

EXPERT ANALYSIS

Automotive Product Liability For Self-Driving Vehicles

By Jason Turchin, Esq.

Automotive manufacturers are facing one of the biggest challenges they have ever encountered developing a new product or technology. The introduction of autonomous vehicles, also known as self-driving vehicles, raises questions about new safety features and whether they outweigh potential safety failures, as well as what legal ramifications may result.

As autonomous vehicles are designed and manufactured, there is a need for safety and liability analysis to help ensure these vehicles are as safe as possible when they enter the marketplace. What we have learned from many past automotive failures can help us better ensure public confidence in this new technology and teach us how to prevent an epic catastrophe.

No one wants to see more automotive failures such as the 80 million recalled Takata air bags, Toyota's unintended-acceleration defects and General Motors' defective ignition switches.

NEED FOR CONSISTENT DEFINITIONS AND STANDARDS

To ensure public confidence and uniform safety standards in autonomous passenger vehicles, there should be consistent national and international regulations. This could help manufacturers develop vehicles that meet these standards and protect public safety. Unfortunately, there are already inconsistent or conflicting standards and definitions that put the legality of autonomous vehicles at issue in certain states.

The term "autonomous vehicle" is the subject of inconsistent definitions at state, federal and international levels. Florida, for example, defines an "autonomous vehicle" as any vehicle equipped with autonomous technology.¹ The term "autonomous technology" means technology installed within a motor vehicle that can drive the vehicle on which the technology is installed without active control or monitoring by a human operator.

"Autonomous vehicle" excludes a motor vehicle with active safety systems or driver assistance systems, including those that provide electronic blind spot assistance, crash avoidance, emergency braking, parking assistance, adaptive cruise control, lane keep assistance, lane departure warning, or traffic jam and queuing assistant, unless any such system alone or in combination with other systems enables the vehicle to drive without active control or monitoring by a human operator.

Consistent definitions and standards are crucial to the development of self-driving passenger vehicles and what laws apply.

The issues get even more convoluted depending on the level of the vehicle's automation. One of Google's proposed self-driving vehicles "removes conventional driver controls and interfaces (like a steering wheel, throttle pedal and brake pedal)," as those features would be fully automatic.²

How the state and federal governments define a vehicle operator may also play a role in the development and interpretation of various related laws and regulations. Florida defines an operator



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as, "Any person who is in actual physical control of a motor vehicle upon the highway or who is exercising control over or steering a vehicle being towed by a motor vehicle."³

Florida's definition is at odds with Google's proposed self-driving vehicle, which specifically removes physical control from the vehicle occupants and places that control with the built-in self-driving system.⁴ Unless there is federal regulation, Google's self-driving vehicle may be illegal to operate in Florida. Florida requires autonomous vehicles to allow an operator to take control of the vehicle or to bring it to a complete stop.⁵ However, Google's proposed self-driving vehicle would not allow an operator to take control of the vehicle.

New York is even more restrictive on the use of autonomous vehicles and will remain so unless the law is changed. One New York vehicle and traffic law states, "No person shall operate a motor vehicle without having at least one hand on, in the case of a physically handicapped person, at least one prosthetic device or aid on the steering mechanism at all times when the motor vehicle is in motion."⁶ This requirement also conflicts with Google's proposed self-driving system, in which the vehicle may not even have a steering wheel.

The National Highway Traffic Safety Administration has already stated that its existing authority is insufficient to meet the needs of the time and reap the full safety benefits of automation technology.⁷

Therefore, it is even more imperative that vehicle manufacturers conduct adequate research into the safety and potential defects of autonomous vehicles and resulting liability before deploying them for public use.

POTENTIAL CAUSES OF ACTION

Many laws already cover potential personal injury or deaths that may be caused by self-driving passenger vehicles. Manufacturers may face liability under a number of legal theories if a crash occurs while a self-driving vehicle feature is engaged and causes or contributes to the crash. Automotive manufacturers should consider liability issues in the design, manufacture and marketing of their self-driving vehicles.

Many states already impose strict liability on manufacturers whose products cause injury. Under strict liability laws, manufacturers of self-driving vehicles would be strictly liable for any injury or death caused by a design or manufacturing defect.⁸

In addition to strict liability for injuries resulting from automotive product defects, manufacturers of self-driving vehicles may also face liability under several breach-of-warranty theories. For example, if the technology fails to work properly, the manufacturer could be liable for breach of an implied warranty of a product due to its defects and lack of fitness and suitability.⁹

There could also be liability for breach of warranty for a particular purpose¹⁰ and other Uniform Commercial Code claims, such as claims raised under UCC § 2-314 (2016) (breach of an implied warranty, merchantability, and usage of trade) and UCC § 2-313 (2016) (breach of an express warranty by affirmation, promise or description). Several state statutes also impose liability on these theories.¹¹

Warranty claims could force self-driving vehicle manufacturers to pay substantial dollars per vehicle or even replace every impacted defective vehicle.¹²

Any failure of the self-driving software could give rise to a diminished value claim. When such claims are raised, it is alleged that the defect causes the market value of the vehicle to be substantially impaired within a reasonable degree of mechanical certainty, and the vehicle would be considered, for example, in fair condition as opposed to excellent condition.¹³ A diminished value claim multiplied by the number of impacted vehicles could result in a multibillion-dollar loss for the vehicle and part manufacturers.

Liability may be further imposed against vehicle manufacturers under state and federal unfair-trade-practice laws.¹⁴ Claims filed under an unfair-trade-practice statute could impose substantial liability on a vehicle manufacturer, including large financial penalties.

Self-driving vehicle manufacturers may also face claims based on common law negligence theories. These claims are a catch-all alleging generally that the manufacturer owed the occupant a duty to use reasonable care, there was a breach of that duty by a failure of some component, and that breach caused the occupant to be injured or killed.¹⁵

These claims can subject a vehicle manufacturer to significant damage awards for pain and suffering, medical expenses, wage loss and other damages sustained in a crash caused by a self-driving vehicle.

SOFTWARE UPDATES AND RECALL CHALLENGES

One of the biggest challenges the automotive industry may face with respect to self-driving vehicle technology is how to update it. As vehicle manufacturers improve their technology, there is potential for liability when they learn of a defect. As Takata and many major automakers learned with recalled defective air bags, locating and notifying all vehicle owners of the defect can be extremely challenging, if not impossible.

Given the reliance of this technology on humans to properly code the software, install the sensors properly, and compile the data upon which the software relies, there are seemingly millions of variables that could change frequently. Would every change require a software update or a recall? Would software updates occur with such frequency that a customer would require frequent service visits or recalls?

Tesla is seemingly leading the charge with self-driving vehicle technology. It claims its Model S vehicle with self-driving technology is the “safest, most exhilarating sedan on the road.”¹⁶ It claims, “Real time feedback from the Tesla fleet ensures the system is continually learning and improving upon itself.”

If Tesla’s claim is true, then vehicles are continuously sharing information with Tesla. Aside from clear privacy rights implications, it seems doubtful that every vehicle is accurately sharing information all of the time and that Tesla’s software is constantly updating. Vehicles often encounter areas where reception may not be possible.

How can Tesla assure all vehicle owners that their software version has the most up-to-date version? Does the software require certain connectivity to Tesla’s servers, such as through satellite, Wi-Fi or other internet connection? How does Tesla guarantee that all owners have up-to-date software all the time? Who is liable if the software is not updated on a timely basis?

Software updates also raise additional notice concerns. Tesla claims its Model S “receives over-the-air software updates,” but that may not be enough. If there is no absolute guarantee that Tesla can automatically update the software for all vehicle owners all the time, any updates may trigger the notice requirements of the National Traffic and Motor Vehicle Safety Act. Under that law, a manufacturer has a duty to notify other purchasers of a defect common to automobiles it manufactured.¹⁷ Will Tesla be required to notify all vehicle owners of every software update?

Already at odds with Tesla’s self-driving technology, which is “continuously learning,” are Toyota’s claims that self-driving vehicles require certainty in the location of stationary objects in order to be reliable.¹⁸ If Tesla’s technology is still learning, then there may be no certainty in the location of stationary objects.

One problem with Toyota’s patent for the background mapping system is that it may be presumed that the background map of stationary objects stays the same over time. There is no obvious mechanism for immediate background changes, such as if a car crashes through a road sign and knocks it out of the ground or drives through and destroys elevated stationary lane barriers. Any change to the stationary background could render the software defective and unreliable.

If there is a background map system in place and a stationary object is added, removed or changed, the entire software program on every vehicle may need an instant update. If the update is necessary for vehicle safety and reliability, then the manufacturer may need to update the software on a regular basis.

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Lending support to the idea that self-driving vehicle technology may not be sufficiently reliable to be implemented safely is Toyota's recognition that background objects may be seasonal.¹⁹

Imagine if the software data mapper captured New York City after a snowstorm on a street where there was heavy construction with half the street blocked and construction signs throughout. Now imagine what would happen if a vehicle with self-driving technology drove down that same street in mid-August on a hot, sunny day after the building was completed and all construction signs were removed.

It seems that perhaps every possible permutation would need to be learned in order for the software to fully appreciate the stationary and movable objects it encounters.

There could be circumstances where self-driving vehicles could be sufficiently safe and reliable. Assume we have vehicles that communicate with one another and detect distances between the two, with automated slowdown if the vehicles get too close to one another. Assume further that the vehicles have built-in sensors that communicate with the roadway — which also has sensors along its entire path. In a limited roadway, this system could work safely.

The problem is that we don't have this technology implemented yet, and vehicle manufacturers seem to be pushing to have self-driving vehicles on the roadways before the defects are eliminated.

The Takata air bag defect recall taught us a great deal about product safety and risk assessment, and even more about the automotive recall system in the United States. By 2016, over 80 million vehicles had been recalled with defective Takata air bags. Takata reported that it could produce only 450,000 new air bags each month but was hoping to increase production.²⁰

At 450,000 air bags per month, it would take over 14 years to replace all affected air bags. Even more concerning was that Takata began replacing recalled air bags with new ones before it identified the exact cause of the air bag ruptures. There were several theories as to the rupture causes, but nothing concrete — leading many to wonder whether the defective air bags were just being replaced with more defective air bags.

We also learned the U.S. product recall system has failed and was not able to identify present owners or secure enough replacement parts. Some vehicle owners incurred out-of-pocket expenses while waiting for their car to be repaired.

NEW LEGAL CONSIDERATIONS AND QUESTIONS

The introduction of self-driving passenger vehicles also raises many new legal liability challenges. For example, if a self-driving passenger vehicle runs a red light and injures the vehicle occupants and the occupants of the other vehicle, who is at fault? Who gets the ticket for running the light? The manufacturer? The vehicle owner? The answers may depend on the states, which may have different laws and definitions, thereby leading to consumer uncertainty and potential product liability.

Self-driving vehicles can dismember criminal driving laws. If a person is too intoxicated to drive home and instead implements the self-driving mode of a vehicle, would that person be responsible if the vehicle crashes? Would it constitute driving under the influence? There may be a new legal question presented as to whether the intoxicated person could be guilty of driving while under the influence if they were not in full control of the vehicle.

This may bring challenges to drunken driving or vehicular manslaughter charges where the accused alleges the vehicle was in self-driving mode at the time of the alleged crime. The laws may have to answer the question of whether the state has the burden to prove that the vehicle was not in self-driving mode or whether the accused has the burden to prove that the vehicle was in self-driving mode.

What about speeding tickets and texting-while-driving laws? If a person in the driver seat is texting while self-driving mode is engaged, could they get a ticket? Florida already addressed this situation by enacting a statute exempting autonomous driving from its texting-while-driving

laws.²¹ That means a driver in Florida could literally take his eyes off the road while the vehicle is in self-driving mode. He can even watch TV.²²

There are potential design flaws and liability concerns associated with complete automation, such as the automation in Google's proposed vehicle. Theoretically, it is possible for a self-driving vehicle to drive itself without any operator or passenger present. Imagine, for example, a vehicle owner who drives a vehicle to a pub and becomes intoxicated. That driver responsibly gets a ride home from a sober driver. With remote-controlled autonomous vehicle technology, that driver then could summon his vehicle home through remote communication.

On the other hand, the technology could be used by criminals to target locations or people by making the vehicles act like drones, loading them with bombs, inputting coordinates of the final destination and sending the vehicle on its way to deploy when programmed or triggered.

Without an override system, either remotely or manually in the vehicle, there are grave potential dangers. We learned this lesson from the sudden acceleration cases in which a vehicle went out of control at a high rate of speed and severely injured or killed the vehicle occupant or those in the vehicle's path.

NHTSA has stated that the great promise of vehicle automation is that it addresses the human factor, which is the cause of most accidents. As the automotive industry continues to pursue ways to make vehicles safer and reduce the incidents of injury and death on the roadways, we must always be mindful that these features are still designed and manufactured by humans — and mistakes will be made.

NOTES

¹ Fla. Stat. § 316.003(2) (2016).

² Google believes that "allowing the human occupants to affect the operation of, for example, lamps or turn signals otherwise controlled by the [self-driving system] could be detrimental to safety." Letter from Paul A. Hemmersbaugh, Chief Counsel, NHTSA, to Chris Urmsen, Director, Self-Driving Car Project, Google Inc. (Feb. 4, 2016), <http://bit.ly/1TbuRGU>.

³ Fla. Stat. § 316.003(46) (2016).

⁴ See Hemmersbaugh letter, *supra* note 2.

⁵ Fla. Stat. § 319.145 (2016).

⁶ N.Y. Veh. & Traf. Tit. VII, Art. 33, § 1226 (2016).

⁷ DOT/NHTSA Policy Statement Concerning Automated Vehicles, 2016 Update to Preliminary Statement (2016), available at <http://bit.ly/1SAbjac>.

⁸ Georgia, for example, holds manufacturers liable for injury or death when their product has design or manufacturing defects that render them unmerchantable or not reasonably suited for their intended purpose. Ga. Code Ann. § 51-1-11(b)(1) (2016). An injured plaintiff under this Georgia statute "is not required to show negligence, but must show that the product, when sold, was not merchantable and reasonably suited to the use intended and its condition when sold is the proximate cause of the injury sustained." *In re Toyota Motor Corp. Unintended Acceleration Mktg., Sales Practices & Prods. Liab. Litig.*, 978 F. Supp. 2d 1053, 1095 (C.D. Cal. Oct. 7, 2013).

⁹ See *Manheim v. Ford Motor Co.*, 201 So. 2d 440 (Fla. 1967).

¹⁰ A manufacturer may be responsible based on an implied warranty of fitness for a particular purpose, "where the seller at the time of contracting has reason to know any particular purpose for which the goods are required and that the buyer is relying on the seller's skill or judgment to select or furnish suitable goods." U.C.C. § 2-315 (2016).

¹¹ See generally Fla. Stat. § 672.313 (2016) (express warranty); Fla. Stat. § 672.314 (2016) (implied warranty of merchantability); Fla. Stat. § 672.315 (2016) (implied warranty of fitness for a particular purpose). Many states also have warranty acts commonly referred to as "lemon laws." These laws generally impose an affirmative obligation upon the manufacturer of a vehicle to repair substantial defects within a reasonable time. See *Selman v. Jaguar Land Rover N. Am.*, No. A-1250-12T2, 2013 WL 1704864, *4 (N.J. Super. Ct. App. Div. 2013).

¹² See 15 U.S.C.A. § 2304(a)(4) (2016).

¹³ See *Selman*, 2013 WL 1704864.

¹⁴ Florida, for example, prohibits unfair methods of competition, unconscionable acts or practices, and unfair or deceptive acts or practices in the conduct of any trade or commerce. Fla. Stat. § 501.201-501.213 (2016). The federal Unfair and Deceptive Trade Practices Act similarly holds, “Unfair methods of competition in or affecting commerce, and unfair or deceptive acts or practices in or affecting commerce, are hereby declared unlawful.” 15 U.S.C.A. § 45(a)(1) (2016).

¹⁵ Toyota faced claims of negligent design and manufacturing, and failure to warn. *See In re Toyota*, 978 F. Supp. 2d 1053.

¹⁶ See <https://www.tesla.com/models>.

¹⁷ 49 U.S.C.A. § 30118 (2016); *see also Nevels v. Ford Motor Co.*, 439 F.2d 251 (5th Cir. 1971).

¹⁸ U.S. Patent App. No. 20160180171 (filed Dec. 17, 2014).

¹⁹ *Id.*

²⁰ Michelle Manzione, *Takata Corp. Declares Nearly 34 Million Air Bags Defective, Agrees to Recall*, ABC NEWS (May 19, 2015), <http://abcn.ws/2c6EuUx>.

²¹ Fla. Stat. § 316.305(b)(7) (2016).

²² Fla. Stat. § 316.303(1) (2016).



Jason Turchin has handled more than 5,500 accident and injury cases. He filed one of the first federal defective-air-bag lawsuits against Honda and air-bag manufacturer Takata, and he continues to represent other victims of air bag and other automotive product defects. He is a member of the Super Lawyers Rising Stars list and the Multi-Million Dollar Advocates Forum. He has also has been featured in the American Bar Association Journal, is a best-selling author on car accident law, and is AV Preeminent rated by Martindale-Hubbell.