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Report to Congressional Committees

November 1993

LONGER COMBINATION TRUCKS

Driver Controls and Equipment Inspection Should Be Improved

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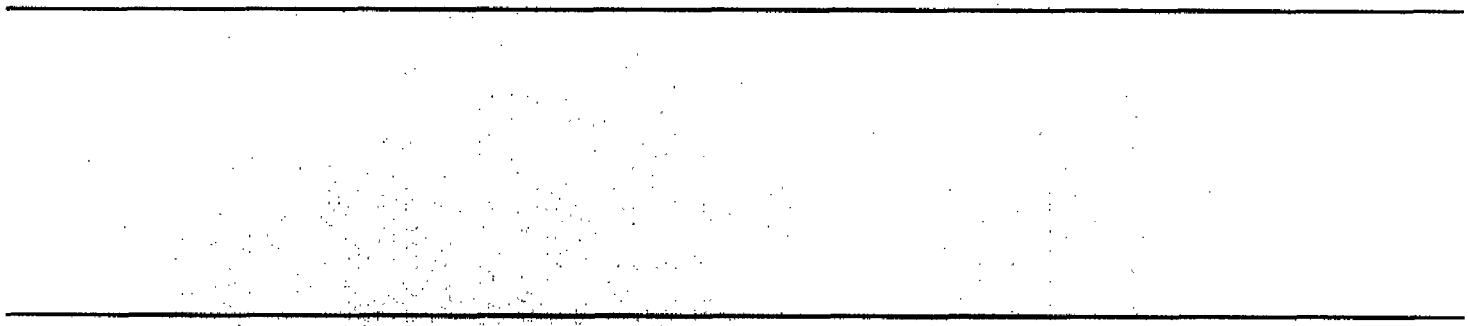

GAO

United States
General Accounting Office
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Resources, Community, and
Economic Development Division

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November 23, 1993

The Honorable Max S. Baucus
Chairman
The Honorable John H. Chafee
Ranking Minority Member
Committee on Environment and
Public Works
United States Senate

The Honorable Norman Y. Mineta
Chairman
The Honorable Bud Shuster
Ranking Minority Member
Committee on Public Works
and Transportation
House of Representatives

Under state regulations that predate federal size and weight laws, 20 states permit limited operation of longer and heavier trucks, generally referred to as longer combination vehicles (LCV). The safety and expanded use of LCVs have been heavily debated. The Congress, in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) (P.L. 102-240), limited the use of LCVs to those states that allowed them as of June 1, 1991.

ISTEA directed GAO to examine the safety and economic impact of LCVs. In March 1992,[1] we reported on the safety of LCVs and discussed the adequacy of national data on accidents involving LCVs. We found that existing studies differed in their assessments of the safety problems posed by LCVs and that national data were inadequate to compare accident rates. We also identified major operational characteristics that affect the safety of LCVs. We reported that the stability of LCVs in maneuvering and braking was even more dependent than that of single-trailer trucks on the skill of drivers and on proper loading and brake adjustment.

To complete the legislative mandate, we agreed with your offices to provide two additional reports. This report examines state regulation of LCVs, specifically addressing (1) the availability of state data to monitor the safety of current LCV operations, (2) state requirements for special inspections of LCV equipment, and (3) the effectiveness of state controls

[1]Truck Safety: The Safety of Longer Combination Vehicles Is Unknown (GAO/RCED-92-66, Mar. 11, 1992).

for ensuring the safe operation of LCVs. A subsequent report will examine the potential economic impact of expanding the use of LCVs.

Results in Brief

With few exceptions, states have not compiled data to monitor the safety and operation of LCVs on the western highways and eastern turnpikes where they are currently allowed. As a result, many LCV states do not currently have the information necessary to recognize existing problems or the problems that might emerge with increases in traffic density or with the use of LCVs by less experienced drivers and companies. While state accident data generally indicate that accidents involving double- and triple-trailer combinations constitute a small percentage of all truck accidents, the absence of mileage data specific to LCV configurations makes it impossible for most states to calculate accident rates per miles driven or to compare accident rates for LCVs with accident rates for single trailers. Also, data in most states do not distinguish long double-trailer combinations from the double 28-foot-trailer combinations (double 28s) allowed nationwide. In addition, because traffic citations do not specify vehicle configuration, states do not monitor the performance of LCV drivers or their compliance with permit requirements.

Only three states perform any special inspections of LCV equipment. In Florida, turnpike personnel inspect each piece of equipment before it is placed in service, while in Ohio and Indiana, turnpike personnel inspect a single example of the LCV configuration that a company intends to use before issuing a tractor permit for that configuration to operate on the turnpike. Other states rely largely on trucking companies and drivers to ensure that equipment meets state requirements and is in safe operating condition. LCVs are included in roadside inspections but have not been singled out for special attention. In fact, double and triple combinations appear to be underrepresented in these inspections, when the frequency of inspection for different types of vehicles is compared with the vehicles' estimated mileage. Inspection data indicate that doubles are at least as likely to fail inspections as other types of combination trucks.

The states that allow LCVs have established widely differing controls and levels of enforcement. Despite wide agreement on the importance of a driver's qualifications to the safety of an LCV, many states have not adopted rules on drivers' experience and safety records. The eastern states where LCVs are allowed are exceptions, requiring that drivers have both experience and good safety records. Data from two of these states show very low accident rates for LCVs, despite higher traffic densities than are

found on most western highways. The western states have taken fewer steps to control LCV operations, except for restricting routes, and the scarcity of data makes it difficult to assess the effectiveness of their controls. Other factors may be more responsible for the relatively low number of identified LCV accidents, such as the low traffic density on many LCV routes and the operation of triples mainly by large companies with good safety records.

Background

Figure 1 shows the 20 LCV states discussed in this report and indicates what types of LCVs they allow to operate. We have included the same 20 states that we listed in our earlier report. A current effort by the Federal Highway Administration (FHWA) to identify additional LCV states may add a few more states, primarily ones that allow trucks in excess of 80,000 pounds, regardless of length. Appendix I discusses FHWA's consideration of other states that the agency may classify as LCV states, depending on the definition it adopts.

Figure 1: States Allowing LCVs and the Types They Allow

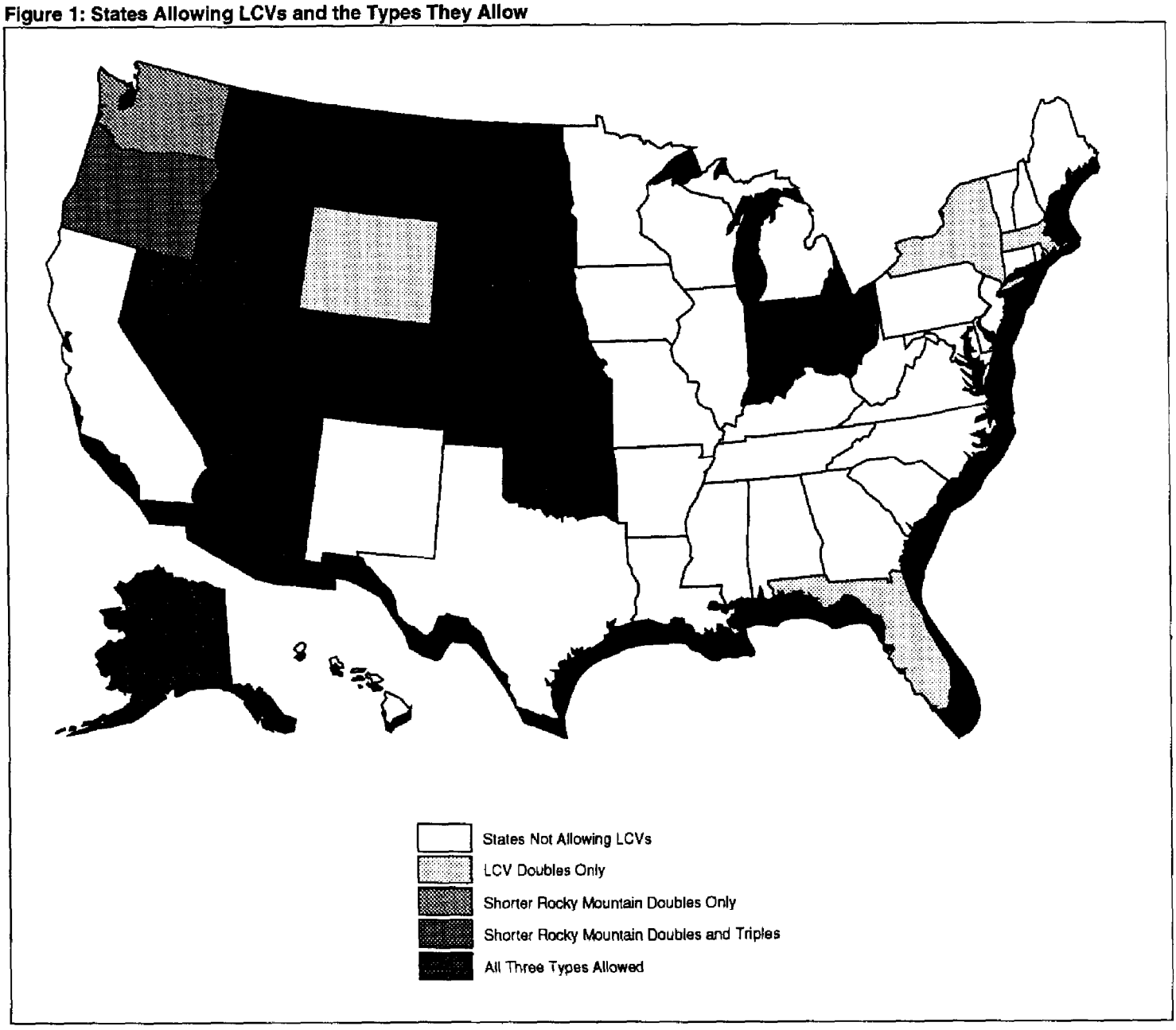
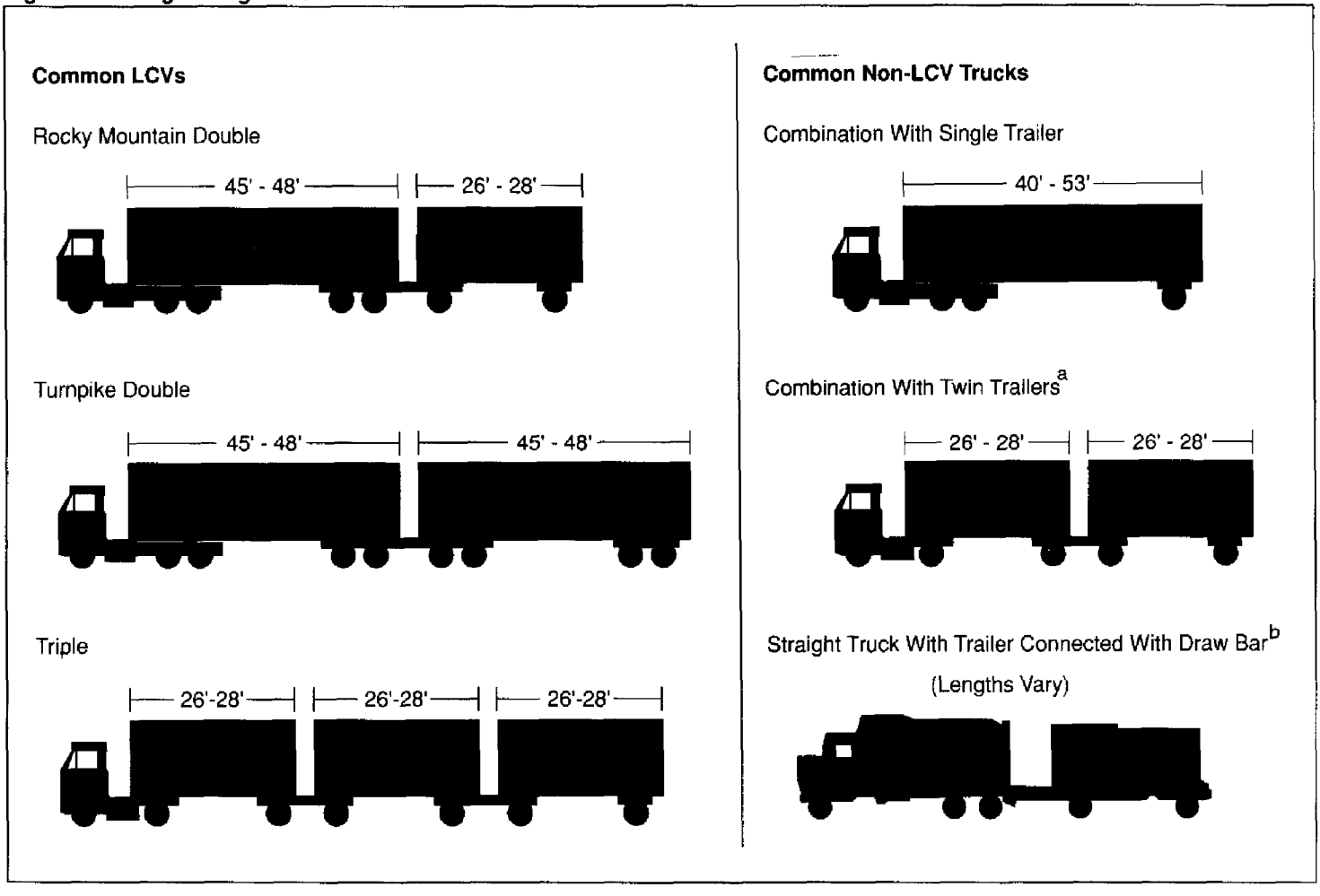


Figure 2 illustrates the three most common types of LCVs—Rocky Mountain doubles, turnpike doubles, and triples—and distinguishes them from combinations allowed to operate nationwide. Trucking companies,

particularly in the West, also use variations of these configurations (particularly different types of trailers) for special transportation needs.

Figure 2: Distinguishing LCVs From Other Trucks



[a]Under the ISTEA rulemaking for driver training, FWHA could consider this combination an LCV if its weight exceeded 80,000 pounds and it operated on the interstate highway system.

[b]Depending on the length of the units, this combination could be classified in some states as an LCV.

Source: American Trucking Associations and Transportation Research Board.

The states that allow LCV operations do so under "grandfather" provisions in the federal laws that established gross vehicle weight limits for interstate highways. FHWA has generally left the regulation of LCVs to those states where they operate. The five eastern turnpike authorities developed regulations for LCVs in the late 1950s and early 1960s. In the West, both the Western Highway Institute (WHI) and the Western Association of State Highway and Transportation Officials (WASHTO) have developed and periodically revised guidelines for regulating LCVs. Provisions from these guidelines concerning drivers, companies, operating restrictions, and equipment requirements are discussed in appendix II.

States Compile Little Information to Monitor LCV Safety and Operations

Few individual states have compiled data for monitoring the safety and operation of LCVs. Although most states can identify accidents involving triples, they cannot separate accidents involving LCV doubles from those involving double 28s. Nor can most states compute accident rates for LCVs on the basis of the number of vehicle miles traveled. Also, because state citation forms rarely identify specific truck configurations, states do not compile data on violations by LCV drivers. Although states could use inspection data to monitor the condition of double and triple combinations and to compare the condition of these vehicles with that of other trucks, states have not done so.

State Accident Databases Contain Incomplete LCV Information

WHI guidelines recommend that all LCV accidents be reported separately to the state, but only four western states have adopted this recommendation, and three of them are not enforcing it. Furthermore, although state accident forms usually indicate the number of trailers involved, only Utah and Colorado have distinguished between double 28s and LCV doubles. Thus, it is not possible to determine how many LCV doubles were involved in accidents in most states. In addition, straight trucks with one or more trailers (sometimes considered LCVs, depending on their length and state regulations) cannot be distinguished from LCV doubles or triples in most state databases.

In LCV states, doubles (including double 28s) and triples are involved in a small percentage of the reported accidents, but they also constitute a small percentage of the total traffic. Doubles and triples were involved in from 4 to 14 percent of all truck accidents in eight states that had adequate data to analyze. At present, most states cannot determine whether these vehicles are overrepresented or underrepresented in accident statistics because mileage data are not available by vehicle configuration.

Exceptions are New York and Ohio, which did have 1991 and 1992 mileage data for LCVs on the New York Thruway and the Ohio Turnpike. New York data revealed an accident rate of 0.92 per million miles for LCV doubles compared with a rate of 2.37 for other combination trucks. The Ohio Turnpike, which has a lower damage threshold for reporting accidents, had an accident rate of 1.23 per million miles for all LCVs. Among western states, only Idaho and Nevada had computed accident rates for multiple- and single-trailer combinations. For 1990-91, Idaho reported rates per million miles of 0.2 for triple, 0.9 for double, and 0.8 for single combinations. For 1987-90, Nevada reported rates of 0.8 for triple, 2.0 for double, and 2.0 for single combinations. As expected, given the lower traffic density in these states, the overall truck accident rate was lower than the national average.

Several large less-than-truckload (LTL) and package companies[2] have compiled mileage and accident data. These data show that the currently operated triple combinations have been in fewer accidents per million miles than the currently operated double and single combinations.[3] Triples, however, operate almost entirely on limited-access highways that have lower accident rates than the roads on which other combinations more frequently travel.

Eventually, state reporting of truck accidents to FHWA's Safetynet accident module should improve the identification of LCV accidents to some extent.[4] By January 1, 1994, states will be required to report certain accident data to this system, including the number of trailers and the total number of axles of combination trucks involved in accidents. Then, accidents involving double 28s, which usually have five or six axles, will be distinguishable from accidents involving LCV doubles with seven to nine axles.

Complete Safetynet data will not be available for several years. Nationwide, only 21 states were reporting 1992 accident data to Safetynet.

[2]LTL and package companies primarily accept smaller shipments and consolidate them into truckloads at hub terminals.

[3]In 1992, four large companies that operate triple as well as double and single combinations reported accident rates per million miles as follows: triples, 0.05 to 0.21; doubles, 0.15 to 0.63; and singles, 0.34 to 0.77. In 1991, the national accident rate for medium-sized and heavy trucks was 2.13 per million miles, as reported to FHWA.

[4]Safetynet is the database into which states now report certain information, including accident statistics and inspection results. The previous system, discontinued on March 3, 1993, required companies to report to the Department of Transportation only truck accidents occurring on interstate highways and meeting certain criteria. The discontinued system was estimated to have underreported accidents by as much as 40 percent.

Nine of these states were LCV states, and only six of these were beginning to report the number of axles—information critical to distinguishing one type of LCV from another. Moreover, although the requirement to report data to Safetynet may improve the collection of LCV accident data, it will not permit the calculation of LCV accident rates unless specific mileage data are also reported. Recognizing the difficulty in isolating LCV accident rates, FHWA has authorized a study to try to determine these rates for 100 randomly selected companies that operate LCVs.

Most States Do Not Monitor LCV Inspection Results or Driver Violations

In most states, information on the condition of trucks and on drivers' adherence to safety regulations comes primarily from roadside inspections conducted by states under the Motor Carrier Safety Assistance Program (MCSAP). Doubles and triples can be identified in the data collected under MCSAP, but states have rarely used these data to compare the results of inspections with the number of trailers. Although LCV doubles cannot be distinguished from double 28s, such a comparison could indicate whether multiple trailer combinations are being adequately maintained and inspected frequently enough. Also, states have not compiled information on citations issued to LCV drivers for violations of traffic laws or of LCV permit requirements. Only two turnpike authorities collect this information in order to monitor drivers and companies. Most state data do not distinguish LCV violations from other truck violations or identify the enforcement actions taken against violators.

Few States Require Special Inspections of Equipment

While nearly all states have some requirements for the type of equipment that may be used with LCVs, only three eastern turnpike authorities—Florida, Indiana, and Ohio—specially inspect LCV equipment before it is placed in service. The Florida authority inspects each piece of LCV equipment before allowing it to operate, while the Ohio and Indiana authorities initially inspect one "typical configuration" that a company intends to use before approving that configuration's operation. None of the states performs periodic inspections of LCVs, although federal regulations now require trucking companies to ensure that all trucks are inspected annually by qualified personnel. Four turnpike authorities require specific pretrip inspections, which are to be documented by the drivers and presented to turnpike enforcement personnel upon request.

The roadside inspections conducted under MCSAP include inspections of LCVs. We obtained 1992 MCSAP inspection data from FHWA and compared the results for double and triple combinations with those for all trucks in each

LCV state. Table 1 shows the results of inspections for 12 states that inspected substantial numbers of multiple-trailer combinations and compares the out-of-service (OOS) rates[5] for doubles and triples with those for all trucks. As FHWA pointed out, because the MCSAP inspections reflect not a random but a judgmental selection, they may yield higher OOS rates for all types of trucks. The rate of OOS violations for doubles exceeded the rate for all trucks inspected in 8 of 12 states, while the rate for triples exceeded the rate for all trucks in only 1 state. Although we recognize that additional trailers provide additional opportunities for mechanical defects, the higher OOS levels for doubles suggest that these vehicles are found to have critical mechanical defects at least as often as single-trailer trucks. These statistics are noteworthy, considering that triples have one more trailer yet have lower OOS rates than single- and double-trailer combinations. A similar comparison of driver violation rates (primarily for hours-of-service violations) showed lower rates for both doubles and triples than for singles in most states.

Table 1: Comparison of Level I Inspection Results

	Vehicle OOS rates		
State	All trucks	Doubles (including 28s)	Triples
Alaska	43.9	80.0	40.0[a]
Arizona	44.3	35.7	33.3
Idaho	40.3	46.5	38.5
Montana	29.0	31.7	0.0[a]
Nebraska	38.1	32.0	[b]
North Dakota	31.4	36.0	20.8
Nevada	47.3	61.5	70.0[a]
Oklahoma	33.2	38.5	[b]
Oregon	44.6	41.3	31.4
Utah	48.4	42.2	37.5
Washington	44.5	47.8	[c]
Wyoming	38.4	41.2	[c]

[a]Ten or fewer inspections conducted.

[b]No level I inspections conducted.

[c]Not allowed in this state.

[5]Trucks and drivers are placed out of service (not allowed to continue operating until violations have been corrected) if violations deemed critical to safe operation are discovered during roadside inspections. These data are for inspections of companies conducting interstate operations only, not for inspections of companies operating within a single state.

States may also perform targeted inspections under MCSAP. Although 15 of the LCV states had conducted such inspections in 1992, none had targeted LCVs for special attention. In fact, doubles and triples appear to be underrepresented in the MCSAP inspections. Twelve LCV states reported that multiple-trailer combinations accounted for 7 to 26 percent of the miles traveled by combination trucks in 1991, yet they accounted for 0.2 to 8.5 percent of the MCSAP inspections reported to FHWA. As FHWA pointed out, states do not report the results of inspections of intrastate carriers, including LCVs; therefore, the actual gap between the percentage of miles traveled and the percentage of inspections conducted should be smaller than the above figures suggest. However, even when the statistics are adjusted as FHWA suggests, combinations with multiple trailers still appear to be substantially underrepresented.

State Controls on LCVs Vary Widely and May Affect Safety Less Than Other Factors

State officials noted that they consider their controls on LCV operations adequate because they do not perceive that LCVs have operated any less safely than other combination trucks. Although data to verify this perception are limited, state officials and trucking industry representatives note that currently operating LCVs, particularly triples, have a better safety record than the trucking industry as a whole. However, this record may be more closely related to the low-density traffic conditions in which LCVs have operated, and to the types of companies that operate them, than to state controls. States have applied controls very unevenly, and, in many cases, have failed to address such important matters as the qualifications of LCV drivers and the safety record of companies authorized to operate LCVs.

Low Traffic Density on Current LCV Routes Affects Safety

State officials indicated that an important reason for the safe operating record of LCVs in western states was the relative lack of traffic, and some said that if their states had as much traffic as the eastern states, they would not allow LCVs. In many states, LCVs are restricted to interstate or other limited-access highways, which have far lower accident rates than two-lane roads.[6] Moreover, the average daily traffic volume on rural and urban interstates in the 15 western LCV states in 1991 averaged less than one-half that in the remaining states. Traffic density is increasing, however, even in the West. Although it remains well below that in the East, FHWA estimated that the number of vehicle miles traveled annually on

[6]According to the Department of Transportation's Fatal Accident Reporting System, the rate of fatal accidents per million miles traveled in 1991 was 0.9 for interstates, compared with 2.2 for other highways.

rural interstates increased by an average of nearly 12 percent in the western LCV states from 1988 to 1991.

States have contributed to the safety of LCV operations by restricting the routes to which LCVs have access and, in several instances, by establishing special requirements for LCV drivers and companies. Some states have also adopted various equipment and operational controls recommended by WHI and WASHTO guidelines but often rely on the trucking companies to ensure compliance. Appendix II discusses in greater detail the extent to which states have adopted these various types of controls.

Few States Control Drivers' Qualifications

Many states, particularly in the West, have made little or no effort to establish special requirements for LCV drivers. Accident data available from Oregon and Utah show that driver error is the preponderant contributing factor in those LCV accidents in which the truck is at fault. Guidelines developed by WHI and WASHTO to enhance LCV safety emphasize the importance of experience and good driving records for prospective LCV drivers, and, according to industry officials, these factors are key to LCV safety. Yet only nine states have experience or age requirements for LCV drivers and check or monitor their driving records. The turnpike authorities are the most active in controlling drivers' qualifications. As mentioned earlier, evidence available from the New York Thruway and the Ohio Turnpike indicates that drivers of LCVs have compiled very good safety records on those highways. As FHWA pointed out, federal regulations also require that drivers pass a knowledge test to obtain a doubles/triples endorsement on their commercial driver license.

ISTEA also directed FHWA to establish minimum training requirements for LCV drivers. As required, FHWA is conducting a study that may lead to the inclusion of such requirements in the Federal Motor Carrier Safety Regulations. As part of this study, FHWA has received comments from trucking companies, industry organizations, highway safety groups, and state officials indicating strong support for improving the training requirements for LCV drivers, although these groups have different ideas about how such training should be accomplished. These comments also stress the importance of ensuring that drivers are experienced and have good driving records. Large companies operating LCVs (primarily triples) have strict requirements for drivers assigned to them. Company officials commenting to FHWA and those we spoke with indicated that they have procedures to

- screen applicants to ensure the hiring of experienced drivers with good driving records,
- ensure that drivers establish good safety records on smaller combinations before they are assigned to triples,
- train drivers in the special operating characteristics of LCVs (classroom and behind-the-wheel training with a senior driver or trainer), and
- conduct follow-up training/observation to ensure continued safe operation.

Large Companies With Good Safety Records Dominate Operation of Triples but Not of Doubles

It is likely that the safety record of triples is partly attributable to the type of companies that presently operate them. The limited state data available indicate that triples are operated primarily by large national and regional LTL companies. On the Ohio Turnpike, for example, four large LTL companies accounted for 82 percent of the tractor permits issued to LCV triples, and two of these companies accounted for one-half of all LCV operating miles. As noted earlier, these companies have good overall safety records. They haul generally lightweight freight in van-type trailers, primarily on interstate highways. Most locate their terminals close to major four-lane highways, thereby avoiding the use of triples on two-lane highways. Triples operated by larger LTL companies also had fewer violations per roadside inspection than other triples and doubles.

Much less is known about the operation of LCV doubles. Many more companies operate doubles than triples and use doubles to haul a variety of commodities on different types of trailers. This is particularly true of Rocky Mountain doubles, which are used extensively in the West on a wide network of roads, including many two-lane roads. Colorado began allowing LCVs up to 110,000 pounds in 1989, and currently nearly 20 percent of the LCV permits are held by companies that haul heavy products, such as asphalt, sand and gravel, cement, and petroleum products. Less is known about the safety record of this more diverse group of smaller companies, which often use LCV doubles in intrastate operation.

Conclusions

During our review, state officials in LCV states expressed few concerns about the safety of LCVs, although most of these officials had little information on which to base their assessment or through which to monitor LCV operations. Without such data, states may not recognize emerging problems as traffic density grows and as less experienced drivers and companies begin to operate LCVs. Our analysis of 1992 inspection data indicated that double and triple combinations are

underrepresented in inspections and that doubles may deserve more attention.

It is not clear that state controls, other than route restrictions, have been effective in ensuring the safety of LCV operations. State controls on LCVs vary widely, and the level of compliance cannot be determined. Other factors, such as the low density of the traffic in which most LCVs operate and the preponderance of large companies with good safety records among those companies currently operating triples, have probably contributed heavily to the relatively low number of accidents involving triples. Much less is known, however, about the record of doubles, particularly of Rocky Mountain doubles.

Drivers' qualifications are critical to the safety of LCV operations. The New York Thruway and Ohio Turnpike have requirements concerning both the experience and the safety records of drivers certified to operate LCVs, and, despite their relatively higher traffic density, they also report low accident rates for LCVs. Although WHI and WASHTO guidelines recommend additional requirements for drivers, few western states have adopted provisions of the guidelines. Under ISTEA requirements, FHWA is conducting a study that may lead to the inclusion of training requirements for LCV drivers in the Federal Motor Carrier Safety Regulations.

Recommendations to the Secretary of Transportation

To provide better and more complete information on the safety of LCVs, we recommend that the Secretary of Transportation direct the Administrator, FHWA, to

- further investigate the safety of LCV operations through the targeting of LCVs for inspections or through special studies, such as the ongoing FHWA study of LCV accident rates, and encourage states to use inspection data to monitor the adequacy of companies' maintenance and
- include in the Federal Motor Carrier Safety Regulations requirements concerning the driving experience and the past safety records of drivers assigned to LCVs to help ensure that drivers are adequately qualified to operate them.

Agency Comments and Our Evaluation

FHWA reviewed a draft of this report and provided a number of detailed editorial and technical comments, which we have incorporated in the report. FHWA did not question our description of state data sources or of the variation in state controls over LCV operations. FHWA also agreed in

principle with our recommendation that federal requirements be established to set minimum qualifications for LCV drivers. FHWA indicated that it would solicit comments on this issue through the rulemaking procedure concerning training requirements for LCV drivers.

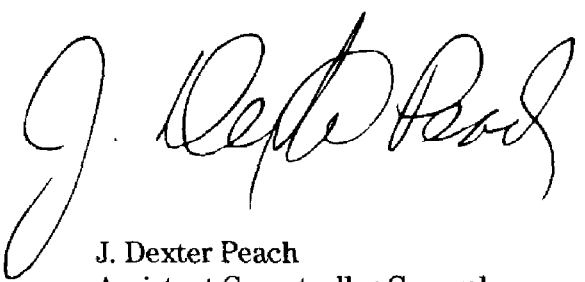
FHWA did not concur with our proposed recommendation that MCSAP inspections include a larger sample of LCVs, contending that our analysis had not proved the need for greater emphasis on LCVs in the MCSAP inspections. Concerning the record of LCVs in MCSAP inspections, FHWA pointed out that three of the states listed in table 1 had inspected very few triples and therefore their data could be misleading. We have now identified this limitation in the table. However, the data in table 1 still indicate that LCVs, especially doubles, fail inspections at least as often as other trucks. Hence, it should not be assumed that they are better maintained than other trucks because they are LCVs. FHWA stated that our analysis did not conclusively demonstrate the need for more inspections of LCVs. FHWA noted that the FHWA inspection results used in our analysis required several adjustments to make LCV and other truck data more compatible. We made the adjustments suggested by FHWA and found that LCVs still appeared to be underrepresented. FHWA agreed, however, that there is a need to determine whether an adequate number of LCVs are being inspected in MCSAP and proposed some alternatives, such as conducting special MCSAP studies or targeting LCVs during "Roadcheck," an annual 72-hour around-the-clock program of roadside inspections. We agreed with FHWA's approach and modified our recommendation accordingly. Comments from the Department of Transportation and our responses are included in appendix III.

Scope and Methodology

We conducted our work from June 1992 to May 1993 in accordance with generally accepted government auditing standards. We used information provided to FHWA by state officials on state regulations concerning LCVs and contacted states to clarify this information as necessary. We interviewed state officials to determine what data were available to monitor the safety and operation of LCVs, and we obtained available accident data from these states. We interviewed FHWA, state, turnpike, and trucking industry officials concerning LCV safety and attended three meetings of the Commercial Vehicle Safety Alliance. Appendix IV lists the states, organizations, and companies that we contacted or from which we obtained data.

We are sending copies of the report to interested congressional committees, the Secretary of Transportation, and the Administrator of FHWA. We will make copies available to others upon request.

This work was performed under the direction of Kenneth M. Mead, Director, Transportation Issues, who can be reached on (202) 512-2834. Other major contributors to this report are listed in appendix V.



J. Dexter Peach
Assistant Comptroller General

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Abbreviations

CDL	Commercial Driver's License
CVSA	Commercial Vehicle Safety Alliance
FHWA	Federal Highway Administration
GAO	General Accounting Office
ISTEA	Intermodal Surface Transportation Efficiency Act
LCV	longer combination vehicle
LTL	less-than-truckload
MCSAP	Motor Carriers Safety Assistance Program
OOS	out-of-service
WASHTO	Western Association of State Highway and Transportation Officials
WHI	Western Highway Institute

Congressional Actions Regarding Longer Combination Vehicles

To increase productivity, the trucking industry has repeatedly sought increases in the size and weight of trucks allowed on the nation's highways. As a result, many states currently allow longer, heavier trucks to operate—many of them classified as longer combination vehicles (LCV). The states that currently allow LCVs do so under "grandfather" provisions in the federal laws that established gross vehicle weight limits for interstate highways. The Federal Highway Administration (FHWA) has generally left the regulation of LCVs to the states that allow them. The most recent debate, which took place before the enactment of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), concerned the safety of allowing additional states to permit LCV operations.

ISTEA Requirements Concerning LCVs

The Congress included provisions in ISTEA that limited LCV use to that allowed as of June 1, 1991. The act permitted states to further restrict LCV use within their borders but otherwise maintained existing state restrictions. Furthermore, ISTEA directed the Secretary of Transportation to (1) compile a list of the states allowing any type of LCV to operate and of the related state restrictions on these vehicles as of June 1, 1991;[1] (2) establish minimum training requirements for LCV drivers; and (3) conduct road tests with LCVs to identify any modifications needed in the Federal Motor Carrier Safety Regulations. At the time of our review, FHWA expected to complete the final list in early 1994 and was working on the other two requirements.

Definitions Affect the Number of LCV States

The lack of agreement on when a combination vehicle becomes an LCV affects the number of states that may be considered LCV states. For the purpose of safety and driver training studies, ISTEA defined an LCV as "any combination of a truck tractor and 2 or more trailers or semitrailers which operates on the Interstate System at a gross vehicle weight greater than 80,000 pounds." The inclusion of weight in this definition departs from the traditional practice of considering only length in making such determinations. For example, the Western Association of State Highway and Transportation Officials (WASHTO) defined an LCV as "a combination of truck tractor, semitrailer, and trailers(s) which exceed legal length limits and operates on highways by permit for transporting reducible loads". WASHTO noted that LCVs generally exceed 75 feet in length overall. A committee of the Commercial Vehicle Safety Alliance (CVSA) defined an LCV as "any motor vehicle combination with either a single trailer in excess of

[1]The Congress also required FHWA to determine state limits on vehicle lengths as of June 1, 1991. Although not yet completed, this effort has identified 29 states that had longer and/or heavier combinations in operation on that date than are now generally allowed nationwide.

53 feet, or two or more cargo carrying units with a combined trailer length greater than 65 feet."

For consistency, we have included the same 20 states that we listed in our earlier report. Table I.1 lists these 20 states and contains explanatory comments where appropriate.

Table I.1: States Considered LCV States in This Report

State	Primary state limitation
Eastern turnpikes	
Fla.	Not considered an LCV state under ISTEA because the turnpike is not part of the interstate system.
Ind.	
Mass.	Triples not allowed.
N.Y.	Triples not allowed.
Ohio	
Western states	
Alaska	Triples allowed only in summer months on one route.
Ariz.	LCVs allowed on one interstate (about 30 miles) across the northwest corner of the state.
Colo.	LCVs restricted to interstates but prohibited from interstate sections crossing the Rocky Mountains.
Idaho	
Kans.	LCVs allowed only on the turnpike except for about 20 miles under dispute on one interstate from the Colorado border.
Mont.	
Nebr.	Combinations of up to 95,000 pounds, but combined trailer lengths of over 65 feet allowed to operate only when empty.
Nev.	
N.Dak.	
Okla.	May not weight more than 90,000 pounds.
Oreg.	Only Rocky Mountain doubles (combined trailer length of 68 feet) and triples allowed.
S.Dak.	
Utah	
Wash.	Only Rocky Mountain doubles (combined trailer length of 68 feet) allowed.
Wyo.	Triples not allowed.

Source: GAO analysis of FHWA and state data.

We recognize that other states may be considered LCV states by FHWA. Table I.2 lists additional states that FHWA is considering because weights exceeding 80,000 pounds are allowed on the interstates or because combinations with two or more cargo units that are longer than twin 28-foot trailer combinations (double 28s) are allowed. It should be noted that, for the ISTEA safety and driver training studies, double 28s weighing more than 80,000 pounds would be considered LCVs. FHWA has solicited comments concerning whether these and other vehicles should be classified as LCVs for the purpose of establishing training requirements for LCV drivers. Comments from the trucking industry indicated opposition to such a classification. Comments from other sources, however, cited reasons supporting the requirement of special LCV training for drivers of double 28s, including (1) the instability of the double 28's shorter wheelbase, (2) the difficulty for enforcement personnel of determining weight, and (3) the more liberal access provisions for these vehicles that allow more of them to operate on two-lane roads. In addition, the current doubles/triples endorsement on the commercial driver's license requires drivers to take only a written test, not a driving test. This endorsement draws no distinction between double 28s and other multiple-trailer vehicles.

Table I.2: Additional States Under Consideration by FHWA

State	Type of vehicle under consideration
Calif.	Very short triples with an overall length of 55 feet.
Conn.	Two-trailer combinations up to 80 feet long.
Del.	Two-trailer combinations up to 62 feet long.
Hawaii	Two-trailer combinations up to 65 feet long.
La.	Two-trailer combinations up to 75 feet long.
Mich.	Several types of shorter vehicles with multiple trailers and additional axles weighing far more than 80,000 pounds.
Mo.	LCVs allowed on 20 miles of access highways from neighboring Kansas and Oklahoma.
N.H.	Two-trailer combinations up to 85 long.
N. Mex.	Vehicles with two trailers weighing up to 86,400 pounds allowed on the interstates.

Source: GAO analysis of FHWA listings and discussions with FHWA personnel.

Comparison of LCV Controls Among States and With Established Guidelines

The eastern turnpike states adopted special rules for LCVs when they began to allow these vehicles to operate in the late 1950s and early 1960s. Similarly, with comments from state officials and the trucking industry, both the Western Highway Institute (WHI) and the Western Association of State Highway Transportation Officials (WASHTO) developed guidelines as western states began to allow LCVs to operate in the 1970s and 1980s. These guidelines not only establish special requirements for LCV drivers but also attempt to control LCV operations by placing additional restrictions on the companies that operate LCVs, the conditions under which LCVs operate, and the equipment that LCVs use. The extent to which states adopted these guidelines varies considerably, however.

Requirements for LCV Drivers

Both existing guidelines and comments from many companies that operate LCVs indicate that existing federal requirements are not stringent enough to ensure that LCV drivers are safe drivers. Currently, federal regulations require only that LCV drivers pass a written test to obtain a doubles/triples endorsement on their Commercial Driver's License (CDL).

Individual state requirements differ considerably, however, as noted in table II.1. Generally, eastern turnpike authorities have the most stringent controls on drivers, requiring them to have established safe driving records and acquired experience driving combination trucks. The western states have adopted few special requirements for LCV drivers and have not adopted WHI or WASHTO guidelines with any consistency.

Table II.1: Special Requirements for LCV Drivers

State	Examine drivers record	Years of experience	Special training	Company road test	Minimum age
Eastern turnpikes					
Fla.	Yes	5	No	No	23
Ind.	Yes	5	No	No	26
Mass.	Yes	5	No	No	[a]
N.Y.	Yes	5	No	No	26
Ohio	Yes	5	Yes[b]	No	26
Western states					
Alaska[b]	No	10	Yes	No	[a]
Ariz.[b]	No	None	Yes	No	[a]
Col.	Yes	None	No	Yes	[a]
Idaho	No	None	No	No	[a]
Kans.	No	None	No	No	[a]
Mont.[b]	No	None	Yes	Yes	[a]
Nebr.	No	None	No	No	[a]
Nev.	No	None	No	No	25
N.Dak.	No	None	No	No	[a]
Okla.[b]	No	2	No	No	[a]
Oreg.[b]	Yes	1	No	Yes	[a]
S.Dak.	No	None	No	No	[a]
Utah	No	None	No	Yes	[a]
Wash.	No	None	No	No	[a]
Wyo.	No	None	No	No	[a]

[a]Federal regulations require that drivers of commercial motor vehicles be at least 21 years old unless they drive only within a single state's borders.

[b]These requirements apply only to drivers operating triples.

Source: GAO analysis of state and FHWA data.

The turnpike authorities generally require drivers to obtain special identification cards before they can operate LCVs. Turnpike personnel examine LCV drivers' records and, in some states, annually reexamine these records not only for license suspensions but also for excessive violations that have resulted in a loss of points. These officials also review drivers' records to determine whether the driver has had too many preventable accidents during a given period. For example, the Ohio Turnpike Authority

has refused LCV drivers permission to operate and has suspended other LCV drivers for excessive violations.

In contrast, western states currently have adopted few special requirements for drivers. The WHI guide states that "drivers must be experienced in driving truck-trailer combinations and must have a good driving record." Recently revised WASHTO guidelines recommend that LCV drivers have a minimum of 3 years' experience driving truck combinations and that drivers of triples have at least 2 years' experience driving doubles. Table II.1 shows that only three western states have experience requirements for triples drivers, none have experience requirements for doubles drivers, and only Nevada has a minimum age requirement for drivers (25 years). Currently, two western states disqualify only drivers that have received suspensions within the past 3 years, while the others have no requirements concerning drivers' safety records. No western state requires a special LCV license, although four states require companies to give drivers a road test and three require companies to provide special training for triples drivers.

Controls on LCV Companies

Although exact requirements vary, both sets of guidelines recommend that companies meet certain standards before they are approved to operate LCVs. For example, while both organizations require that companies have established safety programs, WHI guidelines state that companies must have documented driver training, and the revised WASHTO guidelines add a provision used by the state of Utah that requires companies to have a satisfactory safety rating. Table II.2 indicates which states have adopted these guidelines. Most states require some type of permit incorporating any state requirements for LCV operation to be issued to the company and/or to individual tractors.

Table II.2: Current LCV Company Requirements

States	Pre approval of companies	Established safety program (WHI and WASHTO)	Satisfactory safety rating (WASHTO)	Documented driver training (WHI)
Eastern turnpikes				
Fla.	Yes	No	No	No
Ind.	Yes	No	No	No
Mass.	Yes	No	No	No
N.Y.	Yes	Yes	No	Yes
Ohio	Yes	No	No	Yes[a]
Western states				
Alaska	No	No	No	Yes[a]
Ariz.	Yes	Yes	No	Yes
Colo.	Yes	Yes	No	Yes
Idaho	No	No	No	No
Kans.	No	No	No	No
Mont.[a]	No	Yes	No	Yes
Nebr.	Yes	No	No	No
Nev.	Yes	No	No	No
N.Dak.	No	No	No	No
Okla.	No	No	No	No
Oreg.[a]	No	No	Yes	Yes
S.Dak.	No	No	No	No
Utah[b]	Yes	Yes	Yes	No
Wash.	No	Yes	No	No
Wyo.	No	No	No	No

[a]Requirements apply only to drivers of triples.

[b]Requirement applies only if companies operate vehicles over 92 feet long.

Source: GAO analysis of state and FHWA data.

Operational Requirements for LCVs

The conditions under which LCVs operate may be restricted. Both WHI and WASHTO, for example, recommend that LCVs operate only on designated highways and suspend operations during inclement weather. The heaviest trailers must also be placed first, but the weight differential that triggers sequencing rules differs. WHI recommends a 5,000-pound criterion for determining the proper weight distribution of trailers, WASHTO recommends a 4,000-pound criterion, and several states have adopted lesser weights.

Table II.3 and table II.4 demonstrate route restrictions in eastern turnpike and western states, respectively. Table II.5 shows the states that have adopted other major operational guidelines.

Table II.3: Eastern Turnpike Routes Open to LCVs

Eastern turnpikes	Turnpike/toll roads	Two-lane routes
Fla.	Designated turnpike	None
Ind.	Toll road	Limited access only
Mass.	Turnpike	None
N.Y.	Most of thruway	None
Ohio	Designated turnpike	Limited access only

Source: GAO analysis of state and FHWA data.

Table II.4: Western Routes Open to LCVs

Western states	Interstate highways	Two-lane routes open to LCVs
Alaska	Designated interstates, most of which are two-lane roads	Most major routes
Ariz.	Designated interstate	Access routes only
Colo.	Designated interstate, except across Rocky Mountains	Access routes only
Idaho	All interstate routes	Routes designated on the basis of off-tracking
Kans.	Turnpike; about 20 miles on I-70 under dispute	Access routes only
Mont.	All interstates	Most routes, if LCV is 95 feet or shorter
Nebr.	Designated interstates	Access routes only
Nev.	All interstates	Most routes
N.Dak.	All interstates	Designated routes
Okla.	All interstates	Designated routes, depending on length of LCV
Oreg.	All interstates	Designated routes
S.Dak.	All interstates	Designated routes, depending on length of LCV
Utah	All interstates	Most routes, if LCV is 92 feet or shorter
Wash.	All interstates	Most routes
Wyo.	All interstates	Most routes

Source: GAO analysis of state and FHWA data.

Table II.5: Operational Requirements Placed on LCVs

State	Limit on driving in adverse weather	Limit on difference in weight of trailers (trailer sequence)
Eastern states		
Fla.	Yes	Yes
Ind.	Yes	Yes
Mass.	Yes	Yes, 20-percent
N.Y.	No	Yes, 20-percent
Ohio	Yes	Yes, 20-percent
Western states		
Alaska	Yes	Yes, 5,000 pounds
Ariz.	Yes	Yes, 5,000 pounds
Colo.	Yes	Yes, lead trailer must be both longer and heavier
Idaho	Yes	Yes, 4,000 pounds
Kans.[a]	Yes	No
Mont.	Yes	Yes
Nebr.	Yes	No
Nev.	Yes	Yes, shortest trailer must be last, unless heavier
N.Dak.	Yes	Yes, 5,000 pounds
Okla.	Yes	Yes
Oreg.	Yes	Yes, 1,500 pounds
S.Dak.	Yes	Yes, 3,000 pounds
Utah	Yes	Yes
Wash.	Yes	No
Wyo.	No	Yes

[a]The state of Kansas has additional rules that apply to the disputed 20-mile section of I-70, but our tables refer only to the turnpike rules.

Source: GAO analysis of state and FHWA data.

Major Equipment Controls to Improve Maneuverability and Stability

WHI and WASHTO guidelines contain, among other specifications, recommendations for equipment to help improve the operational characteristics of LCVs. For example, the truck tractor should have the power to maintain a minimum speed of 20 miles per hour (mph) over the grades encountered. Fast air transmission and release valves are recommended as part of the braking equipment on trailers and converter dollies to help the LCV stop quickly and in a straight line. Similarly, special

requirements for the major connecting mechanisms are recommended to improve the stability and safety of the LCV during operation. The latter include requirements that the LCV have mechanisms to remove the slack from the connections between trailers and that the recommended heavy duty fifth wheel assemblies be clean and lightly lubricated. Table II.6 identifies the states that have adopted these controls.

Table II.6: Comparison of State Equipment Controls

State	Minimum speed	Braking equipment	Connecting mechanisms	Fifth wheel
Eastern turnpikes				
Fla.	40 mph	Yes	No	No
Ind.	45 mph	No	No	No
Mass.	20 mph	Yes	Yes	No
N.Y.	20 mph	Yes	Yes	No
Ohio	40 mph	Yes	No	No
Western states				
Alaska	No	No	No	No
Ariz.	20 mph	Yes	Yes	Yes
Colo.	20 mph	Yes	Yes	Yes
Idaho	15 mph	No	No	No
Kans.	No	No	No	No
Mont.[a]	20 mph	Yes	Yes	Yes
Nebr.	No	No	No	No
Nev.	20 mph	No	No	No
N.Dak.	15 mph	No	No	No
Okla.[a]	20 mph	Yes	Yes	Yes
Oreg.	No	No	Yes	No
S.Dak.	40 mph	No	No	No
Utah	20 mph	Yes	Yes	Yes
Wash.	No	No	No	No
Wyo.	No	No	No	No

[a]Equipment restrictions apply to triples only.

Source: GAO analysis of state and FHWA data.

Comments From the Department of Transportation

Note: GAO comments supplementing those in the report text appear at the end of this appendix.

U.S. Department of Transportation

Assistant Secretary for Administration

400 Seventh St., S.W. Washington, D.C. 20590

9/1/93

Mr. Kenneth Mead
Director, Transportation Issues
U.S. General Accounting Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. Mead:

Enclosed are two copies of the Department of Transportation's comments concerning the U.S. General Accounting Office draft report titled, "Longer Combination Trucks: Driver Controls and Equipment Inspection Should Be Improved," RCED-93-179.

Thank you for the opportunity to review this report. If you have any questions concerning our reply, please contact Martin Gertel on 366-5145.

Sincerely,

for Jon H. Seymour

Enclosures

See comment 1.

DEPARTMENT OF TRANSPORTATION REPLY

TO

GENERAL ACCOUNTING OFFICE (GAO) DRAFT REPORT

ON

LONGER COMBINATION TRUCKS:

DRIVER CONTROLS AND EQUIPMENT

INSPECTION SHOULD BE IMPROVED

RCED-93-179

I. SUMMARY OF GAO FINDINGS AND RECOMMENDATIONS:

The GAO draft report maintains that with few exceptions, states have not compiled data to monitor the safety and operation of Longer Combination Vehicles (LCV). Consequently, they do not have sufficient information to recognize existing problems, or problems which might emerge with increases in traffic density or with the use of LCVs by less experienced drivers and companies. Additionally, those states which allow LCVs differ widely in terms of the controls and levels of enforcement applied to LCVs.

The draft report recommends that in order to improve LCV safety, the Secretary of Transportation should direct the Federal Highway Administrator to:

- ensure that Motor Carrier Safety Assistance Program (MCSAP) inspections include a larger sample of LCVs, particularly doubles, and that states use this data to monitor equipment condition and the adequacy of company maintenance; and
- include in the Federal Motor Carrier Safety Regulations requirements concerning the driving experience and the past safety records of drivers assigned to LCVs to help ensure that drivers are adequately qualified to operate them.

II. DEPARTMENT OF TRANSPORTATION POSITION:

The Department agrees that LCV accident and inspection history should be examined closely and that data from additional LCV inspections would be helpful in providing a more accurate assessment of LCV safety. We maintain that rather than modify MCSAP at this time, it would be more effective to further assess LCV safety through Federal and state special studies/initiatives that are planned or in process. These actions, some of which are already underway, will provide an alternative means to accomplish the intent of the GAO recommendation without diverting limited MCSAP resources away from identifying high risk vehicles and drivers. Realigning MCSAP goals and direction would be appropriate only with a clear understanding as to whether LCVs

pose a higher risk of accidents or problems compared with other types of vehicles. The data necessary to demonstrate an elevated accident risk for LCVs is not provided in the draft report.

Action is already underway, in response to Intermodal Surface Transportation Efficiency Act (ISTEA) requirements, to ensure adequate qualifications for LCV drivers. An Advance Notice of Proposed Rulemaking (ANPRM) seeking to establish minimum training requirements for LCV drivers was published on January 15, 1993. Additional comments regarding specific statements in the draft report are provided in Appendices I and II.

See comment 2.

III. RESPONSE TO GAO DRAFT REPORT RECOMMENDATIONS:

See comment 1.

Recommendation: Ensure that MCSAP inspections include a larger sample of LCVs, particularly doubles, and that states use this data to monitor equipment condition and the adequacy of company maintenance.

Response: Nonconcur. The Department agrees that additional data would be useful for monitoring LCV safety; however, we do not agree with modifying MCSAP to obtain this data. The Department maintains that MCSAP is effectively accomplishing its intended purpose and it would not be appropriate to modify the program to inspect more LCVs based on the analysis presented in the draft report. As described more fully in Appendix II of this reply, we have concerns regarding the methodology used in the draft report's analysis, including combining noncomparable data sets and using states with unusually small data sets. As a result, we would assert that the vehicle out-of-service (OOS) rates for LCVs may not be as disproportionate as presented in the draft report. Compounding the effect of these concerns, is GAO's erroneous assumption that MCSAP inspections are conducted randomly. MCSAP inspections are not necessarily random, and the data from these inspections are not representative of all LCVs. Rather, some states tend to select vehicles for inspection based on judgmental factors which may lead to a greater likelihood of noncompliance with safety requirements. As a result the program has been highly effective in singling out vehicles that should be taken out-of-service. Reallocating MCSAP resources in favor of singling out LCVs as recommended could result in suboptimal use of limited motor carrier safety enforcement resources.

We agree that data from additional LCV inspections would be helpful in providing a more accurate assessment of LCV safety. However, we maintain that it would be more effective to accomplish this data gathering through alternative means such as:

- encouraging states to evaluate accident and inspection data on LCVs;

- pursuing Federal and state special studies and initiatives, such as the FHWA study noted on page 10 of the draft report which will try to determine the LCV accident rate for randomly selected companies that operate LCVs; and

- conducting projects such as "Roadcheck," which could specifically target LCVs. "Roadcheck" is an annual exercise during which the states, Canada, and Mexico conduct intensive roadside inspections of commercial motor vehicles and drivers over a three to four day period. The FHWA Office of Motor Carriers and the states use "Roadcheck" as an opportunity to collect additional data in particular areas, such as tire condition or the condition of brakes. LCV's could be an emphasis area for one of these studies.

Recommendation: Include requirements in the Federal Motor Carrier Safety regulations concerning the driving experience and the past safety records of drivers assigned to LCVs to help ensure that drivers are adequately qualified to operate them.

Response: Concur-in-part. Section 4007(b) of the ISTEA requires FHWA to establish minimum training requirements for LCV operators. An ANPRM was published on January 15, 1993 [58 Fed. Reg. 4638]. A question was included in the ANPRM that embraces the GAO draft report's concern regarding driver experience. The FHWA is analyzing the comments received and working towards producing a Notice of Proposed Rulemaking (NPRM). The Department will raise the GAO draft report's specific recommendation in the NPRM. In addition, we will include GAO's final report in the docket and consider its recommendations as part of the rulemaking process if GAO so requests.

See comment 1.

See comment 3.

See comment 1.

A CRITIQUE OF GAO'S MCSAP ANALYSIS

The GAO draft report recommends that MCSAP include a larger sample of LCVs in its inspection program. This appendix examines GAO's analysis and presents several concerns regarding its methodology. The draft report's conclusions are based upon the erroneous assumption that MCSAP inspections are random. MCSAP inspections are not random in the scientific sense. Rather, some states select vehicles for inspection based on judgmental factors which may lead to a greater likelihood of noncompliance with safety requirements. Therefore, LCV data obtained from these inspections are not representative of all LCVs. In addition, the GAO's analysis in some instances combined noncomparable data sets and made use of data sets with too few elements to be considered reliable. The combined effect of these factors weaken the draft report's MCSAP analysis and precipitate questions regarding the validity of the draft report's MCSAP conclusions and the basis for the draft report's recommendation to realign MCSAP goals and direction. Specifically:

- The 12 states selected for table 1 had inspected substantial numbers of multiple trailer combinations based on inspection summaries provided by the FHWA. However, Alaska, Montana, and Nevada had ten or fewer inspections of triples. This could be part of the reason for the unusual OOS rates for triples in Montana and Nevada. We maintain that a footnote "c" could be added to the table to indicate the limited number of triples inspections in these states and the possible impact of these limited data sets on the accuracy of the estimates for those states.

- The vehicle OOS rate for "all trucks" was taken directly from a draft of the fiscal year (FY) 1992 MCSAP annual report from the table titled "Summary of Out-of-Service Percentage Rates for Fiscal Year 1992." This number includes both inter- and intrastate inspections. The vehicle OOS rates for doubles and triples were calculated by GAO from reports generated from driver/vehicle inspection data provided by the FHWA. These reports contain only interstate inspections. In 1992, the states transmitted slightly over 1 million inspections on interstate carriers to the Motor Carrier Management Information System. The MCSAP report shows that the states actually performed over 1.6 million intra- and interstate inspections in 1992. This discrepancy would contribute to the low "percentage of inspections" numbers. Moreover, the MCSAP report numbers include single-unit trucks which we estimate account for approximately 20% of commercial vehicles, while the inspection information used is limited to only combination vehicles. These differences could further

contribute to the low numbers. Since these data sets contain different elements, their impact on the overall analysis needs to be explicitly recognized in the draft report's text.

See comment 4.

- The lack of random selection in the inspection process is most likely the reason for the high OOS rates in most states since, as stated above, most states tend to select vehicles for inspection based upon judgmental factors such as appearance and physical condition which lead to a higher likelihood of noncompliance with safety requirements. As a result, an analysis of the data from these inspections is likely to be skewed towards overstating the OOS rates for the overall truck population. The draft report needs to explicitly recognize this data limitation.

GAO Comments

1. In our draft report requesting agency comments, we proposed that MCSAP inspections include a larger sample of LCVs. We did not envision, as FHWA suggests, a realignment of MCSAP's goals and direction but only an assurance that LCVs were receiving adequate attention in the program. FHWA stated that the FHWA data on LCV inspections and truck mileage did not conclusively demonstrate the need for more LCV inspections in the MCSAP program. We recognized that the data did not conclusively demonstrate the need for more LCV inspections. That is why we stated that LCVs appeared to be underrepresented in the program. Nonetheless, after making adjustments suggested by FHWA, we still found that LCVs appeared to be underrepresented. In response to FHWA's proposal to further investigate the experience of LCVs in the MCSAP program, we modified our recommendation to encourage FHWA's suggested approach.

2. We incorporated in the report, as appropriate, the editorial and technical comments that appeared in FHWA's appendix I.

3. We included a footnote in table 1 to reflect FHWA's concern that three of the states had performed few inspections of triples. However, the data in table 1 suggest that, overall, LCVs—especially doubles—fail inspections at least as often as other trucks; therefore, it should not be assumed that they are better maintained because they are LCVs.

4. We had not previously heard FHWA characterize the MCSAP inspections as judgmental rather than random. However, we agree that inspectors should try to select the vehicles that they believe may have maintenance problems. We noted in the report FHWA's concern that the high out-of-service rates reflect judgmental selection by state inspectors. However, FHWA did not explain why this lack of randomness should affect the results for LCVs more than for other trucks.

States, Federal Agencies, Organizations, and Private Companies Contacted

States	Colorado Florida Idaho Indiana Kansas Montana New York Ohio Oklahoma Oregon Utah Wyoming
Federal Agencies	Federal Highway Administration National Highway Traffic Safety Administration
Industry Organizations	American Trucking Association Commercial Vehicle Safety Alliance International Brotherhood of Teamsters Interstate Truckload Carriers Conference National Private Truck Council Owner Operators Independent Drivers Association Western Association of State Highway and Transportation Officials Western Highway Institute
Other Organizations	University of Michigan Transportation Research Institute
Private Companies	Associated Wholesale Grocers Consolidated Freightways Frito Lay Graham Ship by Truck Mo-Kan Distribution Service, Inc. Roadway Express United Parcel Service Yellow Freight

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