

# Bus & Motorcoach NEWS

WHAT'S GOING ON IN THE BUS INDUSTRY

## It's only a matter of time before hackers use ELDs

An electronic logging device will be used to hack a truck or motorcoach, predicted Mark Zachos, the leader of two industry committees devising means of protecting hundreds of thousands of vehicles from blackmail or intentional harm.

ELDs have been mandated since December for motorcoaches and large trucks by the Federal Motor Carrier Safety Administration to track driver hours of service and produce records of duty status to promote compliance with safety regulations.

"In the FMCSA regulations, as far as I understand it, there still is not a validation test or conformance test for any ELD," said Zachos, founder and president of DG Technologies in Farmington Hills, Mich.

"There is no quality control to make sure that these things even work. The second issue is cybersecurity. If it hasn't happened yet, I am certain that some virus will be injected into an ELD."

He hopes the motor vehicle and tech industries will identify solutions to ELD cybersecurity vulnerabilities by the end of the



year but expects those recommendations will be voluntary.

The electronic diagnostic port to which an ELD is plugged is "insecure by design," said Corey Thuen, founder of Gravwell, a data analytics platform based in Coeur d'Alene, Idaho.

The onboard diagnostic (OBD) port has been required on all cars and trucks built in the U.S. since 1996, Thuen said, and was not in-

tended to be used for connecting third-party devices to the controller area network (CAN) bus that controls increasingly complex and connected vehicle electronic systems.

The motor vehicle industry uses the uniform electronic connection device that is referenced by its Society of Automotive Engineers (SAE) standard designation, J1939.

In newer vehicles, the CAN bus controls the engine, transmission, brakes, locks and lighting, Thuen said.

"The vehicle is one control network," he said, adding that OBDs and CAN buses contain no security protections. "They are insecure by design. Nobody ever thought you would have hackers messing with your CAN bus. The auto manufacturers thought it was

not a really big deal because hackers would need to be plugged in and be physically on the control system network," he said.

Vehicle and technology manufacturers must now deal with "dongles" — ELDs and other devices that are semi-permanently plugged into diagnostic ports to extract information.

Auto insurance companies are offering similar devices to track customer driving practices and determine if they are eligible for safety rate discounts.

ELDs are designed to perform one way only, extracting logs of engine operations without the capability to send commands or other information into the CAN. The typical ELD, however, contains no security protections to prevent hackers from turning them into senders as well as receivers, Zachos said.

"A hacker can get into it and reprogram it. That's what hackers do," he said. "They can turn it into a transmitter — that is a common device that hackers use to bring down networks, and they could do it to the network on a truck or bus."

CONTINUED ON PAGE 14 ►

## Pedestrian avoidance systems for buses making strides

NEW YORK CITY — The first commercially feasible forward collision warning system was announced in 1995. It was based on radar and worked well at detecting objects in the vehicle's path, particularly if they were made of metal.

Identifying pedestrians and cyclists along the road proved to be more challenging.

A camera-based system offered by technology company Mobileye has been installed on several hundred large vehicles operating

in urban environments in the U.S. and has drastically reduced, if not eliminated, pedestrian and cyclist collisions, said Uri Tamir, the company's director of strategic initiatives.

"There are several problems with detection of pedestrians from the sensor point of view," Tamir said. "Many times pedestrians are in cluttered scenes that pose a challenge to both drivers and sensors."

"It is hard to distinguish between objects that are very close to

each other, especially when one of the objects is made of metal. For sensors such as radar it is very hard to classify them," he said.

Pedestrians and cyclists pose particular challenges to drivers of buses and large trucks.

"Especially with large vehicles moving in an urban setting there is a problem because of the vehicle dynamics," Tamir said. "There are blind spots from the left and right side and in some vehicles also blind spots created by the A-pillar (windshield post).

"Many times pedestrian fatalities or crashes happen when the vehicle is turning left or right. When the pedestrian is in the blind spot the driver cannot notice them."

Non-motorist — or non-passenger — deaths account for nearly one-third of fatalities involving buses, according to the 2017 Pocket Guide to Large Truck and Bus Statistics published by the Federal Motor Carrier Safety Administration.

Buses were involved in 80 pe-

destrian fatalities and nine pedestrian fatalities and nine pedestrian fatalities in 2015, when bus fatalities totaled 295. These statistics define a bus as a vehicle that seats at least nine people. There were 888,907 vehicles of that definition registered in 2015.

Vehicles designated "cross-country intercity motorcoach" were implicated in 32 of the pedestrian/cyclist bus fatalities in 2015. The largest death totals were attributed to school buses (98) and transit buses (92).

CONTINUED ON PAGE 13 ►

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# Temsa and CH Bus Sales awaiting mediation over dispute

WILMINGTON, Del. — Temsa and its U.S. distributor, CH Bus Sales, are awaiting a judge's order scheduling a mediation session on Temsa's notice terminating the distribution agreement.

On March 20, Temsa sent CH Bus Sales two notices. One, a "notice of termination as of right," would end the distribution agreement in two years under terms specified in the agreement.

The second, a "notice of termination for cause," was set to terminate the distribution agreement in 90 days, or on June 20. It cited "CH's material breaches and failure to cure the same during any applicable period."

The first letter with the two-year notice of termination also specifically said it was "in addition to and does not supersede Temsa's Notice of Termination For Cause dated March 20, 2018, and mailed that same day, which remains in full force and effective according to its terms."

The notice of termination for cause stated that CH had breached the distribution agreement by failing to pay for motorcoaches and spare parts on time; selling third-party parts; improperly using demo coaches; failing to provide required financial statements and business plans; failing to promptly notify Temsa of customer complaints or claimed defects; and failing to service customers as required.

In addition, Temsa stated that CH violated the agreement by failing to ensure "its



Turkish bus maker Temsa and its U.S. distributor, CH Bus Sales, are planning a mediation session on Temsa's notice terminating the distribution agreement.

solvency, equity and cash flow" and "Impermissibly providing Temsa with incorrect documents or information, with fraudulent intent."

In a letter sent Dec. 26, 2017, and filed in U.S. District Court for Delaware, Temsa alleged that CH Bus was delinquent on \$7.7 million in payments for motorcoaches and parts. Temsa's December letter cited a CH Bus claim that it is owed money by Temsa as compensation for claimed defects in motorcoaches and parts.

Temsa filed suit on April 9 to enforce the notice of termination for cause. Temsa's headquarters and manufacturing plant are in Adana, Turkey. The suit is being heard in the U.S. District Court for Delaware, where CH Bus is organized as a limited liability company.

Temsa asked the court for a preliminary injunction enjoining CH Bus from moving or renting the "Products and Collateral," withholding proceeds from the sale of them, and "Taking any action to disparage, tarnish

or impugn Temsa's good will and professional reputation."

The court also was asked to impose a "constructive trust" on the motorcoaches and parts.

Temsa stated that it is entitled to "an accounting of the Products and Collateral in Defendant's possession, custody, or control" and to "recover the products and collateral."

On June 7, a letter filed with the court stipulated that the parties agreed to refer the matter to a magistrate "for the limited purpose of mediation." They asked that a mediation session be held within 60 days, subject to the judge's availability.

Temsa entered the U.S. market with CH in 2010 and sold its 1,000th vehicle here early in 2017. CH reported sales of 200 new coaches last year.

Michael Haggerty, chairman and majority owner of CH Bus Sales, said last month that he also had sued Temsa, alleging the coach maker owned CH Bus \$4 million.

However, Haggerty later acknowledged that he held off on filing the lawsuit pending the outcome of mediation.

He said CH Bus had 40 new Temsa motorcoaches and 60 used coaches it was planning to sell.

Temsa was expected to formally announce in late June or early July that it was forming its own company to distribute, sell and maintain its motorcoaches in North America.

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# THE DOCKET

## N.C. to study registration 'hoops' in other states

RALEIGH, N.C. — The North Carolina legislature has passed a bill requiring the state Division of Motor Vehicles to determine whether motorcoach operators in the state are being unfairly charged fees and fines by other states.

The bill stems from complaints by North Carolina operators that they are required to register in other states and are subjected to fines, possibly in violation of interstate

commerce laws. North Carolina doesn't require out-of-state operators to register in the state.

The North Carolina Motorcoach Association requested the study, which was passed and included in the state budget by legislators. Gov. Roy Cooper vetoed the measure, but lawmakers overrode the veto.

"North Carolina is one of the few states that did not create additional

hoops for out-of-state operators to do intrastate business in North Carolina," said David Moody of Holiday Companies in Randleman, N.C.

"Numerous states and districts around us require some kind of registration with their government to perform intrastate business," said Moody, a member of the United Motorcoach Association board of directors.

Virginia, South Carolina, Flor-

ida, Georgia and Washington, D.C., are among the jurisdictions requiring registration, he said.

"Virginia alone took our organization more than one year of back and forth with the state to become registered to do business there," Moody said. "It is an extra hoop that was put in place by the local/state governments solely for the purpose of reducing the level of competition from operators out-

side of their regions."

He said NCMA asked the state to evaluate the competition-limiting conditions placed on North Carolina bus operators by other states. The results of the study, due in December, could then be used either to push for reciprocity with these other regions or to petition Congress to address the ways in which these regions are skirting the intent of established laws.

## FMCSA delays medical certification rule three years

WASHINGTON — The Federal Motor Carrier Safety Administration has issued an interim final rule that delays a new system meant to streamline communication between state licensing agencies and federal regulators regarding commercial drivers' medical certification status.

FMCSA announced in May that it would likely delay the Medical Examiner's Certification Integration final rule, scheduled to take effect June 22, for three years, until June 22, 2021, pending public comments.

The agency blamed the delay on the hacking of the National Registry of Certified Medical Examiners late last year.

FMCSA has yet to identify the nature of the registry breach, nor has it predicted when it might return to functionality.

"This action was taken to provide FMCSA with additional time to complete certain information technology system development tasks for its National Registry of Certified Medical Examiners and provide the state driver's licensing agencies sufficient time to make the necessary IT programming changes after upgrades to the National Registry," the agency said in a news release.

The integration rule would require FMCSA to electronically transmit to state licensing agencies

the results of drivers' medical certifications once exams have been completed.

The agency receives the information from medical examiners, who are required to upload to FMCSA the results of exams by midnight the day after they are completed.

FMCSA would then be required to send those results to state agencies, which would then have to send the results to the Commercial Driver's License Information System to make other states aware of drivers' exam results.

Those reporting requirements are now on hold for three years.

The rule also would have re-

moved the requirement that drivers carry a physical copy of their medical certificates beginning 15 days after issuance. That requirement will now remain in effect.

Drivers also are required to self-report their certification status to their state licensing agency, a requirement that has been in effect since Jan. 30, 2012.

The interim final rule requires various agencies and individuals to continue certain practices through June 21, 2021. They include:

### Certified Medical Examiners:

- Continue issuing the original paper Medical Examiner's Certificate, Form MCSA-5876, to all qualified drivers including commercial

learner's permit/commercial driver's license applicants/holders

### Commercial learner's permit/commercial driver's license applicants/holders:

- Continue providing state driver's licensing agencies with a copy of their Medical Examiner's Certificate, Form MCSA-5876

- Continue carrying their Medical Examiner's Certificate, Form MCSA-5876, as proof of medical certification for the first 15 days following certification

### Motor carriers:

- Continue verifying that drivers were certified by a Certified Medical Examiner listed on the National Registry

### State driver's licensing agencies:

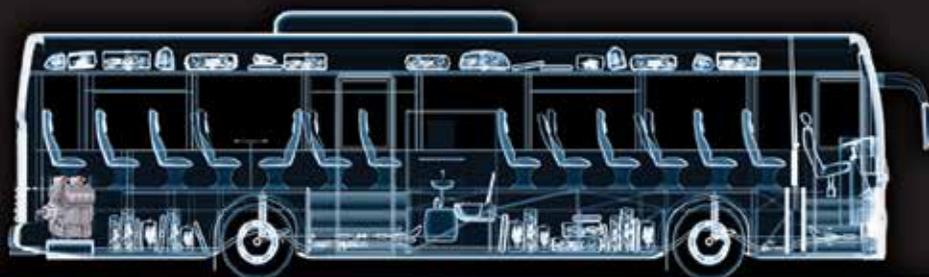
- Continue processing paper copies of Medical Examiner's Certificates, Form MCSA-5876, they receive from commercial learner's permit/commercial driver's license applicants/holders

The interim final rule does not change the requirement for medical examiners to report results of all commercial motor vehicle driver physical examinations performed (including the results of examinations where the driver was found not to be qualified) to FMCSA by midnight (local time) of the next calendar day following the examination.

The compliance date for that provision was June 22. FMCSA said it would announce when the function is restored that allows medical examiners to electronically report results of examinations conducted.

"Until that time, medical examiners should segregate all examinations completed during the National Registry outage and be prepared to upload them to the National Registry system when it is back online, with no penalties.

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# FMCSA says graphic proves ELDs are reducing violations

The Federal Motor Carrier Safety Administration has posted an informational graphic tracking the affects of electronic logging devices, and it appears that ELDs are doing what they are designed to do — reduce hours-of-service violations.

The graphic, which tracks the percentage of driver inspections that result in at least one HOS violation, shows that violations have declined significantly since en-

forcement of the ELD mandate began in April.

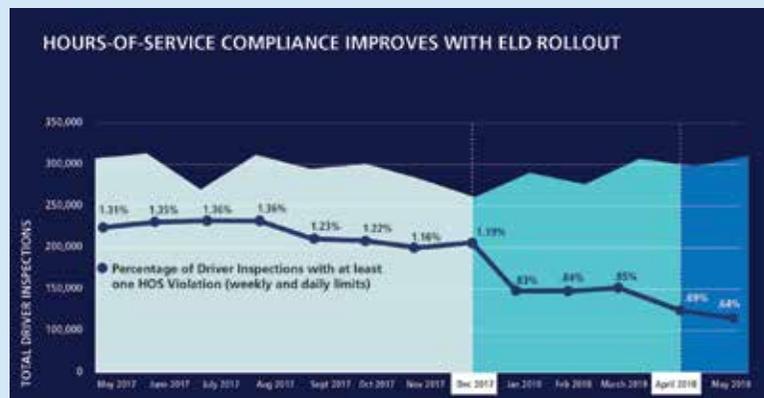
The violations dropped from a high of 1.36 percent in July and August 2017 to 0.64 percent in May 2018.

The graphic, which FMCSA said it would update monthly, also shows that fewer than 1 percent of all commercial driver inspections conducted since the ELD rollout — 4,720 out of 559,940 — have

resulted in the driver being cited for operating without a required ELD or grandfathered automatic onboard recording device.

The ELD mandate affects commercial trucks and buses.

The graphic can be found at: <https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/regulations/enforcement/406471/eld-infographic-6-month-update-f2508621.pdf>.



# USDOT launches \$350,000 contest to improve road safety

WASHINGTON — The U.S. Department of Transportation is offering \$350,000 in prizes in a contest designed to find “innovative analytical visualization tools” that will reveal insights into serious crashes and improve understanding of transportation safety.

The “Solving for Safety Visualization Challenge,” launched over concerns about a rise in highway fatalities in recent years, is seeking technology and data firms, transportation stakeholders and state and local agencies to develop innovative new data visualization tools.

Four semi-finalists will compete for a portion of a \$100,000 interim prize and two final-stage “solvers” will compete for a portion of the \$250,000 final prize, according to a Federal Register pre-publication announcement by USDOT.

“In 2017, motor vehicle traffic crashes resulted in an estimated 37,150 fatalities,” the announcement said. “Comprehensively, crashes are a societal harm that costs the nation over \$800 billion annually in lives lost or injured as well as lost work productivity and property damage.

“The USDOT’s transportation safety programs have decades of research and design behind them and have proven effective in reducing injuries and fatalities by 40 percent between 1990 and 2011. In recent years, these advances have leveled off, and new insights and strategies are required to make further advances.”

USDOT said the challenge is open to individuals and teams from the business and research communities, including technology companies, analytics firms, transportation carriers, industry associations, research institutions,

universities and mapping and visualization providers.

The cash prizes will be awarded throughout the multistage challenge.

The agency is accepting Stage I submissions through July 31, 2018. A panel of judges will review team submissions and announce Stage I finalists in August 2018.

USDOT said that traditional factors do not fully explain the causes of the recent uptick in traffic fatalities.

“Increases in driving are one factor; however, the rate of fatali-

ties per 100 million vehicle miles traveled also increased from 1.08 fatalities per 100 million VMT in 2014 to an estimated 1.17 in 2017,” the agency said. “Economic conditions, gasoline prices, weather and other factors are also correlated with increased traffic fatalities.”

USDOT is seeking to reverse the trend, rapidly detect changes that indicate unsafe conditions and reduce fatalities and serious injuries.

More information can be found at: <https://www.transportation.gov/solve4safety/challenge>.



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# CVSA's 2018 Brake Safety Week to be held Sept. 16-22

GREENBELT, Md. — Enforcement personnel will conduct roadside inspections on commercial motor vehicles as part of the Commercial Vehicle Safety Alliance's annual Brake Safety Week in September.

The event, scheduled for Sept. 16 to 22, is designed to identify and remove CMVs with critical brake violations from roadways and to call attention to the dangers of faulty brake systems.

Properly functioning brake systems are crucial to safe CMV operation. Brakes must be routinely inspected and carefully and consistently maintained so they operate and perform to the manufacturer's specifications throughout the life of the vehicle.

Improperly installed or poorly maintained brake systems can reduce braking efficiency, posing serious risk to public safety on our roadways.

Data and research are clear:

- According to the Federal Motor Carrier Safety Administration's Large Truck Crash Causation Study, 32.7 percent of large trucks with pre-crash violations had brake problems.

- Brake-related violations

comprised the largest percentage of out-of-service vehicle violations cited during last year's International Roadcheck.

- The FMCSA study's relative risk analysis indicated that large trucks involved in a crash where the braking capacity of the truck was critical were 50 percent more likely to have a brake violation than were trucks involved in crashes where the truck's braking capacity was not critical.

- According to the study, of the trucks involved in brake-critical

crashes, 45.5 percent had brake violations, compared with 29.9 percent of trucks involved in crashes of the same type where the braking was not relevant.

- Results from last year's Brake Safety Day found that 14 percent of all inspections conducted during that one-day initiative resulted in a CMV being placed out of service for brake-related violations.

Brake Safety Week aims to reduce the number of crashes caused by poorly maintained braking systems

on CMVs by conducting roadside mechanical fitness inspections and removing dangerous vehicles from our roadways.

In addition to inspections and enforcement, outreach efforts by law enforcement agencies to educate drivers, mechanics, owner-operators and others on the importance of proper brake maintenance, operation and performance are integral to the success of the safety initiative.

During Brake Safety Week, inspectors will primarily conduct

the North American Standard Level I Inspection, which is a 37-step procedure that includes an examination of driver operating requirements and vehicle mechanical fitness.

Inspections will focus on brake-system components to identify loose or missing parts; air or hydraulic fluid leaks; defective rotor conditions; measurement of pushrod travel; mismatched air chamber sizes across axles; air reservoir integrity and mounting; worn linings, pads, drums or rotors; required brake-system warning devices; and other brake-system components.

Vehicles with defective or out-of-adjustment brakes will be placed out of service.

In addition, in the 12 jurisdictions using performance-based brake testing (PBBT) equipment, vehicle-braking efficiency will be measured. PBBTs measure the cumulative brake force for the entire vehicle and divide it by the total vehicle weight to determine overall vehicle braking efficiency.

The minimum braking efficiency for trucks is 43.5 percent, required by 393.52 of the U.S. Federal Motor Carrier Safety Regulations.

## Operation Safe Driver Week underway

GREENBELT, Md. — The Commercial Vehicle Safety Alliance's 2018 Operation Safe Driver Week will take place July 15 to 21.

Traffic safety personnel will be on the lookout for unsafe driving behaviors by commercial motor vehicle drivers and passenger vehicle drivers as they work toward zero deaths on roadways.

Unsafe driver behaviors by CMV drivers and passenger vehicle drivers continue to be the leading cause of crashes. The Federal Motor Carrier Safety Administration's Large Truck Crash Causation

Study cites driver behavior as the critical reason for more than 88 percent of large truck crashes and 93 percent of passenger vehicle crashes.

Examples of dangerous driver behaviors that enforcement personnel will be tracking throughout Operation Safe Driver Week are speeding, distracted driving, texting, failure to use a seatbelt while operating a CMV or in a passenger vehicle, following too closely, improper lane change, and failure to obey traffic control devices.

CVSA's Operation Safe Driver

Program was created to help reduce the number of crashes, deaths and injuries involving large trucks, buses and passenger vehicles due to unsafe driving behaviors. During Operation Safe Driver Week, there will be increased CMV and passenger vehicle traffic enforcement.

Operation Safe Driver Week is sponsored by CVSA in partnership with FMCSA.

For a list of agencies overseeing enforcement events in your area, go to <https://cvsa.org/contactpage/contacts/law-enforcement-leads-agency-contacts/>.

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# MCI to offer test drives of 35-foot J3500 at rallies

DES PLAINES, Ill. — The history of Motor Coach Industries began in 1933 with an 11-passenger body welded to a Packard chassis.

Eighty-five years later, MCI is bringing its largest product line ever to its summer long “Reliability Rallies” throughout the U.S. and Canada.

One of the biggest features at the rallies will be a chance to test drive the J3500, the new 35-foot version of the company’s best-selling J4500 motorcoach, featuring the J-coach luxury in a smaller size with an added bonus of seating for up to 44 passengers, best-in-class payload and parts commonality with the J4500.

Participants also will get a first look at the 2019 MCI J4500, which unveils a swing radiator and e-Fan (electric cooling fan) system, plus next-generation Advanced Driver Assistance System innovations that follow the enhanced interior updates to the 2018 J4500.

MCI also will be showcasing its D45 CRT LE commuter coach

that was unveiled last fall with a low-entry and vestibule seating that cut dwell times and boosted passenger accessibility. During test runs, 93 percent of riders approved of the coach’s design.

New Flyer and ARBOC buses also will be on hand at the rallies. In late 2017, MCI parent NFI Group purchased ARBOC Specialty Vehicles, which makes low-floor, body-on-chassis “cutaway” buses.

Rally participants also will be able to experience an MCI Academy educational session on how to increase shop efficiency. The academy is accredited by the National Institute for Automotive Service Excellence, representing the standard in technical training tailored to the motorcoach industry.

MCI parts representatives will be on hand to answer questions and information also will be available about the company’s development of all-electric coaches.

In addition, special discounts will be available on pre-owned

coaches, parts and service. The events will also feature food, music and prize drawings.

“We look forward to our Reliability Rally open houses over the summer because it’s the best time of the year to get together with customers, hear their needs and show them what we’ve been working on,” said Patricia Ziska, MCI

vice president of new coach sales.

“But there’s never been a bigger Reliability Rally year than 2018 thanks to the sheer range of MCI and partner products and supplier services on display as we celebrate our coach-building anniversary. We’re inviting our customers to bring their staff, mechanics, drivers and family members. The

event schedule includes something for everyone to enjoy,” Ziska said.

The dates and locations are as follows: July 10, Winter Garden, Fla.; July 19, Blackwood, N.J.; July 24, Des Plaines, Ill.; August 6, Hayward, Calif.; August 14, Los Alamitos, Calif.; September 8, Montreal, Canada; and September 13, Dallas.



Participants in MCI’s summer rallies will get a chance to test drive the J3500, the new 35-foot version of the company’s best-selling J4500 motorcoach.

## Canadian tourism surging thanks to Chinese visitors

OTTAWA, Ontario — Tourism is undergoing a renaissance in Canada thanks to an increasing number of Chinese tourists visiting the country.

Chinese tourists now make up the second largest number of visitors to Canada behind U.S. residents, CBC reports. The United Kingdom, which held the No. 2 spot for three decades, fell to third.

Foreign visits to Canada dropped significantly after the terror attacks of Sept. 11, 2001, which led to tighter border security.

The SARS outbreak in 2002, the global recession of 2008, and an unattractive exchange rate combined to push tourism down even further, with the number of visitors to Canada dropping in 2010 to the lowest level since 1972, when Statistics Canada started tracking bor-

der entries.

Now, however, the number of visitors is rising again, thanks to Chinese tourists, an improved global economy and increased air travel from emerging countries.

Canadian tourism is still below the all-time highs in the 1990s, when more than 4 million people a month visited.

“I don’t see why it’s not possible to reach those numbers again,” Claude Normandin, an analyst for Statistics Canada, told CBC.

Canada became a viable destination for Chinese travellers eight years ago when the Chinese government gave Canada what’s called Approved Destination Status, meaning Chinese citizens had permission to travel there.

Chinese visitors travel to Canada for meetings and conferences, for scenic attractions and to visit relatives on the West Coast.

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# Coach industry needs young, well-trained drivers

By Pierre "Pete" Brenenstuhl

Is there a younger driver in your future?

Not too long ago, the answer probably would have been "no way."

But because of the aging driving pool in the transportation industry and a dwindling number of new applicants, bus and truck operators are experiencing a serious shortage of drivers.

That has led to increased support for allowing 18 to 20 year olds to drive commercial vehicles across state lines, which in the past has been hampered by licensing and insurance restrictions that rely on outdated data.

Legislation has been introduced in Congress that would allow properly trained 18 to 20 year olds to receive commercial driver's licenses and drive interstate routes.

And the insurance industry, which has shied away from covering drivers under 25, is starting to reconsider such policies.

There are even some motorcoach operators that are implementing internship and mentoring programs designed to bring younger drivers into the industry.

Common sense dictates that it would be irresponsible to place minimally trained younger drivers behind the wheel of a bus or motorcoach after a simple road test, inadequate training and a few trips with a senior driver, something many in the industry are doing now with age-qualified candidates.

But are those older drivers really safer, more passenger-friendly and less prone to low-speed body damage and tire scuffing than a younger driver who completes a long-term program of certified training, apprenticeship and mentoring?

Logic and my experience training drivers would say no, as long as the younger drivers undergo professional training, apprenticeship and mentoring programs and their performance is tracked.

## Cooperation needed

However, this will require changes in present CDL requirements and the cooperation of states and insurance carriers.

Fortunately, help may be on the way through the efforts of Reps. Duncan Hunter, R-Calif., and Trey Hollingsworth, R-Ind., who introduced the H.R. 5358, the Drive Safe Act, in Congress.

The bill as now written would allow extensively trained and men-

tored 18 to 20 year olds to drive commercial vehicles (trucks) equipped with the latest safety technology across state lines.

Although H.R. 5358 is designed specifically for the trucking industry and does not make provisions for passenger-carrying vehicles, the door is being opened and hopefully bus and motorcoach associations will follow suit and petition Congress for similar legislation.

But as stated before, one of the obstacles to this idea is that insurance companies rate 18-to-25-year-old drivers as high risk, and they have the data to prove it for personal vehicles. However, limited or no data exists for younger drivers of commercial vehicles due to current licensing regulations.

Michelle Wiltgen, assistant vice president and national marketing manager at National Interstate Insurance Company, acknowledged that the lack of data on younger professionally trained commercial drivers is part of the problem. And although many insurance carriers prefer to insure drivers between the ages of 25 and 65, those numbers are not cast in stone.

## Individual basis

Wiltgen said exceptions are made for younger and older drivers on an individual basis at well-run companies with a history of safe operation and professional training. Younger drivers could be considered insurable provided they are enrolled in and complete a long-term program of apprenticeship, mentoring and professional training, she said.

That's great news, but will other insurance carriers follow suit?

Bob Crescenzo, vice president of Lancer Insurance Company, the nation's No. 1 bus and motorcoach insurer, said the company has not changed its underwriting guidelines and will continue to review drivers based on how they are selected, including the vetting process and their driving experience.

The second step is evaluating the motorcoach company's driver-training program and its ability to provide training for any candidate who has limited behind-the-wheel experience.

Crescenzo said Lancer would continue to use that same process if the CDL is available to drivers under 21 years of age. However, he added, not every 18-to-20-year-old driver (and other drivers under the age of 25) would be a good candidate for the licensing program, which should include extensive

behind-the-wheel training and a qualified long-term internship/apprentice and mentoring program.

There appears to be growing support for such programs among motorcoach operators.

Matt Brown, president of Astro Tour and Travel in Tallahassee, Fla., and former chairman of the Florida Motorcoach Association, started his own internship/mentoring program a few years ago by hiring two young men as apprentices in the shop.

They are now age qualified and ready to take their CDL test and advanced training.

Brown said that by working in various shop and wash crew positions, candidates get a lot of behind-the-wheel time moving and parking buses, learning to how to take care of the coaches and operating all of the vehicle systems. At the same time, they can be observed interacting with drivers and staff.

He plans on starting his teenage son in the mentoring program.

Another possible way to attract young people to our industry sooner would be to work with high schools to develop intern programs for seniors that would give students an opportunity to work a variety of jobs in the bus industry, which could lead to their staying on as candidates for the next phase of driver training.

In fact, Patterson High School in California has done just that by starting a truck driver program dedicated to bringing new drivers into the industry.

## Possible solution

This program could be a solution to one of the biggest problems the bus industry has today – the inability to attract the younger generation until they reach 21 or older. By that time they often have been lured into other professions, especially electronics and other technology fields, which they've been exposed to since they were old enough to hold a tablet or smart phone.

As an industry we have a big job to do to attract the younger generation to transportation. Exposure and internships are the answers.

Other industries are investing in our nation's youth, including retail, health care and automotive, to name a few.

Even organizations such as Boy Scouts, police academies, the Civil Air Patrol and the EAA Experimental Aircraft Association all have programs that are preparing our next generation for careers

those fields.

We need to do the same!

We need to develop an apprenticeship and training program that would qualify young drivers to become safe motorcoach operators and satisfy the concerns of all who are skeptical of such a plan.

## Ground up

As interns they could learn the business from the ground up and be evaluated weekly by working in and rotating through any number of jobs in the company so they and you would know if they are a good fit before they begin the next phase of classroom, driving range and on-the-road training administered by a trained safety professional/instructor.

They then would be assigned to a trained mentor for the in-service phase, deadheading and driving with passengers until a time or miles goal is reached and they meet the standards of a master driver and are certified by the program manager.

Compare this plan to the current CDL qualification requirements of passing a short written and road test, with no professional training required.

There is a small light at the end of the tunnel as Congress recently passed the Entry Level Driver Training Act, which, beginning in 2020, requires all new CDL applicants to complete a short period of approved training (no set hours) by an FMCSA-approved provider.

However, the act was watered down before passage and, while it is a start, it is a long way behind our European peers, who in addition to obtaining their country's CDL, must complete a lengthy academic and practical training program and obtain a United Nations-sanctioned Certificate of Professional Competence to become intercountry drivers.

Our only other option is to continue compromising our hiring and discipline standards and fill seats with minimally trained drivers who have been making the same mistakes for years and calling it experience — but who do meet the insurance industry's age and experience requirements.

As a passenger or bus owner, who would you rather have driving your bus, the minimally trained older driver who doesn't know what he doesn't know, or a younger driver who worked long and hard to become a professional motorcoach operator?

*Pierre Brenenstuhl is CEO of Prodrive Safety.*

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# Despite doo-dos, there's no place I'd have rather been

By Dave Millhouser



It was pitch black as the old bus ghosted west on U.S. 24, crossing Colorado's rolling prairie. A hint of pink in the rear-view mirror whispered that dawn was coming, and the driver asked the group leader to wake the 40 teenagers sleeping in the passenger seats.

"They need to see this," he said. A bit of grumbling, then awed silence. The sun rising behind the coach flashed a beam that arced 30 miles ahead, across the night sky, and lit the tip of Pikes Peak. The snowcap glittered like a jewel hovering in space, and then the light descended the mountain, making it glow pink and purple.

"Purple Mountain's Majesty." It's been 55 years, and the memory remains crystal clear.

This is what bus people do. In the midst of high fuel prices, economic meltdowns and all the other things that make this a tough business, we take people to special

places and moments.

We're often perceived as second cousin to more glamorous modes of transportation, but without buses, many of the folks who make this country work couldn't get to their jobs.

The young men and women of the military, who protect us, often begin their difficult journeys in buses, and that's how they come back to us.

The special generation that saw us through World War II and Korea has used our coaches to tour the great nation they defended and built.

We take them to see a country that, even in the midst of turmoil, remains the most beautiful and generous on earth.

We take folks to friends and family for holidays and special occasions, to sporting events and shows and to summer camps and vacations. We rescue hurricane victims. Without bus service, countless communities would be isolated and unlivable for those unable to drive.

We do it even when airplanes are grounded and trains can't travel — safely and with a minimum of fuss.

'We may not be sophisticated or sexy, but we do something great.'

It's a rugged business, with hard work, long hours and midnight emergencies. There never seems to be enough time or money. We all gripe, and yet somehow we are never able to quit the business. It's a lifetime addiction.

That may be because, deep inside, we know who we are and that what we do is special. We may not be sophisticated or sexy, but we do something great.

It would be nice if the public recognized it, but we do it because it's so damn satisfying. Coaches, and the people who operate them, make America a far better place to live.

In 1966, I started sweeping buses. Since then, they've taken me to a lot of wonderful places and offered opportunities I could never have imagined as I pushed trash down the aisle of a 1947 Brill.

None of that can compare to all the fine people I've met, and so may I thank you all for what you've done for me, for our industry and for this great country? It's an honor to be a bus person.

And may I remind you that what you do matters? You make people's lives better in ways that aren't always visible, but are very real. You are needed.

We grumble, but quoting the Buffalo Bill's great football coach, Marv Levy, "Where else would you rather be than right here, right now?"

If the previous paragraphs ring a bell it's flattering because you've recalled something written back in 2008 (or perhaps I should beg forgiveness for squatting among your precious brain cells).

Over the years, of all the stuff I've written, this was always a personal favorite. Hopefully you liked it, too.

"The only thing that is constant is change."

In case you're wondering where this quote came from, it was written by Heraclitus, and I am hoping the statute of limitations on plagiarism has run out so he can't

sue me. Bear in mind that if, over the years, any of my scribbling was useful (or entertaining), I stole virtually everything from you folks.

It appears that Bus & Motorcoach News is going to a new format, and it's uncertain how things will shake out for this column.

Before anything changes, it seems important to let all of you know how much you have meant to me.

If you've never known someone who, given the choice, would do it all over again, now you have. (OK, I made a FEW doo-dos along the way, some epic).

At least for me, Coach Levy was right. There was no place I'd have rather been for the last 55 years than with all of you in the bus business (or the last 11 writing this column).

There is no way I can thank you enough for what you've meant to me, but this an attempt to do just that.

Thanks, and hope to see you on the other side.

Dave Millhouser is a bus industry marketing consultant and freelance writer. Contact him by email at [Davemillhouser@gmail.com](mailto:Davemillhouser@gmail.com).





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# Why selling charters to millennials will never work

By Christian Riddell  
Motorcoach Marketing Council



Before we go any further, I want to be clear: I'm not an ageist.

In fact, this column could just as easily have been titled, "Why selling to baby boomers will never work," or "Gen Xers" or any other term used to describe a particular generation.

I have attended a lot of classes and read a lot of articles on the art of selling to millennials (born between 1980 and 1994) and I think the information presented in those classes is, for the most part, wrong. Let me explain.

A few weeks ago I was sitting in a Chinese restaurant waiting for my wonton soup. The placemat in front of me was the same red Chinese zodiac placemat that probably graces tables across America. With little to do but read that or stare at the fish tank, I started to read it.

My kids, who were with me, also decided to brush up on the finer points of their assigned symbols and make fun of each other's

assigned animals.

"I'm a dog. No! I don't want to be a dog because mom is a sheep and dogs and sheep aren't compatible," said one of my kids to the other.

"Dad's a horse," my wife announced to the table.

"What does that mean?" my daughter asked.

"It means that he's optimistic, with strong action and executive power, attractive to the opposite sex, warmhearted, upright and easygoing. Hence, they usually have a lot of friends flocking around them. Independence and endurance make them more powerful, and they do not easily give up when in difficulty. Positive attitude leads to a brighter direction," she read.

"Wait, what?" I said. "How do they figure that?"

"It's based on your birth year," she responded.

I couldn't help but laugh out loud. "I think the guy who came up with that may have attended a different high school than I did."

My soup came and we all moved on to egg rolls and moo shu pork, but the idea of it stayed with me.

It is absolutely ridiculous to believe that everyone born in a

Marketing Minute  
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certain year is attractive. It is insane to think that hiring someone who is upright, honest, easygoing and has a lot of leadership potential is as simple as finding someone born in a specific year.

I can imagine the ad now: "Looking to hire a director of sales. Must be optimistic, a great leader, independent and able to make good decisions. It's important that you have the independence to manage yourself and the endurance to stay the course. Positive attitude a must. Please only apply if you were born in 1966, 1978 or 1990."

As funny as this is, and as ridiculous as it may sound, it is even more ridiculous to believe that we can somehow create an even broader generalization by putting people born in a certain period in a box and devising a marketing strategy that will work, even a little, for every single person that falls into that category.

Just so we're all on the same page, let's breakdown the various generations: Baby boomers refer to people born between 1946 and 1964, Gen Xers between 1965 and 1979, Xennials between 1975 and 1985, millennials between 1980 and 1994, and iGens between 1995 and 2012.

Though I said that I think most of the information I've received in classes on marketing to millennials is wrong, I don't want to throw out all the bathwater here. I have gotten some nuggets of wisdom on the subject from classes and reading articles.

To begin with, a couple of assumptions made about these groups of people are true. The trick here, however, is that the assumptions are not based on who they are but, rather, the social, economic and technological worlds they were born into.

For example, the world of someone who lived their 20s and 30s during the 1960s is radically different than the world of someone currently in their 20s and 30s. Technology, cultural norms and the speed at which things happen have all changed dramatically.

Something that is "normal" now used to be a huge luxury — if it were possible at all. For example, only 9 percent of American homes had a TV in 1950; today, that number is around 99 percent. These "normals" shape what people expect and what they believe.

People who came out of the womb with an iPhone in their hand while tweeting about the experience have a completely different set of expectations than those who were in their late 40s when they got their first pager.

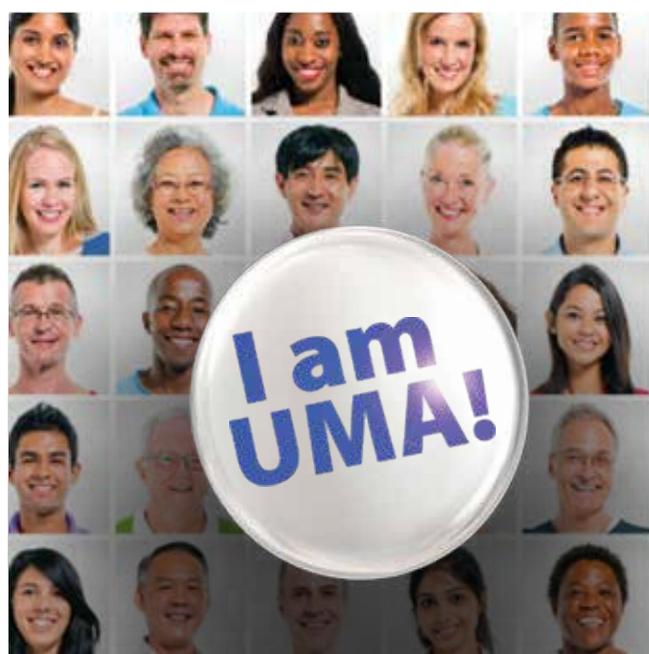
These changes in expectations are not based on the fact that they're separate sets of people, and it isn't as though the titles assigned to them have magically given them different beliefs or attributes.

Rather, these expectations are based on the conditions in which these individuals came of age and became consumers.

The second truth that I don't want to throw out is that these distinct groups require marketing strategies geared specifically to them. Because millennials expect something different than their baby boomer predecessors, we

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## Marketing Minute

CONTINUED FROM PAGE 10

must change how we sell to them and how we deliver our product.

While it may be too general to say that all individuals born between 1980 and 1994 are impatient, unfocused, difficult to work with and irresponsible, we can say with some certainty that these folks will likely expect products to work and be fast, and that the overall process will be easy.

What does that mean to us? It means we can understand why companies like Amazon and Uber have been so successful with millennials. There's something super seductive and convenient about having your favorite breakfast cereal delivered to your house in a matter of hours in many cities, or clicking a button and having someone pick you up and take you back to your dorm room so you don't miss your liberal arts interpretive dance final.

Beyond those two truths, however, most of the direction we get on selling to millennials becomes oversimplified feel-good nonsense.

While younger generations are driving innovation and change, older generations aren't pounding their fists and pining for the "good

old days" when they'd call a cab and someone would show up and overcharge them for a ride to the airport.

No! They're actually jumping on board and taking advantage of the new and better ways. Thirty-five percent of Uber users are over 35.

And here's another thing: Not everyone I graduated from high school with was attractive or easy-going. Not everyone born in 1960 is gentle and calm, and I know that not everyone born in 1969 is the "epitome of fidelity and punctuality."

I also know that not everyone labeled a millennial will respond to the same marketing message or strategy that appeals to one of his or her peers. Contrary to popular belief, not all of them get their news from Facebook, are without children, only eat food delivered by Uber, attend every concert in the area and wear skinny jeans.

I have met farm-kid millennials who work hard, drive Dodge trucks, have never used Uber, and want to talk to people face to face in order to help them buy their next hunting rifle.

I have talked to a millennial who wakes up every morning at 4:30 to make it to work on time to her first of three jobs. I have seen

many with strong leadership abilities and great work ethics. I have seen fathers and mothers with a handful of kids who fall squarely in the millennial bucket.

We simply can't generalize our way to a successful marketing strategy. So what do we do?

We must realize that it is not demographics that purchase from us; it is individuals and consumer groups. We can't say things like, "This is a trip for baby boomers" and hope to be successful.

We need to build itineraries and services that speak to individual interest groups, services that will appeal to history buffs, for example, or gamblers, concert goers or family reunion planners.

It would be foolish to take something like a wedding service in a charter operation and say we are only going to sell this to people between the ages of 28 and 32. It would be much more effective to market a service that showcases expertise in the wedding transportation business.

In that same vein, we can't sell to millennials by using pictures of young people wearing skinny jeans and sipping vanilla chai lattes while forming a drum circle on a beach. Instead, we must focus on the things that matter.

Millennials (and, more often now, their older counterparts) are beginning to expect certain things, such as:

**Ease.** If it can't be done with a few clicks, it isn't worth doing. This means we have to streamline our booking process for both charter and line-run products.

**The world is digital.** Don't ask people to fax something. Though you may want a fax machine for those who are clinging to a bygone era, don't make it part of your day-to-day business practice.

**Smart phones rule the world.** Look at your entire booking and payment process. If there are steps that don't work on a phone or are hard to do on a phone, fix them.

**God-given rights.** Younger generations put Wi-Fi and power outlets under this umbrella. If you are charging for these or don't offer them, you might want to reconsider.

These are not things that are somehow tied to a secret credo taught in schools between the years of 1980 and 1994. They are shifts made by a generation of people raised with technologies and cultural conditions different from previous generations.

Thus, what they see as normal is progressive and modern to those

that came before them. Millennials aren't the only ones who like the new standard, by the way. Watch, for example, the next time you're on a plane and the Wi-Fi goes out. Baby boomers will be hitting the flight attendant call button as often as millennials because they can't stream the latest episode of "The Big Bang Theory."

As you look at how you can put more butts in seats on your line runs, fill up those charter dispatch sheets or even hire more charter drivers, remember that trying to generalize an entire generation of people is no less ridiculous than saying that everyone in my high school graduating class was super sexy CEO material.

We've got to look deeper at what we offer and determine the people who would be most interested in consuming that product or service. Once we identify those people, we've got to find them and work to craft a message that will speak specifically to them.

This is advertising and marketing, and it's the bread and butter of selling more charters, to more people, for more money.

For more information about the Motorcoach Marketing Council and its programs, go to [www.motorcoachmarketing.org](http://www.motorcoachmarketing.org).

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Pedestrian

CONTINUED FROM PAGE 1

Increased implementation of collision avoidance technologies is one of 10 transportation safety improvements on the “Most Wanted List” of the National Transportation Safety Board for 2017-2018.

An NTSB document explains, “Collision avoidance technologies can provide a life-saving safety net. These technologies are available today. They should be implemented today.”

Efforts were made about a decade ago to add side detection of pedestrians and cyclists to radar-based collision warnings systems.

One of the most prominent systems utilized side sensors, which the manufacturer described as a “radar device that senses objects from 1 to 12 feet from the side of the vehicle. Side sensors are generally mounted at or near a blind spot.”

False alerts

The systems were prone to sounding false alerts when the vehicle passed road signs and bridge piers. An online message board from that era still posts a complaint about the false alarms:

“Every time I’ve had this thing I’ve wanted to crash my truck into a wall to make it shut up or take a hammer to it. I wish I knew away to make it stop all the ##### beeping it does.”

“Radar systems are meant more for vehicle detection and avoiding collisions,” Tamir said. “With a camera sensor it is easier to detect objects with less reflective metal in them. That is why we use a camera.”

Mobileye has been developing technology for nearly 20 years but just recently launched its side-looking pedestrian-cyclist warning feature.

“Mobileye was founded in 1999. We have the largest computer vision research and development center in the world based in Jerusalem, Israel,” Tamir said. “We are using sophisticated computer vision algorithms and machine-learning algorithms.

“We take the raw data from the camera and classify all objects on the road. We are looking for patterns of a car or pedestrian or a cyclist. We are able not only to detect the object but also the texture of the object. That is one of the key advantages of using data from a camera,” he said.

The company supplies its Mo-

bileye Shield collision warning system to 27 automobile manufacturers and has 25 million units on roads around the world. The Mobileye Shield Plus product adds side cameras for pedestrian/cyclist warning, or PCW, capability.

After the system computer detects a person beside the truck or bus, it estimates if and when a collision is possible, Tamir said.

Cameras communicate

“The camera sensor sees a pedestrian figure independent of the environment and fairly easily detects them in cluttered scenes or if they are partially occluded. With Mobileye Shield Plus we placed cameras on the sides of the vehicle that communicate with each other,” he said.

“They know when to detect pedestrians in the blind spot of the vehicle and alert the driver when there is a risk of collision with the pedestrian, meaning when the time to collision is below a certain threshold.

“We have years of experience with the forward-facing camera that can detect pedestrians and cyclists crossing the front of the bus and motorcoach. Three years ago we introduced Shield Plus.”

The system’s sensors are con-

nected to visual displays placed at the center and both sides of the windshield. Audible alarms and symbols alert the driver to the presence and location of a hazard.

Mobileye found additional development necessary to handle bus stop conditions when it put Shield Plus on the road. As a coach or bus approaches waiting passengers and turns toward the curb, it momentarily is pointed directly at them.

“Buses are the only mode of transportation that routinely needs to drive towards pedestrians,” Tamir said. “When we came out with our technology for large urban vehicles such as transit buses or sanitation trucks, we did a pilot program in Washington state. We retrofitted 35 buses and experienced more false alerts than we anticipated.”

The system was reconfigured to recognize that the bus was likely to drive toward pedestrians only briefly before veering left to straighten along the curb.

“We composed a scenario that recognizes this and we significantly reduced the false alerts to be in the range of normal,” he said.

Mobileye does not discuss specific sales figures, Tamir said, “but already we have hundreds of buses,

motorcoaches and large vehicles that are retrofitted or had the technology specified into new orders. We have worked with most of the bus manufacturers in America.”

‘Pretty impressive’

Some of the units are deployed on buses operated by the New York Metropolitan Transit Authority and Los Angeles Department of Transportation. New York MTA has announced the installation of 300 systems on new buses that have been ordered.

The result of the road experience “is pretty impressive,” Tamir said. “I can’t disclose data from our customers because it is their own private data. What I can say is that we recorded millions and millions of miles driven.”

Thus far, he said, there have been no accidental pedestrian or cyclist fatalities experienced by the equipped buses.

Motorcoach manufacturers do not offer Mobileye as a standard feature, Tamir said.

“So far we have fleets that are retrofitting their motorcoaches or transit buses. We also have fleets that specify Mobileye, either the single unit or the Shield Plus, when they purchase new motorcoaches or transit buses.”

## (2) 2007 MCI, E4500

Low Low Mileage

- Cat C-13 (NO DEF)
- Allison B500
- Jake Brake
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- Enclosed Overhead Racks
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Unit 1 - 270,000 Miles  
Unit 2 - 330,000 Miles



\$189,000 each

## (1) 2006 MCI, D4005

## (2) 2007 MCI, D4005

Low Mileage

- Cat C-13 (NO DEF)
- Allison B500
- Jake Brake
- REI AM/FM, CD/DVD/PA, 6 Monitors
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## ELD hackers

CONTINUED FROM PAGE 1

“They can do a ‘denial of service’ attack where they blast out messages as fast as they possibly can and swamp the network.

“This is a very simple thing for a hacker. I don’t want to say that every coach, truck and bus is vulnerable to this because it also depends on the engineers who designed the vehicle,” Zachos said.

Thuen selected two ELDs at random and analyzed them for a presentation he made last summer at DEF CON 25, a hacking conference that examines cybersecurity issues. He bought one at Wal-Mart and another at a truck stop.

After opening the devices, he said he easily attached diagnostic equipment and read the software. The devices were shipped with “debug enabled.”

“Debug allows developers to peek into the inner workings of the device during operation, which makes the job of attacking such devices much easier,” Thuen said.

Components within the ELDs were “very simple, very minimal,” he said. “They are using insecure functions we shouldn’t be using anymore.”

He said some ELDs could be used to build a low-cost hacking interface.

“There are tool kits to help you get into the interfaces on the bus or

truck and some go for thousands of dollars. If you buy one of these (ELDs), you have Bluetooth access for pretty cheap. If you don’t want to mess with wires and connectors and stuff, this is a great compact package. I am not sure I would recommend it as an ELD but as a hacking device it is pretty good.”

Thuen said the current FMCSA policy of self-certification makes it difficult to identify ELDs that are better protected against hacking.

“It is certainly possible to make a secure ELD. There are some (manufacturers) I would point to as pioneers when it comes to taking the security of ELDs seriously,” he said. “For every one of them, however, you have five shops that crank out the work as fast as possible and at the leanest margins in order to maximize profit.”

About 370 self-certified ELDs are listed on the FMCSA website. Only two certifications have been revoked — the ONE20 F-ELD for Android and ONE20 F-ELD for iOS. Both certifications are designated “self-revoked.”

It is important to keep tired drivers off the road but ELDs are not the solution to cheating, Thuen argued. “ELDs are easier to spoof than a log book.”

Money motivates nearly all cybercrimes, Zachos said.

“Most malicious hacks are related to blackmail. They can shut you down and then you pay them three Bitcoins and they promise, ‘Cross our hearts! We will send you the unlock keys and you can get going again.’”

Trucking fleets could be the plumpest targets for denial-of-service attacks, Thuen said.

“There is an idiom in the trucking industry, ‘If you bought it, a truck brought it.’ The trucking industry is critical infrastructure to the United States of America.

“If the trucking industry goes down there will be one day before you can no longer get fuel at gas stations and three days before you can no longer get food and other items off your grocery store or department store shelves,” he said.

The Federal Bureau of Investigation classifies blackmail hacks as “ransomware,” a “form of targeting both human and technical weaknesses in an effort to make critical data and/or systems inaccessible.”

The 2017 report from the FBI’s Internet Crime Complaint Center stated that 1,783 ransomware complaints, resulting in \$2.3 million in losses, were filed last year.

“When the victim organization determines they are no longer able to access their data, the cyber actor demands the payment of a ransom, typically in virtual currency such as Bitcoin. The actor will purportedly provide an avenue to the victim to regain access to their data once the ransom is paid,” the report explained.

The FBI report offered this advice for ransomware victims: “In all cases, the FBI encourages organizations to contact a local FBI field office immediately to report a ransomware event and request assistance. The FBI does not support paying a ransom to the adversary. Paying a ransom does not guarantee an organization will regain access to their data.”

Another motivation for cyber attacks is retaliation from a disgruntled employee, Zachos said.

“They didn’t get the raise they wanted, or something else. They know all the secret codes and think, ‘They’ll never catch me.’”

In the worst of cases, hackers could take control of a vehicle and cause property damage or human

## People

WASHINGTON, N.J. — *Frank Smith*, founder of **Yankee Line of New York**, has joined the **Greater New Jersey Motorcoach Association** board of directors.

Smith, a former Marine, has been in the transportation business for 47 years. He started Yankee Line out of his home in 1999 and made it into a top contender in the Northeast Coast bus transportation industry.

Smith serves as chairman of the **National Association of Motorcoach Operators** board and is a member of the **United Motorcoach Association** and the **American Bus Association**.

He is a 19A Examiner for the State of New York.

Smith serves on the GNJMA board’s Membership & Bylaws Committee.



Frank Smith

injury, Thuen explained in a presentation at a cybersecurity conference. Hackers have demonstrated the possibilities.

“They did a whole lot of reverse engineering. They were able to gain full control of vehicles. One had parking assist and anti-collision stuff, which means there are critical control systems for the orientation of the steering wheel and managing the brakes. As we are going forward, there is going to be more drive-by-wire,” he said.

“When you are using insecure communication protocols, it is easy to leak data and remotely control a vehicle. As an extension, you could have untraceable assassination.

“If somebody is driving down the road at 80 miles per hour and you give the CAN bus commands to lock the right brakes and crank that steering wheel, now it looks like there is a car accident.”

ELD and CAN vulnerabilities open them to virus epidemics, Zachos said. The vehicle networks, originally designed to be isolated, now are connected through cellular data networks or shared USB drives.

“The ELD has a purpose of exchanging data with the inspector by a wireless link that maybe goes up to the cloud and back down to somebody on the side of the road who has a portable personal computer,” he said.

“Another way to exchange data is through a USB stick that is recording data. You could pull out that stick and put that flash memory, infected with a virus, into the inspector’s laptop. We might find that the virus is inadvertently

passed on by that inspector who is exchanging USB drives with all the vehicles he is inspecting. The virus could be spread throughout the fleet in days.”

The Technology and Maintenance Council (TMC) of the American Trucking Associations and the Society of Automotive Engineers (SAE) have formed ELD protection committees. Zachos is a leader of both committees.

Robert Gruszczynski of Volkswagen of America is co-leader of the SAE committee.

“The TMC has set up a cybersecurity task force. We are developing recommended best practices for fleets,” Zachos said.

“SAE has a technical committee that is writing a standard for best practices for what we call semi-permanent devices that would plug into the vehicle diagnostic port. I would expect them to be in publication by the end of this year.”

The SAE committee includes representatives of major manufacturers of automobiles and engines used in trucks and motorcoaches. The National Highway Transportation Safety Administration also is a member.

The SAE standards, Zachos said, would be “recommended best practices for manufacturers to follow when they design and produce ELDs. All that said, there still is no enforcement.”

ELD manufacturers could voluntarily submit their devices for testing against the SAE standards, he said.

“That would be our goal. Perhaps in the future FMCSA is going to refer to them as well.”

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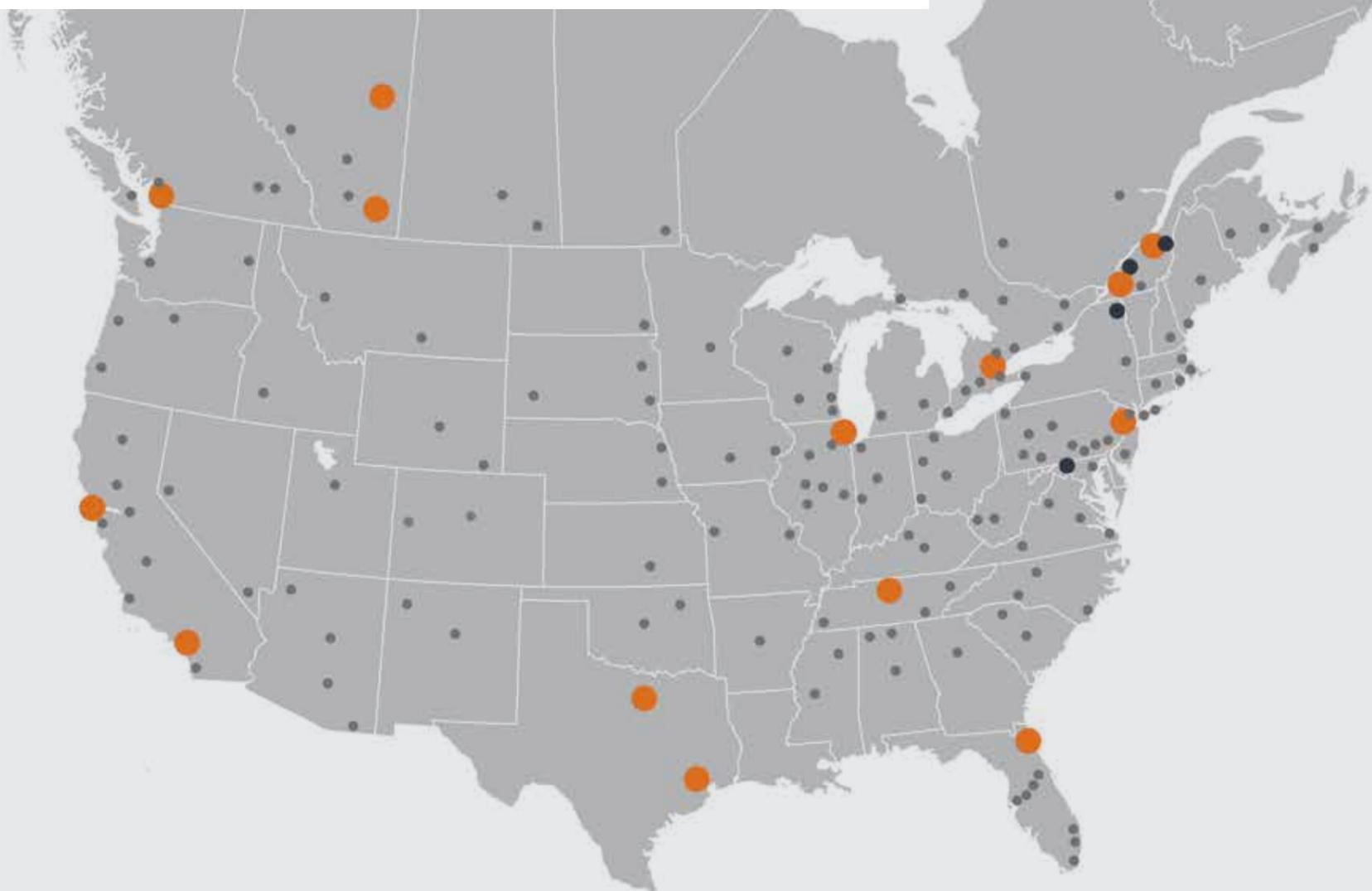
### July 2018

**22-26 AMA-SCMA-GMOA Regional Meeting**, Evergreen Marriott Conference Resort, Stone Mountain, Ga. Info: [www.gamotorcoachoperators.org](http://www.gamotorcoachoperators.org)

### August 2018

**7-10 International Motorcoach Group Strategic Alliance Meeting**, Doubletree Hilton, Sonoma, Calif. Info: [www.imgcoach.com](http://www.imgcoach.com)

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