

Federal Motor Carrier Safety Regulations: An Overview

For most people on the road, two factors determine your safety and the safety of those around you: the driver and the vehicle. Many “rules of the road” address one of these two factors. Drivers are required to wear their corrective lenses, are not permitted to drive while intoxicated or impaired, and are required to be licensed and registered with their state. As for vehicles, they must have working tail/brake lights and proper safety testing to be on the road. For most drivers, these laws are sufficient.

For commercial vehicles, however, there is a third element essential to their safe operation: the commercial vehicle operator. This doesn’t mean the vehicle’s driver, but rather, the company that owns, and most importantly, maintains the vehicles. In addition, unlike non-commercial passenger vehicles, commercial vehicles are often large, unbalanced, incredibly heavy, or designed to carry many passengers. This makes them very efficient for their designed uses, but *very dangerous* if misused or improperly maintained. In fact, according to the Federal Motor Carrier Safety Administration (FMCSA), In two-vehicle crashes involving a large truck, 97% of the fatalities were those in passenger vehicles, only 3% were truck operators.¹ Thus, there is a special set of regulations called the Federal Motor Carrier Safety Regulations (FMCSR) that both incorporate the responsibility of the vehicle operators and consider the added vehicle risk. This article will take a broad look at those requirements applying to drivers, vehicles, and operators to understand how they ensure public safety.

What is a commercial vehicle?

A commercial motor vehicle must meet one of four qualifications. 1. It has to have a total weight of more than 10,001 lbs.; 2. It has to transport more than 8 paying passengers; 3. It has to transport more than 15 non-paying passengers, or; 4. It has to be used to transport hazardous materials².

Drivers

Because drivers of commercial vehicles accept far more responsibility than ordinary drivers, the FMCSA has determined they must possess additional qualifications. These requirements are addressed in 49 CFR § 391. Most importantly, drivers of commercial vehicles must be 21 years old, proficient in English, able-bodied, and have a commercial vehicle operator’s license. For the purposes of this section, able-bodied means that one has no lost limbs, impaired grasping strength, or any preexisting conditions that could interfere with the safe operation of heavy machinery. This includes significant vision impairments or a diagnosed substance dependency.³ Due to this regulation, operators of commercial vehicles must seek a medical evaluation before they can drive.

If drivers have previous Department of Transportation regulated employment history, they also must have a demonstrated record of safe driving in the last three years. When drivers seek employment, carriers can conduct interviews, record searches, or other methods of investigating the carrier deems appropriate. These investigations must look for prior accidents, incidents, or violations and are designed to inform potential employers of unsafe drivers.

¹ Data accessed via <https://battafulkerson.com/cement-truck-accidents/>

² 49 CFR § 390

³ 49 CFR § 391.41

On the road, there are several driver-specific regulations that are intended to maintain a safe operating environment. The most obvious of these are drive-time limits. For operators of property-carrying vehicles, drivers may not drive before taking 10 consecutive hours off duty. Once on the road, they can drive a maximum of 14 consecutive hours. Every eight hours, drivers are required to take a 30-minute break. For passenger-carrying vehicles, the maximum is 10 consecutive hours⁴. This regulation is designed to prevent fatigue-related accidents which account for about 20% of fatal accidents in the U.S.⁵

Drivers are also responsible for inspecting vehicles every time they are operated and ensuring that vehicles are safe and functioning. This responsibility includes inspecting all the parts regulated in the “vehicles” section of this report. This includes service brakes, parking brakes, lighting devices, tires, horns, emergency equipment, visibility, etc. The driver must be certain that the vehicle has no defect or factor that would reduce the driver’s ability to operate the vehicle safely. Drivers must create reports that they then sign and submit to the vehicle operator. These reports must be retained for three months even if no violations are found. If violations are found, the operator must certify that the failure has been fixed before the vehicle can operate.

Vehicles

Vehicle safety is uniquely important among commercial carriers both because of vehicle’s higher weight and their more complex vehicle systems. Thus, the FMCSR implement far more prescriptive procedures for inspection and maintenance. It is also for this reason that most regulations pertain to vehicles specifically.

Like most vehicles, the FMCSR requires that every commercial vehicle have operable and unobstructed lamps and reflectors. Specific lamps are required for specific vehicle types a chart for which can be found in 49 CFR § 393.11, however, all road-safe vehicles must have headlamps, turn signals (front and rear), side reflectors, license plate lamps, side lamps, backup lamps, and hazard warning lights. If vehicles are equipped for towing, there must be two taillights, two stop lamps, two red reflectors, and two turn signal lamps on the rear of the vehicle being towed. This ensures that towed vehicles do not obstruct other driver’s views of the commercial vehicle’s safety indicators.

These restrictions may seem overly specific for a topic that should be commonsensical, however, especially when commercial vehicles are working on construction sites or in otherwise dirty environments, these lamps and reflectors can become obstructed or even completely obscured. At night, these lamps also help those on the road, or on private construction sites, know the full size and shape of the vehicle. This can be especially important for commercial vehicles carrying unusually wide, heavy, or unstable loads, or commercial vehicles operating on unlit rural roads.

Brakes are another crucial safety concern among commercial vehicles. Because of their higher weight, their stopping distance, regardless of the efficacy of the braking system, is far longer than any

⁴ 49 CFR § 395.3-5

⁵ <https://www.npr.org/sections/health-shots/2016/12/06/504448639/drivers-beware-crash-rate-spikes-with-every-hour-of-lost-sleep#:~:text=Prior%20research%20has%20shown%20that,in%20fatal%20crashes%20over%202014.>

ordinary passenger vehicle. For this same reason, the effects of a commercial vehicle's brake failure can be especially catastrophic.

Like with lighting systems, this means that the requirements surrounding required braking systems are very specific. The regulations first require that every vehicle under 10,000 pounds (or school bus over 10,000 pounds) equipped with a hydraulic brake must be also equipped with a parking brake that will hold the vehicle under any condition of loading on a public road without ice or snow. For airbrake-equipped vehicles, vehicles of any weight must have a parking brake capable of holding it during loading conditions. Regulations also require a direct mechanical linkage between the driver and the parking brake. The brakes cannot be electronic and if hydraulic or air pressure is used, there must be a reserve of that power used exclusively for the parking brake⁶. The efficacy of this system could be the difference between life and death in the event of a high-speed brake failure.

It is required that every wheel of a commercial motor vehicle be equipped with brakes. This regulation also applies to towed vehicles (trailers, fifth wheelers, etc.) over 3,000 pounds or whose axle weights are more than 40% of the sum of the axle weights of the towing vehicle. See below:

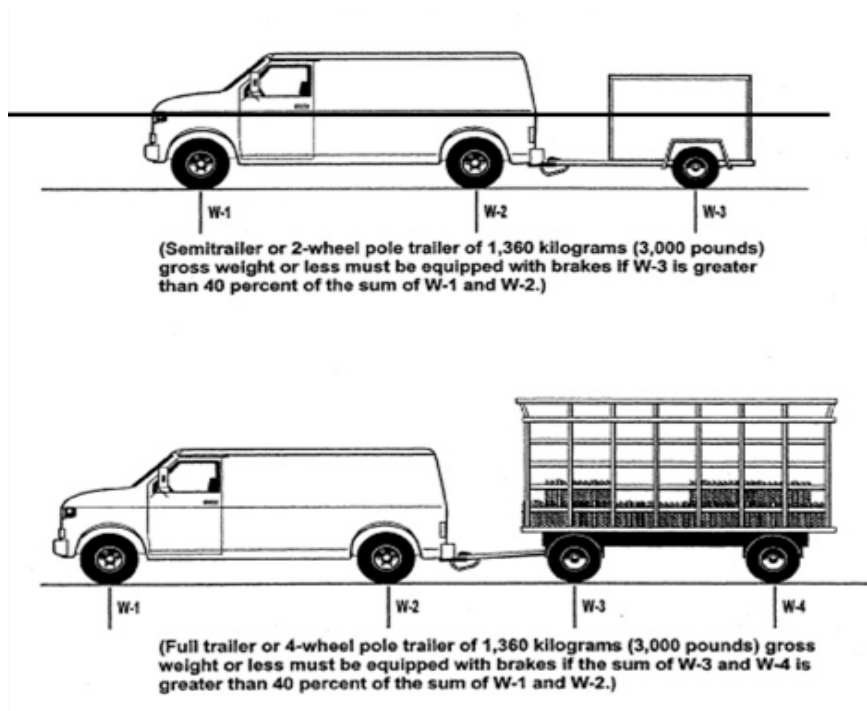


Figure 1: From 49 CFR § 393.42. https://www.ecfr.gov/cgi-bin/text-idx?SID=a50e85c78bde28c8eb0c200bd072c814&mc=true&node=pt49.5.393&rgn=div5#se49.5.393_140

Regulations also prescribe the braking force and stopping distances required for different vehicles. This information is dictated in another chart found in the FMCSR.⁷

⁶ 49 CFR § 393.41

⁷ 49 CFR § 393.52

Clearly, the main differences occur between passenger and cargo vehicles and between vehicles below or above a gross weight of 10,000 lbs. These regulations provide a standard for vehicles that can cause a lot of damage if brakes do not provide adequate stopping force. Conformity to these requirements should be tested on a dry, hard surface that is level and smooth.

Type of motor vehicle	Service brake systems			Emergency brake systems
	Braking force as a percentage of gross vehicle or combination weight	Deceleration in feet per second per second	Application and braking distance in feet from initial speed at 20 mph	Application and braking distance in feet from initial speed of 20 mph
A. Passenger-carrying vehicles:				
(1) Vehicles with a seating capacity of 10 persons or less, including driver, and built on a passenger car chassis	65.2	21	20	54
(2) Vehicles with a seating capacity of more than 10 persons, including driver, and built on a passenger car chassis; vehicles built on a truck or bus chassis and having a manufacturer's GVWR of 10,000 pounds or less	52.8	17	25	66
(3) All other passenger-carrying vehicles	43.5	14	35	85
B. Property-carrying vehicles:				
(1) Single unit vehicles having a manufacturer's GVWR of 10,000 pounds or less	52.8	17	25	66
(2) Single unit vehicles having a manufacturer's GVWR of more than 10,000 pounds, except truck tractors. Combinations of a 2-axle towing vehicle and trailer having a GVWR of 3,000 pounds or less. All combinations of 2 or less vehicles in drive-away or tow-away operation	43.5	14	35	85
(3) All other property-carrying vehicles and combinations of property-carrying vehicles	43.5	14	40	90

Finally, there are several miscellaneous regulations that serve to further increase safety. First, the FMCSR dictate that a towed vehicle such as a trailer or “fifth wheeler” have service brakes that activate “automatically and immediately” in the event the towed vehicle breaks away from the towing vehicle⁸. Additionally, regulations require that brake tubing be protected such that it will not be damaged or destroyed during the course of ordinary operations.⁹ This is especially important for heavy machinery working in rugged areas like construction sites or logging operations. In the event that one wheel’s brake functionality is impaired due to damage, the braking system is to be constructed such that brake power to other wheels is not interrupted.¹⁰

In the event that a mechanical failure, say a brake failure, forces a vehicle to stop on the side of a public road, there are several pieces of emergency equipment required by law. All trucks, tractors, and busses must carry a fire extinguisher, spare fuses, three reflective triangles, and three liquid burning flares.¹¹ These safety devices alert traffic, especially at night, to the presence of a large vehicle ahead.

The final vehicle-specific regulation pertains to windows, windshields, and visibility. Large commercial vehicles are already notorious for their expansive blind spots. As the FMCSA reports, “A commercial motor vehicle has large blind spots around all four sides.¹²” These large blind spots can only be exacerbated by objects inside the vehicle cab or improper windshield construction or glazing. All commercial vehicles must be equipped with a windshield that is free of damage or coloration that reduces the light inside the cab by more than 30%. This includes any cracks that are intersected by other cracks or damaged areas larger than ¾ inch in diameter. All trucks, tractors, and passenger vehicles also must have two rear vision mirrors affixed to either side of the vehicle.¹³

In terms of aftermarket equipment such as a two-way radio, the FMCSR have a general regulation that states: “the use of additional equipment or accessories in a manner that decreases the safety of operation of a commercial motor vehicle in interstate commerce is prohibited.” They state that

⁸ 49 CFR § 393.43

⁹ 49 CFR § 393.45

¹⁰ 49 CFR § 393.44

¹¹ 49 CFR § 393.95

¹² <https://www.fmcsa.dot.gov/ourroads/large-blind-spots>

¹³ 49 CFR § 393.80

equipment must only be used “provided such equipment and accessories do not decrease the safety of operation of the motor vehicles on which they are used.”¹⁴ This general prohibition is designed to ensure that common and useful equipment does not interfere with the driver’s visibility or ability to operate the vehicle safely.

More specifically the FMCSR prohibit any obstructions in the driver’s field of view. According to the regulation, no device can be mounted on the interior of the windshield in the area swept by the windshield wipers. While the regulations do make an exception for safety devices, even these must be mounted outside the driver’s sightlines to the road and highway signs and signals.¹⁵ This regulation is designed to prevent further intrusion into the driver’s, already limited, forward visibility. As the owner’s manual for the MACK Granite, a common model of commercial vehicle, states, “Poor driver visibility is not only annoying, but extremely unsafe under any circumstance.”

Operators

One factor that makes commercial vehicles substantially different than everyday vehicles is they are often not owned by the person driving them. Instead, commercial vehicles are owned by the operator and drivers are hired to drive them. In some cases, especially long-haul trucking, drivers may own their own cabs, however, most intrastate vehicles and intermodal containers are owned by an operator. In these cases, the operator and driver share the obligation to ensure that vehicles are inspected and maintained properly.

Regulations require that vehicles must be systematically inspected, repaired, and maintained pursuant to the requirements outlined in the “vehicles” section.¹⁶ Operators must conduct a detailed inspection at least every year¹⁷ but parts and accessories must be in safe operating condition *at all times* and emergency exits on passenger vehicles must be inspected every 90 days. In part, the inspection responsibility falls on drivers, however, it is the operator’s responsibility to ensure their actions do not contribute to an operating environment they know to be unsafe. The statute requires that all inspections or repairs be documented in the regular course of business and held for one year. Any agent of the FMCSA can perform inspections of a commercial vehicle in operation. This means that a commercial vehicle can be stopped and inspected without a traffic violation by most state police officers or other agents. This agent may also choose to mark a vehicle “out of service” which forbids the operator from operating the vehicle until the required repairs have been completed.¹⁸ It is the operators responsibility to ensure these defects are corrected and the vehicle is returned to service safely.

Applicability

This is certainly not the full extent of the regulations governing commercial vehicle operators, however, the requirements discussed have the most impact on the public’s safety. Any commercial vehicle that is registered for *interstate* travel, that is, travel between states, must register with the Department of Transportation and abide by these regulations. Vehicles that are only registered for *intrastate* travel, that is, travel within one state only, may or may not have to abide by these regulations specifically. Many states have chosen to adopt the federal statutes. If an operator is registered in one of

¹⁴ 49 C.F.R. 393.3

¹⁵ 49 CFR § 393.60

¹⁶ 49 CFR § 396.3

¹⁷ 49 CFR § 396.17

¹⁸ 49 CFR § 396.9

those states, that operator must abide by the federal regulations. States that have not adopted these federal regulations generally have substantially similar laws. So, while intrastate operators registered in those states may not have to abide by the FMCSR specifically, they will likely have similar requirements.

All safety regulations are intended to ensure the safety of commercial vehicle drivers, and just as important, the public. When followed, these requirements allow dangerous yet essential tools to be operated safely and effectively.