ready in time for the mandate's December 18 effective date.

"We have to be ready," he says. "That's why we're trying to get a jump on it early and work out the bugs."

"Why risk it?" Truck crane group urges compliance

When it comes to whether their members need ELDs, the **Specialized Carriers & Rigging Association** advises erring on the side of caution.

"Even if traditionally during the course of a week your operators are not meeting that threshold of even having a log in the cab of the truck, why risk it?" says Steven Todd, association vice president. "We're strongly recommending that most if not all of our crane and rigging members go ahead and bite the bullet." Informal polling of association members indicates many have not begun to address compliance, but Todd expects they will be ready come December.

The association won an exemption for specialized carriers from the Federal Motor Carrier Safety Administration over the 30-minute break rule, arguing that complying would be dangerous, if not impossible, for companies that haul massive, wide

loads at slow speeds. There are few places for such vehicles to park without causing a traffic hazard.

Association members, however, worry whether the ELDs can accurately reflect that exemption. (Most of the vendors *Equipment World* interviewed for this article say they have the full FMCSA rule sets with exemptions for vocational trucks built into their software.)

Todd says the association is putting together a list of questions for its members to ask ELD vendors to help them find the right device, and it has also been spreading the word through conferences, webinars and social media.

After months of research, SCR&A determined most, if not all, of the craning and rigging industry will have to comply if they're moving over the road, Todd says. While Todd predicts the mandate will not have much impact on the specialized carriers and crane industry, failure to comply would be risky, he says.

Not familiar with HOS regs?

The HOS regs that regulate interstate trucking may apply to your operation... or they may not. There are several exemptions for companies that operate in smaller areas, but you still need to know the rules. For a more

thorough discussion of how HOS rules apply to construction, go to equipmentworld.com/ELD. While there, you'll also have the opportunity to download this entire report, making it easy to share with co-workers and others.

SAFETY, PROFITS AND PRODUCTIVITY: THE MANY BENEFITS OF ELDS

Tracking hours of service compliance is just a fraction of what most ELD systems can do. Some of the simplest, most inexpensive systems – often a smartphone app paired with an engine control module (ECM) connection device – come with web-based, back-office unit tracking software and dispatch tools. Others have more robust back-end programs.

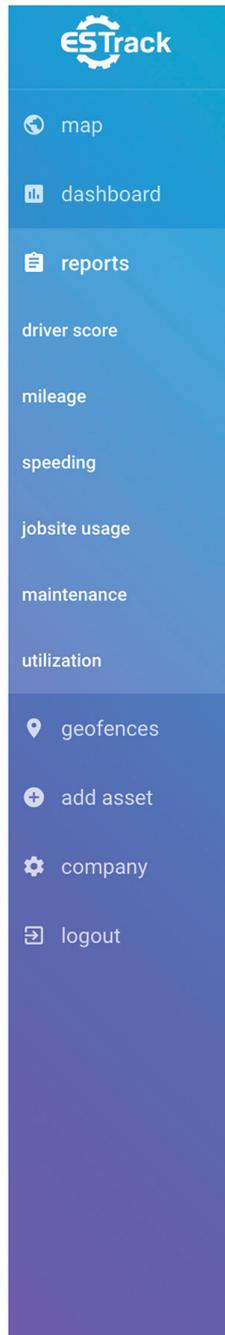
Contractors with a history of using telematics are quick to see these benefits. For instance, Reliable Constructors, Sorrento, Florida, has already been using telematics to track its equipment fleet. “We’re just adding another component to it,” says Bob Beck, safety manager. With ELDs, the company will know where all its trucks are and can make sure workers are where they need to be. And if a truck is stolen, they might have a chance to get it back. Ken Lester, owner of Lester Contracting, says his company will not need ELDs, but he does use telematics on his 50 or so vehicles and pieces of equipment. “All of our vehicles have GPS on them, including our heavy trucks and even some of our machinery,” he says.

The company, based in Port Lavaca, Texas, has been expanding its use of telematics on equipment, allowing Lester to compare run times and idle times with the industry average. He checks the system daily and likes that he can get a map view of the trucks and equipment.

“I even have an app on my iPhone,” he says. “I can sit at home or anywhere and pull up the location of my vehicles.”

One portal solutions

A common complaint off-road fleet managers have with telematics is that they must toggle



ELD systems, such as ES Track, have many capabilities beyond simple HOS reporting.

Jobsite Usage Report

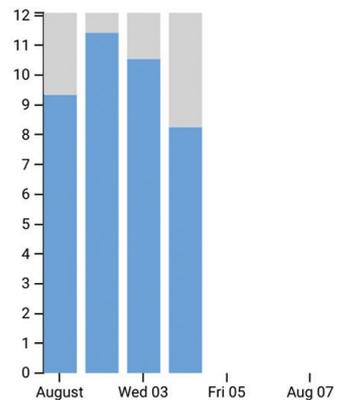
Vehicle

Driver 1 (Chevrolet Silverado 3500)

Driver 2 (Ford F-150)

Driver 3 (Ford F-250 Super Duty)

Driver 4 (Ford F-150 4x4)



Usage

On Site

“All of our vehicles have GPS on them, including our heavy trucks and even some of our machinery. I can sit at home or anywhere and pull up the location of my vehicles on my iPhone.”

– Ken Lester, Lester Contracting



between multiple web portals to view machines from different OEMs. That adds complexity to companies running mixed fleets. Requiring one more portal – for their vocational trucks – is a hard sell, says Josh DeCock with Pedigree Technologies. A provider that can put all your off-road equipment and vocational truck data onto one web portal can simplify the information processing that comes with telematics feeds, he says.

Contractors who are grappling with the ELD rule should consider the benefits of integrating not just ELDs but other telematics capabilities throughout their fleets, experts say. “I would say look a little further down the road,” says Tony Nicoletti with DPL. “Start looking at your equipment ecosystem as a whole, not just fixating on this one problem, because you are going to potentially want to add it to other products later.”

There are many benefits to adding not just ELDs, but other telematics, to your operation:

- 1. Increased revenue.** “Telematics data can show you how to grow your top line,” says Sid Nair, senior director transport and compliance at Teletrac-Navman. “It also shows you how to do more jobs and take operational costs out, increase your utilization rates, create more uptime and how to make sure you are proactively maintaining your truck.”
- 2. Improved customer satisfaction.** “In a B2B environment how do you make sure your customers are satisfied?” says Nair. “Telematics is going to give you that end-to-end visibility,” providing features such as optimized truck routing and material delivery with fewer delays.
- 3. Less paperwork.** Technically, many construction truck drivers can continue to keep time cards and paper fuel receipts, tolls and other paper documents to prove that they’re in compliance with the HOS regulations. But for less than the cost of a Starbucks coffee a day you can render the cab of a truck paperless. The labor cost savings alone are often enough to pay for the system, say many contractors.

Asleep at the wheel: HOS and ELDs can’t eliminate tired drivers

Although the original intent of the HOS regulations and the ELD mandate was to keep tired drivers off the nation’s highways, the law itself is not enough.

That’s the opinion of Dean Croake, vice president of data products for Spireon Technologies, who has spent two decades studying driver fatigue and helping to create technology and systems to prevent it. Improving safety by reducing fatigue-related incidents requires driver monitoring systems, scorecards and the analytics to help pinpoint problem areas, he says.

Don’t just get the data – analyze it

ELDs will give the industry good data sets to start this process, Croake says. Once fleet managers start looking at driver behavior, comparing night driving vs daytime driving and performance under different schedules, they can determine which schedules and which drivers are the safest.

“These data models can tell you which drivers have a higher or lower probability of quitting or getting in a bad accident or having a workers’ comp claim,” Croake says. “It’s been proven that well-rested drivers run about 10 percent more miles per week and they’re about 30 percent less likely to quit.”

One of the most powerful data points is what time the driver starts work, Croake says. “If you have the same start time every day, regardless of whether it’s 3 a.m. or 8 a.m., what you find is a pretty low-risk, well-rested driver. Consistency makes for good sleep.”

The data shows drivers who have irregular shifts have more

incidents, run over curbs, damage tires or back into docks too hard more than drivers with regular start times, Croake says.

Short haul riskier

Turning the conventional wisdom behind the ELD mandate on its head, Croake says the data shows it is often short haul drivers, including vocational truck drivers, who are at more risk for accidents than long-haul drivers.

“There is an inverse relationship between how tired you are and the length of the haul,” Croake says. “The longer you drive, the more opportunities you have to stop and have a break.” Short haul vocational drivers cram their entire workload into a 12-hour day, plus unlike sleeper cabs, day cabs have nowhere for drivers to nap, Croake says. “If you ask me who the driver is who is most at risk for a microsleep event (falling asleep for two or three seconds behind the wheel) I would say it is a short haul driver working a 12-hour shift,” he says.

Another myth is the relationship between speed and accidents, Croake says. “The slower you drive the more likely it is you are going to fall asleep because you’re not paying close attention.” While vocational drivers may nod off waiting for a loader to fill the dump bed, they have to wake themselves up to get going again, he says.

Croake and Spireon are working on algorithms to help telematics customers better analyze such data. And as the industry moves in this direction, Croake foresees significant gains in safety, productivity and driver retention.

“It’s been proven that well rested drivers run about 10 percent more miles per week and they’re about 30 percent less likely to quit.”

ELDS: WHAT TO KNOW BEFORE YOU BUY

Adding ELDs to your fleet doesn't need to be a nightmare. The chart at right provides an overview of construction-friendly solutions. Also, consider the following factors before you commit:

BYODs vs fixed systems.

There are two types of ELDs: fixed units that remain in the truck, and BYODs or bring your own device. BYODs can be as simple as an app on a driver's smart phone or tablet or a company supplied mobile device. A fixed unit is hard wired and professionally installed.

BYODs communicate with the truck ECM via a Bluetooth or wireless connection to a dongle inserted in the truck's diagnostics port. The advantage here is that the BYODs can be removed from a cradle and used to take photos of maintenance issues. And if you have trucks with multiple drivers and each driver needs his or her own HOS records, BYOD is the way to go.

Fixed systems are less likely to break or be lost, says Pete Allen, vice president of sales for North America, MiX Telematics. If you're required to have an ELD and you use your phone, losing it puts you out of compliance. Fixed systems also mean the fleet has better control over the data, and because they are homogenous, they are easier to maintain, Allen says.

Some fleets have concerns about drivers bringing their

(continued on page 14)

Company name	GENERAL					DRIVER
	Product name	BYOD or fixed system	Open architecture or out of box	Rule sets for vocational trucks	Payment options	Driver monitoring
Coretex	Coretex 360	Both options available	Open	Yes	Purchase or lease with 36, 48 and 60 month terms, no up front cost	Yes
Dispatching Solutions	DSi Mobile eLogs	Both options available	Open	Yes	One-time purchase or monthly subscription	Yes
DPL Telematics	DPL Telematics ELD	BYOD	Open	Yes	Depending on quantity, \$0 to \$70 upfront, \$20 month	Yes
EROAD	EROAD ELD	Fixed	Open	By end of 2017	36-month contract, buy device outright or lease month-to-month subscription	YES
ES Track	ES Track	Both options available	Both	Yes	No contracts, month to month	Yes
Geotab	Geotab GO Device & HOS Pro or ProPlus Plans, Geotab Drive mobile	BYOD	Open	No	Options vary. Initial cost \$170 with approximate monthly fees \$20 to \$30	Yes
GPS Insight	Hours of Service (ELD)	Fixed	Open	Yes	Buy or rent	Yes
J.J. Keller	Encompass with Elogs	Both options available	Out of box	Yes	Bundled and no contract monthly payments	Yes
MiX Telematics	MiX ROVI with HOS	Fixed	Open	Yes	SaaS bundled monthly fee structure	Yes
M2M In Motion	M2M In Motion ELD LITE or Fleet	BYOD	Open	Yes	Lease or buy, 1 to 5 year contracts	Yes
Pedigree Technologies	ELD Chrome	Both options available	Open	Yes	Upfront hardware payment, monthly fees or lease options	Yes
Spireon	FleetLocate FL7	BYOD	Open	Yes	36-month contract, two options: 1-zero down, 2-up front fee with lower monthly	Yes
Telogis	Compliance	BYOD	Open	Yes	Contract, subscription bases	Yes
Trimble	TrimFleet	Both options available	Open	Yes	SaaS model pricing	Yes
Teletrac Navman	Director Drive	Fixed. Uses Garmin devices	Out of box	No	Monthly fees; no upfront for hardware, implementation or training	Yes
ZED Connect	ZED ELD	BYOD	Open	Yes	\$200 for hardware/adaptor, no monthly fee or subscription	Yes
Zonar	Zonar Connect	Fixed	Complete solution with API	Yes	Lease or purchase	Yes

		MAINTENANCE				LOGISTICS		MANAGEMENT			
Proactive warnings	DVIR	Engine diagnostics	Maintenance alerts	Off-road telematics	Tire pressure monitoring	Geofencing	Route planning	IFTA Fuel tax reporting	PTO tracking	Small tool tracking	Website:
Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	No	www.coretex.com
Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	http://dsimobile.com/
Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	www.dpltel.com/eld
Yes	Yes	Coming	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes, with maintenance minder tracking	www.eroad.com/US/landing/ELD
Yes	Yes	Yes	Yes	Yes, with analytics and engine data	Yes	Yes	Coming soon	Yes	Yes	Yes, BLE nodes	https://estrack.com
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	www.geotab.com/fleet-management-solutions/compliance/
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	www.gpsinsight.com
Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No	No	www.JJKeller.com/Elogs
Yes	Yes, with MiX Go application	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes, with MiX Go	www.mixtelematics.com
Yes	Yes	Yes	Yes	Yes	No	Yes	Not currently	Yes	Yes	Yes	www.m2minmotion.com
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	www.ELDCertified.com
Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	FL7: No, but can use FL700	www.spireon.com
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	www.telogis.com
Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	www.trimble.com/Construction-Logistics
Yes	Yes	Yes	Yes	Yes	No	Yes	Yes, through integration partners	Yes	Yes	Yes, with Qtanium Connect	www.teletracnavman.com/our-solutions/compliance/eld
Yes	Yes	No	No	No	No	No	Yes	Yes	No	No	https://zed-eld.com
Yes	Yes	Yes	Yes	Yes	Coming in 2018	Yes	Yes	Yes	Yes	Yes	http://zonarsystems.com/solutions/connect-tablet

Functionality at your fingertips. A smarter way to manage vehicles and equipment.

Maximum utilization. Minimal downtime. Complete control in real-time. That's ES Track. The only telematics and ELD solution purpose-built for contractors, ES Track gives you all the information you need to make better decisions about how your rented and owned equipment is used, allocated and maintained.

KOMATSU

Komtrax

CAT

Vision

JOBSITE USAGE

01



E-LOGS



REMOTE INSPECTION



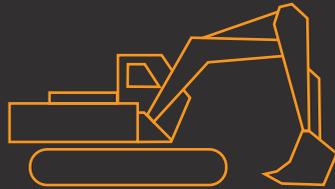
03





JDLink

02



ANALYTICS

04



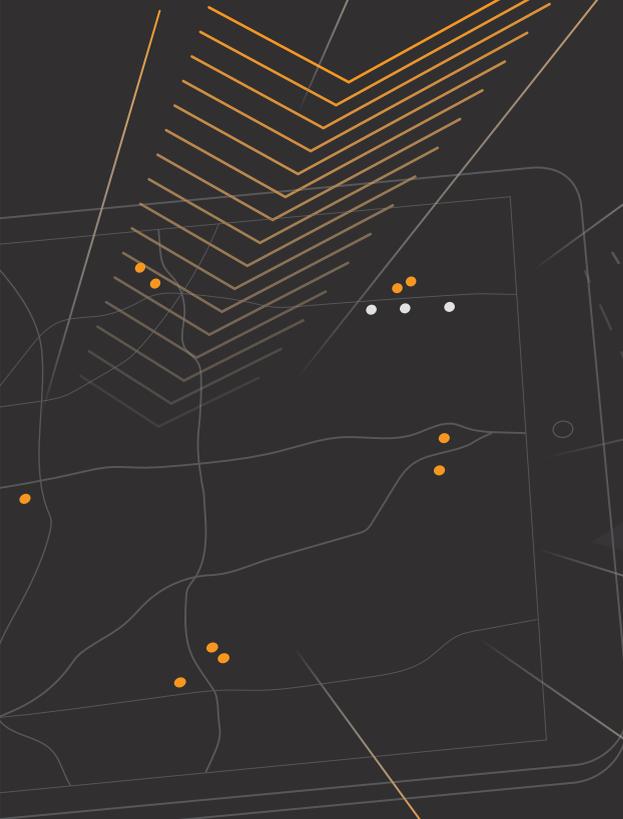
IFTA
REPORTING



DOWNTIME
PREVENTION

AT

onLink



Hardwired systems like the GPS Insight ELD 2000 are less likely to break or get lost.



personal tablets or smart phones into the cab to serve as their ELD.

With a personal device, fleets risk drivers using the company's data plan to watch movies, chat or surf the web. "One company I know spent \$26,000 in overages for their data because their drivers were watching movies in their off time," says Marc Lonson, president M2M In Motion. "With a dedicated tablet, you don't give them that option and you can manage that a lot easier. You only need about 500 megabytes a month to run an ELD."

Hardware costs for fixed systems can run from \$400 to as much as \$2,000 per unit. BYOD systems start at about \$70 and go up to around \$500. For both types of devices, you pay a monthly subscription fee for the data, which can run approximately \$15 to \$50 per device.

Open architecture vs out of the box

Most ELD and telematics solutions use open architecture and software as a service, or SaaS, meaning the device you have in the cab is a "dumb" terminal. All the rule sets and programming reside on the vendors' servers and are pushed out to your device.

This has two advantages. Many open architecture systems can be integrated with other systems from other vendors such as driver cameras or fuel cards. And if the FMCSA or your state DOT decides to tweak or change any of the rules, the vendor simply makes that change to the software on their servers and automatically pushes it to all the customers' devices.

Out of the box systems, by contrast, are not as easily changed, although they're usually less expensive. This may be more important to owner-operators or small firms with just one or two trucks.

Payment options

Many customers pay cash for the hardware and then a monthly subscription for the data. Some vendors ask for contracts, anywhere from one to five years. But you also can find subscription-free services where you only pay month-to-month.

If you don't want to pay up front for the hardware, you can also find plans that roll that cost into a lease that bundles the data subscription and the lease payments on the hardware into one price. These contracts typically last until the hardware is paid off.

ELD/telematics system features

A robust ELD or other telematics system can offer dozens of features to improve your business processes and make your fleets more productive. Before buying an ELD solution, make sure it can handle the special requirements of tracking construction hours of service and exemptions. On page 10-11, we detail in chart form what each vendor offers.

Here are some features to consider:

DRIVERS

Driver monitoring. Telematics systems can measure harsh braking, speeding, harsh turns and other irregular behavior and compile scores for each driver. You can use this data to coach poor performers, but can also exonerate drivers who are not at fault after an accident. Some vendors can provide driver cams as well or integrate with third party driver cams. In addition to alerts, most of these systems provide a scorecard so that you can see who your best drivers are and who needs help or coaching. In-cab verbal feedback and mobile applications to allow for peer-to-peer gamification and

incentive programs are other options.

Proactive notifications and warnings. The complexity of the HOS regulations and the multi-task nature of construction work can leave some drivers unsure of how much drive time they've accumulated. Look for a telematics system that will warn your drivers when they're getting close to the limits or are cleared for a restart.

DVIRs. The law requires a driver vehicle inspection report for many vocational trucks. With the right telematics product, drivers can record their pre- and post-trip inspections electronically. If they have a mobile device, they can also take photos of maintenance issues and send those back to the shop. Inspection records can be sent back to the office. If your telematics product times the inspection, you can see which drivers are doing a thorough job and which are too hasty.

MAINTENANCE

Engine diagnostics. ELD and telematics systems tap into the truck engine's ECM. This allows you to see things like overheating, oil pressures and the like.

Maintenance alerts. Telematics systems can keep track of your PMs better than paper records. These are based on hours or miles and are sent simultaneously to the driver, managers and the shops so that nobody drops the ball.

Off-road telematics. If you run a mixed fleet of on-road trucks and off-road equipment, having a telematics provider that can do both simplifies your processes and eliminates the need to jump from website to website to gather information.

Tire pressure monitoring. Many of today's trucks and automobiles can track tire pressures using Bluetooth enabled tire pressure monitoring devices. Including this in your telematics feeds can help save fuel, save tread

life and make your trucks safer by alerting you to tire pressure problems before they become serious.

LOGISTICS

Geofencing. ELD systems use GPS to track the truck's position, making it easy to create a virtual "fence" on a digital map in the office and receive alerts anytime a truck strays beyond the it. This prevents unauthorized use and has been a very popular – some would say the most popular – feature of truck telematics for many years.

Route planning. Route planning lets you move drivers around difficult or slow traffic conditions or determine the most efficient route for them to take on things like concrete pours or when hauling hot asphalt.

MANAGEMENT

IFTA/fuel tax reporting. Fuel tax reporting capabilities eliminate the need to spend hundreds of hours a year collecting, organizing and tabulating drivers' fuel receipts. Drivers simply enter the fuel amount and taxes paid at each refueling stop and the system sends the totals to the office and calculates them automatically.

PTO tracking. In most states, you do not have to pay fuel taxes on the fuel your truck burns when the PTO is engaged – when the truck is stationary but doing work like mixing concrete. The more sophisticated telematics systems will automatically read your engine codes and record this time. Backend software can then calculate the fuel burn and compile that for your tax rebates.

Small tool tracking. Of interest to construction contractors, small tool tracking devices can monitor the whereabouts of non-powered assets and integrate that data into your overall telematics platform.

ELD PRODUCTS

Dispatching Solutions DSI eLogs

Dispatching Solutions' cloud-based DSI eLogs is certified on FMCSA's registry and is available as either a dedicated unit or a BYOD solution for both the Android and iOS operating platforms. Drivers can see their electronic logbook status in real time, and the back office can view the entire fleet and help manage driver compliance. DSI eLogs also has GPS fleet and asset tracking, transportation scheduling, dispatch, order management, smart forms, alerts, geofencing, IFTA accounting and fleet maintenance. The initial cost is \$450 to \$700 depending on hardware and capabilities, with an ongoing monthly fee of \$20 for ELD service only and \$40 for both ELD and GPS capabilities.

DSIMobile.com



Spireon FleetLocate FL7

Spireon's web-based FleetLocate fleet management systems monitor vehicle and driver performance and give fleet operators insights into driver behavior and help them reduce fuel costs, idle time, labor, fleet mileage and maintenance-related downtime. FleetLocate FL7 is a BYOD solution for both the Android and iOS operating platforms that offers compliant e-logs, IFTA accounting, driver safety alerts and reports, driver scores, audible alerts and engine diagnostics. The initial cost is \$0 to lease, with an ongoing monthly fee of \$26.95 and up depending on add-ons.

Spireon.com



ELD PRODUCTS (continued)

HOS Reporter

Connected Holdings' HOS Reporter is designed to be a two-in-one driver-friendly compliance solution. The device includes both an ELD solution and a full AOBDR solution that provides e-logs under older regulations. It also offers electronic vehicle inspection reports and automated IFTA data logging. The subscription includes a GPS device for the truck's 6-pin, 9-pin or Volvo-Mack data port connector. Options include HOS Reporter-Bluetooth, a low-cost option that sends information using the driver's smartphone and data plan; HOS Reporter-Bluetooth/Cellular, which sends information over cellular networks using the driver's smart phone as a display device; and HOS Reporter-Bluetooth/Cellular and Tablet, which sends information over cellular networks using the company's dedicated HOS compliance tablet. The initial cost is \$0, with an ongoing monthly fee of \$15 (two years prepaid) or \$18 (one year).



HOS-Reporter.com

Pedigree Technologies ELD Chrome

Pedigree Technologies' ELD Chrome combines a driver-friendly interface with efficiency features important to fleet managers, including IFTA reporting. The ELD is expandable, and offers a full suite of solutions, including trailer, equipment and asset tracking as well as tire pressure, tank-level and temperature monitoring. The OneView platform and solutions are designed to grow with each customer's specific needs; common additions, for example, include dispatching and electronic work orders (job management). It enables consistent real-time visibility and information, which is actionable to all appropriate users (including APIs and integrations). Users are given thorough on-boarding and customer support, which includes a variety of training and service options (including compliance). The system can be used either as a dedicated system or with a BYOD. It offers DVIR, driver monitoring, engine diagnostics and geofencing. After an upfront hardware payment, there is either a monthly fee or users can choose a zero-down lease option.



ELDCertified.com

ES Track

ES Track is compatible with any OEM and simplifies complex reporting, aggregating data from all your vehicles and machines. Using one dashboard, you can track Hours of Service, customize maintenance alerts or track equipment in real time. The ES Track mixed-fleet solution offers ELD monitoring, security functions, utilization reports and operator alerts, along with other fleet management features. Benefits include reduced downtime, fuel savings, more accurate job estimates and driver behavior monitoring, says the company. ES Track includes all features and doesn't require a contract; the initial cost is \$250 for hardware and an ongoing monthly fee of \$21.95 per month.

ESTrack.com



Zed Connect ZED ELD

Zed Connect's Zed ELD is a BYOD Bluetooth-ready compliance solution for the iOS and Android operating platforms. Zed's Bluetooth adapter is compatible with 9-pin J1939 diagnostic ports – both Type 1 (black/gray) and Type 2 (green) – and uses multiple levels of security to connect to Zed's mobile app to capture the required ELD data for FMCSA compliance. For drivers, Zed ELD offers daily certification, HOS tracking, duty status records and DVIR reporting for DOT inspections to maintain compliance; it also offers routing and navigation, including real-time updates on road conditions, closures and construction. For construction companies, the solution also offers route management, GPS tracking, DVIR documentation and a dashboard. ZED intends to use its open platform to develop additional services. The device is designed for easy installation, and the initial cost is \$200 with no ongoing monthly fee.

Zed-ELD.com

