Truck braking safety, through reduced swerving and sliding in stopping, was backed in the report with test results. The tests indicated that nearly ⅓ of the automobiles tested, but only 1/10 of the trailer combinations tested, swerve one foot or more in coming to a stop from 20 miles per hour; 85 percent of all the automobiles, but only 51 percent of the combination vehicles slide one or more wheels stopping from 20 miles per hour. Wheel sliding, which can severely reduce driver control, occurred with all wheels on ⅓ of the passenger cars tested, but never occurred on all wheels of the combination vehicles tested.

VEHICLE PASSING TIME

In discussions involving truck lengths the question of the possible hazard in passing them on the road almost always arises. There is a standard formula or equation used commonly by engineers and traffic safety people including the Bureau of Public Roads, the American Automobile Association and American Trucking Associations. Stated as follows it applies to passing on modern highways.

Passing time equals the length of the faster vehicle plus the length of the slower vehicle divided by the difference in their speeds expressed in feet per second.

Using the formula we find that it takes 4.96 seconds for a passenger car traveling 60 miles per hour to pass a 55 foot tractor semi-combination traveling at 50 miles per hour.

The same passenger car at the same speed passes a 60 foot combination in 5.30 seconds.

The difference in passing times amounts to 34/100 of a second and that assumes a constant passing speed which is seldom the case.

Most drivers will accelerate their speed at least 10 miles per hour in making a highway pass. Average speed of this pass is 15 mph. In this case the passing times are 3.31 seconds for the 55 foot unit and 3.53 seconds for the 60 foot unit. The difference in passing time is now 22/100 of a second.

If the passing vehicle is moving 20 miles per hour faster than the other vehicle the difference in time used to pass a 60 foot combination over a 55 foot combination drops to 17/100 of a second or less than the time consumed by an eye wink.

In the final analysis with the road truck safety record superior to that of all traffic and superior to that of most smaller trucks and with the passing time so small for each additional five feet of length that it can be ignored as having any impact on safety there is but one conclusion left:

Increasing the length of truck combinations involves not a question of highway safety but only a question of economics.

HIGHWAY FATALITIES

During the Senate hearings, other testimony attempted to compare the motor vehicle death rate of all vehicles with the death rate developed for Class I and Class II motor carriers by the Department of Transportation for 1966. The difficulties, in fact the dangers, of drawing significant conclusions from these data were brought out by Senator Baker in his questioning of the witness. The national motor vehicle mileage death rate is designed to give a measurement of success of traffic safety activity. To accomplish its purpose it must contain the total element of exposure to accident (total vehicle mileage) in addition to the total number of deaths. Measurement of exposure for any vehicle must then involve every vehicle it meets or travels within the traffic stream and the mileage of those vehicles. Thus, the death rate has true validity for its purpose on a national basis involving all of the vehicles and all of their mileage.

In looking at the death rate formula it is found that the rate is established as the number of traffic deaths occurring for each one hundred million vehicle miles. Applying this kind of measurement to a single passenger car that has covered 10,000 miles in the year of 1967 and involved in an accident resulting in one fatality develops for that car a fatality rate of 10 thousand deaths per 100,000,000 miles.

Applying the measurement to a fleet of 100 such vehicles with an annual mileage of 10,000 each for a total of one million miles during which one vehicle was involved in one fatality develops a rate of 100 fatalities per hundred million miles.