

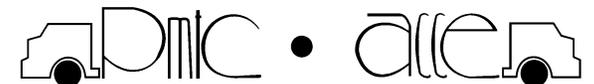


Big Regs for Big Rigs: Regulations & Autonomous Trucks (Driver Assisted Vehicles)

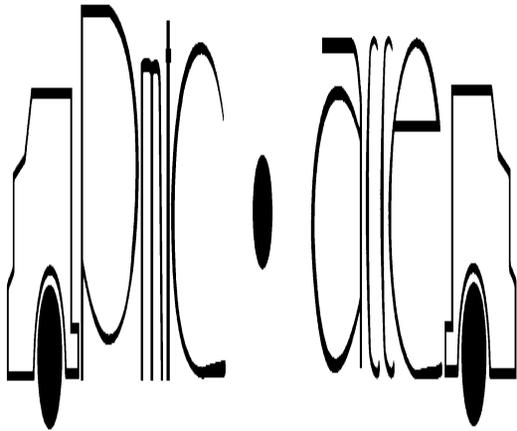
September 20, 2018

Mike Millian, President

Private Motor Truck Council of
Canada



Private & Dedicated Fleets



- Represented by Private Motor Truck Council of Canada, the only National Association representing Canadian Private Fleets
- Established in 1977
- Members include leading brands in retailing, agriculture, restaurants, breweries, wholesalers, gas production, and consumer packaged goods
- 50% Class 8 vehicles, 85% of urban trucks
- Use trucks to haul own goods, as tool of trade



Regulatory Snapshot for Autonomous Vehicles in North America



South of the Border:

- No federal regulations in place
- National Highway Traffic Safety Administration (NHTSA) and the U.S. Department of Transportation released an update to their Federal Policy Statement on Automated Driving Systems in September of 2017
- The guidance is voluntary with no compliance requirement or enforcement mechanism

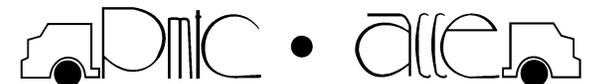


NHTSA Recommendations



Recommendations:

- States should not place unnecessary burdens on competition & innovation
- States are responsible for driver licensing & vehicle registration procedure
- States can take steps to monitor safe ADS operation through reporting & communications mechanisms so that entities can coordinate with public safety agencies
- States should review their vehicle codes, applicable traffic laws, and similar items to determine if there are unnecessary regulatory barriers that would prevent testing & deployment of ADS on public roads



FMCSA Activity



- In June and July of 2018, the Federal Motor Carrier Safety Administration (FMCSA) held listening sessions on autonomous vehicle technology
- The listening sessions focused on level 3 to level 5 technology
- The stated objective from the sessions was for the FMCSA to gather input from stakeholders to use to consider changes to regulations affecting autonomous vehicle technology
- FMCSA has not yet provided any further comments since the listening sessions



Jurisdictional Regulations



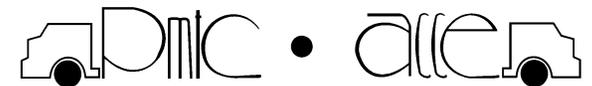
- With no federal regulations in place, states have begun to address the issue itself with a hodge podge of regulations governing autonomous vehicles
- 22 states, and D.C., currently have some form of legislation on their books covering these vehicles
- An additional 10 states had governing orders issued by their governors
- Michigan and Florida currently allow their operation without a driver behind the wheel; the rest require a driver
- This spring, California updated their regulations to allow a vehicle to operate with out a human on board if it was being monitored remotely



Jurisdictional Regulations



- California, Arizona, and Florida are considered the “Big Three” for autonomous vehicle testing
- Federal regulations set common standards and regulations for vehicles operating outside of state boundaries
- With no federal regulations or standards on the horizon for autonomous vehicle operation, many people feel the feds are standing in the way of progress and higher adoption rates



Canadian Regulations



- No federal regulations are currently on the books in Canada, although the feds are researching the topic and the CCMTA has an autonomous vehicle taskforce as part of it's Driver and Vehicle Licensing subcommittee
- All provincial and territorial *HTA's* speak to a driver being behind the wheel, and being responsible for the vehicle
- Ontario began a 10 year pilot on January 1st of 2016, which allowed for the testing of Level 3 to 5 automated vehicles under the *HTA*
- Seven entities to date have been approved to test



Canadian Regulations



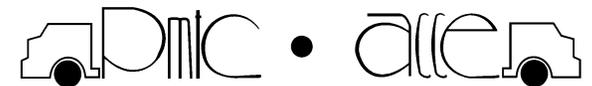
- Strict guidelines to meet to be part of the pilot
- Must submit application and be approved
- Vehicle must comply with all SAE safety standards that apply
- Driver must be present at the controls at all times
- Must have \$5,000,000.00 liability insurance
- Equipped with an alert to notify the driver if the system disengages
- Must report a collision to the registrar within 10 days



Canadian Regulations



- Ontario had regulations through the first reading to allow driverless testing and platoon vehicles to be part of the pilot, and to allow SAE Level 3 autonomous vehicle licensing under the *HTA*
- After the UBER accident in Arizona earlier this year, things went quiet – it didn't get through the house prior to the election writ period and is now sitting in limbo



Trucks of the Future



Where will
autonomous
vehicles take us?

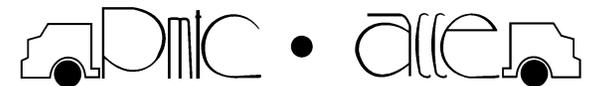


Otto's Self-Driving Beer Run



<https://www.youtube.com/watch?v=Qb0Kzb3haK8>

- Advertised as the first ever autonomous delivery made by a CMV with the driver not in the seat
- Occurred in October of 2016, 120 miles from Fort Collins to Colorado Springs, Colorado
- Driver operated the truck onto the interstate and off the interstate, autonomous mode while on the freeway



Otto's Self-Driving Beer Run



What happened behind the scenes to make this run work?

(source, interview by Clarissa Hawes with Shailen Bhatt, ED of Colorado DOT)

- In 2016 he thought autonomous vehicles were 5 to 10 years away as being a regular vehicle on the states' roadways, but with a driver being behind the wheel in order to take control if necessary
- Cyber security issues and the technology is new – does not feel that the public will accept no driver in the cab
- Was impressed with the performance of the truck – slowed down, adjusted to traffic, sped back up, operated perfectly under the test conditions



Otto's Self-Driving Beer Run



What happened behind the scenes to make this run work?

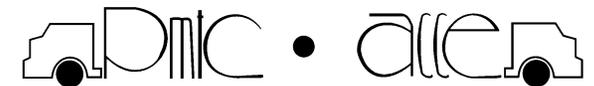
- Three months of testing, sometimes 16 hours per day, between State Patrol, the states' Road X program, and UBER
- Vehicle was required to make the trip 8 times with the driver not having to take over the controls before it would be allowed to operate without the driver in the seat (sleeper compartment)
- Road was swept of debris, drove out ahead to ensure no abandoned vehicles were on the shoulder of the road, and ensured no road work was underway that would hamper traffic flow



Risks Associated with Autonomous Vehicles



- Cyber security, hackers taking control of the computerized operating system
- Drivers not being properly ready and alert in case of a system failure
 - i.e. no interaction the majority of the time – if the system fails, driver not ready and able
- Degradation of skills as a result of the above
- Infrastructure today is not set up to communicate with the vehicles. Therefore, the technology is reliant on sensors, lidar, radar, cameras, etc. They do not perform well in adverse weather conditions – more advancement and testing is needed



PMTC's Views on "Driver Assisted" Vehicles



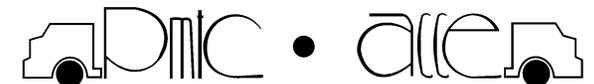
- As a result of the many unknowns, slow pace of regulation updates, and public perception and willingness of acceptance, the PMTC believes we will see drivers behind the wheel on public roadways for the foreseeable future (my lifetime....hopefully 30 or more years.....)
- Higher adoption rates in off-road, controlled environments, such as oilfields, mining, and forestry
- We are strongly in favour of mandating driver assisted systems in more and more vehicles, and the sooner the better, using systems such as forward collision mitigation, lane departure warning systems, and adaptive cruise control. These systems are widely adopted by forward thinking fleets today and have proven their worth



PMTc's Views on "Driver Assisted" Vehicles



We see the role of the driver evolving, similar to that of an airline pilot. The truck of the future will largely be able to operate itself, but the driver will need to be there to take the controls in certain situations, as well as perform non-driving activity.



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