

HOW TO CALCULATE PROPER FOLLOWING DISTANCE

RECOGNIZE THE HAZARDS

A key factor in rear-end crashes is improper following distance. In order to determine how much following distance is required to bring a tractor-trailer to a complete stop, drivers first need to know how much stopping distance their vehicles require. A tractor-trailer driving 65 mph travels at a rate of approximately 100 feet traveled per second (FTS). A fully loaded tractor-trailer requires a minimum of 665 feet to reach a complete stop. The table below demonstrates how stopping distance is calculated.

CALCULATE STOPPING DISTANCE

| | Seconds | X | Rate | = | TOTAL FTS |
|--|---------|---|------|---|-----------|
| Perception Time | 1.5 | x | 100 | = | 150 |
| Reaction Time | 1.0 | x | 100 | = | 100 |
| Brake Lag | 0.75 | x | 100 | = | 75 |
| Braking Distance | 3.4 | x | 100 | = | 340 |
| TOTAL STOPPING DISTANCE = 665 ft. | | | | | |

PERCEPTION TIME

This is the amount of time it takes a driver to perceive the need to stop, such as noticing the brake lights on the vehicle ahead. It takes a fully alert driver's brain approximately 1.5 seconds to perceive the need to stop. At 65 mph, a driver will travel 150 feet before the brain perceives the need to react.

REACTION TIME

This refers to how long it takes a driver to react and move his or her foot to the brake pedal. This takes approximately one second to perform. In this time, the vehicle travels an additional 100 feet per second.

BRAKE LAG

This is the time it takes for the air brake system to function. This is generally three quarters of a second. The truck will travel an additional 75 feet per second.

BRAKING DISTANCE

This refers to how long it takes the truck to actually stop once the brakes are applied. Assuming the brakes are functioning properly and the tires have adequate tread and traction, a fully-loaded tractor-trailer could take an additional 340 feet to stop.

TOTAL STOPPING DISTANCE

Add together the perception time, reaction time, brake lag, and braking distance to calculate the total stopping distance required by a tractor-trailer traveling at 65 mph. The sum is 665 feet.

Note: Stopping distance required is in ideal conditions. Estimations by ATA Associates, Inc.