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Since the first Federal motor vehicle safety standards were promulgated in 1967, passenger car safety has noticeably improved. The same has not been true for light trucks. During the early 1970's, light trucks were noted to have safety problems which may have been due, in part, to their exemption from certain safety standards. At that time, the National Highway Traffic Safety Administration took little direct action to investigate the extent and seriousness of these problems. Although more detailed accident data have become available since then, the Safety Administration has not fully analyzed it to assess the extent of potential safety problems.

Findings/Conclusions: The Safety Administration has developed a series of vehicle categories, subcategories, and definitions to use in applying safety standards, but these categories are of little value to consumers interested in determining what safety features are installed on vehicles. The consumer cannot depend on receiving accurate and complete safety information from vehicle dealers. The Safety Administration has generally not acted to improve the safety of light trucks; it has not researched safety devices and has not completed rulemaking on needed safety features. Some of the safety features currently required for passenger cars are appropriate for light trucks, and other safety features need to be examined in greater depth to assess their need and the feasibility of applying them to light trucks. Recommendations: The Secretary of Transportation should direct the Safety Administration to take actions to improve the safety of light trucks. In cases where the need for safety features is known and applying the safety features to light trucks appears feasible, expeditious rulemaking should be initiated; in cases where the need or feasibility is in doubt,

appropriate research should be begun. The Secretary should also take steps to provide prospective buyers with accessible objective information on the relative safety of the wide variety of vehicles offered for sale. (RRS)

6916

BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

Unwarranted Delays By The Department Of Transportation To Improve Light Truck Safety

Light trucks and vans have become increasingly popular in recent years, and the trend is expected to continue in the future. Likewise, the number of occupants killed in these vehicles has also increased.

Light trucks are exempt from many major motor vehicle safety standards required for passenger cars. Because occupants of light trucks have fared worse in crashes than occupants of passenger cars, the Department of Transportation needs to

- initiate expeditious research and rule-making to improve the safety of light trucks and
- take steps to provide prospective buyers with information on the relative safety of the wide variety of vehicles offered for sale.



GED-78-119

JULY 6, 1978



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164497(3)

To the President of the Senate and the
Speaker of the House of Representatives

This is our report on Department of Transportation delays in improving the safety of light trucks. We made this review to provide the Congress with current information on Federal efforts to reduce the deaths, injuries, and property damage resulting from the increased use of light trucks.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of Transportation; interested congressional committees; Members of Congress; and other interested parties.

W. K. 11m.
ACTING Comptroller General
of the United States

D I G E S T

Light trucks are exempt from many of the Federal safety standards applicable to passenger cars and because their occupants have fared worse in crashes than occupants of passenger cars, GAO recommends that the Secretary of Transportation

--direct the National Highway Traffic Safety Administration to start expeditious rulemaking and research to improve the safety of light trucks and

--take steps to provide prospective buyers with ready access to objective information on the relative safety of the wide variety of vehicles offered for sale.

Over 10 years ago, congressional concern over the number of fatalities on the Nation's highways prompted the creation of the National Highway Traffic Safety Administration. One of the Safety Administration's prime responsibilities is to establish minimum standards for motor vehicle performance so that the public will be protected against the unreasonable risk of accidents and the unreasonable risk of death or injury in the event an accident does occur.

Since its creation, the Safety Administration has focused most of its attention on the passenger car. Today, most of the established Federal motor vehicle safety standards apply to these vehicles, and occupant safety has improved noticeably.

Meanwhile, the popularity of light trucks (primarily pickup trucks, vans, and similar vehicles) has greatly increased and the trend is expected to continue. Likewise, the number of occupants killed in light trucks has also increased.

The Safety Administration, however, has not given the same attention to light trucks as it has to passenger cars. Consequently, the occupants are not being afforded a comparable level of safety.

CED-78-119

Light trucks are not required to meet some of the major safety standards--including interior padding, head restraints, impact absorbing steering columns, braking distances, side door strength, and roof crush resistance--as are passenger cars.

Some other safety standards, such as restraint systems and windshield mountings, have been applied to these vehicles but in some cases have less stringent requirements than those set for passenger cars.

In the early 1970s, the Safety Administration was aware of the potential safety problems with light trucks but did not follow through on their plans to study the problem further.

In 1972, the National Transportation Safety Board reported that the severity of injuries appeared considerably greater for occupants of light trucks than for occupants of passenger cars involved in accidents. The Board suggested this may be due, in part, to the light trucks' exemption from certain standards. Although the Safety Administration stated that it has a continuing program to review all standards to extend their applicability to other vehicles where appropriate, many of the major standards remain applicable to passenger cars only.

The Safety Administration has recently collected more information in greater detail on traffic accidents. The number of occupants killed in light trucks was 4,295 in 1975 and 4,847 in 1976. However, it has not fully analyzed this data. GAO's analyses of the Safety Administration's data indicate that light truck occupants face a greater risk of severe injury. For example, the percentage of fatal accidents to total accidents was consistently higher for light trucks than for passenger cars for each of the States which reported this information in 1975 and 1976. This percentage ranged from about 0.4 to 0.9 for passenger cars and from 0.5 to 1.3 for light trucks. (See pp. 11 and 12.) Also during this period, light truck fatalities increased 13 percent while passenger car fatalities increased 1 percent. (See p. 8.)

Many light trucks are similar in size, weight, and other characteristics as passenger cars. Therefore, GAO believes that some of the safety features currently required for passenger cars are appropriate for light trucks. Other safety features need to be examined in greater depth to assess their need and

the feasibility of applying them to light trucks. GAO believes that expeditious research and rulemaking actions are warranted to improve the safety for occupants of light trucks.

The Department of Transportation concurs that expeditious research and rulemaking are important, and the Safety Administration has developed a rulemaking plan to carry this out. However, similar plans which were announced in the past have not yet been fulfilled.

GAO believes that the consumer needs to be better informed about the safety features and requirements for light trucks. This information is not readily available and, consequently, the buyer may not be fully aware of the relative safety of the wide variety of vehicles offered for sale. The Safety Administration concurs that such consumer information has a great deal of merit and plans further work in this area.

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CHAPTER 1

INTRODUCTION

Federal motor vehicle safety standards have been established as a means of reducing the number of deaths and injuries resulting from motor vehicle accidents. The standards which have been issued by the Department of Transportation apply primarily to passenger cars.

Not all of these standards are applicable to other light-duty vehicles, i.e., pickup trucks and vans; some of the standards that do apply have less stringent requirements. Sales of these vehicles have been increasing in recent years and because they have many desirable features, sales are expected to increase in the future.

Because of the growing popularity of pickup trucks and vans, we reviewed the feasibility of extending the existing standards to cover these vehicles either directly or in a modified form.

Establishment of vehicle standards

Congressional concern over the increasing number of motor vehicle deaths led to the enactment of the National Traffic and Motor Vehicle Safety Act of 1966 (15 U.S.C. 1381). The purpose of the act is to reduce motor vehicle accidents and the deaths and injuries resulting from such accidents.

The act specifies that the Secretary of Transportation shall establish appropriate Federal motor vehicle safety standards. According to the act, each standard shall be practical, shall meet the need for motor vehicle safety, and shall be stated in objective terms. In prescribing standards, the Secretary shall consider, among other items, (1) relevant motor vehicle safety data, (2) whether the proposed standard is reasonable, practical, and appropriate for the particular type of motor vehicle or item of motor vehicle equipment for which it is prescribed, and (3) the extent to which such standards will contribute to carrying out the purposes of the act.

The Secretary has delegated the responsibility for the Federal motor vehicle safety standards to the National Highway Traffic Safety Administration (hereafter referred to as the Safety Administration). The Safety

Administration is responsible for (1) handling the rulemaking actions (that is, the formal procedures for establishing and publishing the safety standards in the Federal Register), (2) assuring that vehicles meet the applicable standards, and (3) investigating vehicle safety defects. The Safety Administration spent an estimated \$12 million on these activities in fiscal year 1977.

In carrying out its responsibilities, the Safety Administration has issued more than 50 individual motor vehicle safety standards. (See app. I.) These standards set a level of performance which the vehicle or the vehicle component is required to meet under specific test conditions. Some standards are aimed at the prevention of accidents while others are aimed at protecting the occupants in the event a crash occurs. A few standards address specialized features of specific vehicle types (i.e., motorcycle brake systems, school bus passenger seating, etc.), or certain equipment not normally associated with a specific vehicle type (i.e., warning devices, child seating systems, etc.). Most of the standards address either the operational characteristics or the structural features of vehicles. All of these standards, however, are not uniformly applied to all vehicle types--some apply only to passenger cars. Even when a standard is applicable to all vehicle types, in some cases differing requirements have been established for each vehicle type.

TYPES OF VEHICLES

Motor vehicles are produced in many different sizes and shapes for the various functions they are expected to perform. Vehicles that use the highways range from the motorized bicycle to the tractor-trailer rig. For setting Federal safety standards, some of the major motor vehicle types are: passenger cars, multipurpose passenger vehicles, trucks, buses, school buses, motorcycles, trailers, and truck-tractors. The majority of vehicles on the road are four-wheel light duty vehicles, such as passenger cars, pickup trucks, and vans. Some vehicle types do not fit precisely into the Federal categories. (See ch. 3.) Unless otherwise indicated, this report will refer to trucks, multipurpose passenger vehicles, and buses having a gross vehicle weight rating of less than 10,000 pounds as light trucks. (See app. II for photos of some light trucks.)

VEHICLE SALES

Trucks are not new to the American scene; they have comprised over 15 percent of all motor vehicles registered

in the United States since 1945. The major uses of trucks have been personal transportation, agriculture, wholesale and retail trade, and construction--in that order.

Since 1971, the sales of light trucks have greatly increased, as indicated in the table below.

Sales of U.S. Manufacturers
(millions)

<u>Year</u>	<u>Light trucks</u>	<u>Passenger cars</u>	<u>Total</u>	<u>Percent light trucks</u>
1971	1.7	8.7	10.4	16
1972	2.1	9.3	11.4	18
1973	2.5	9.7	12.2	20
1974	2.2	7.4	9.6	23
1975	2.1	7.0	9.1	23
1976	2.7	8.6	11.3	24

Imported cars and trucks added 1.7 million vehicles to the above total in 1976, most of which were passenger cars. Sales of imported pickup trucks have been increasing in recent years. Sales of U.S. manufactured light trucks have increased 12 percent in the first 9 months of 1977 compared to the same period in 1976.

One reason for the growing popularity of light trucks is that they are no longer the basic utility vehicles they once were. Light trucks are attractive because of the flexibility they provide to their owners. These vehicles offer the added passenger or cargo capacity and the capability for occasional off-road use which some people desire. Another attraction of some light trucks is their ability to use the lower priced leaded gasoline.

Most light trucks are used primarily for personal transportation. Domestic manufacturers are developing smaller, more fuel-efficient light trucks for the 1980s, which should make them an even more desirable alternative to the passenger car.

Vehicle manufacturers may have an incentive to increase production and encourage sales of light trucks because of the less stringent requirements for the Federal fuel economy standards, the Federal emissions standards, and the Federal motor vehicle safety standards. The Safety Administration believes the

increased production of light trucks is more likely attributable to demand rather than to these other manufacturer incentives.

SCOPE OF REVIEW

We reviewed the records maintained by the Department of Transportation and the National Highway Traffic Safety Administration, including the dockets which record the positions taken by domestic and foreign vehicle manufacturers, consumer groups, vehicle users, and other interested parties on proposed safety features. In addition, we discussed the Federal safety standards with officials from the Safety Administration and the three major U.S. manufacturers of light trucks. We also visited a number of light truck dealers to inspect the vehicles and find out what safety-related information is available to potential light truck buyers.

We limited our review to the existing Federal motor vehicle safety standards. While additional standards designed specifically to improve the safety of light trucks might be appropriate, we did not analyze such possible features. We analyzed the existing standards to determine the feasibility of applying them to light trucks either directly or in a modified form.

CHAPTER 2

VEHICLE SAFETY

Since the first Federal motor vehicle safety standards were promulgated in 1967, passenger car safety has noticeably improved. However, the same has not been true for light trucks. During the early 1970s, light trucks were noted to have safety problems which may have been due, in part, to their exemption from certain safety standards. At that time the Safety Administration took little direct action to fully investigate the extent and seriousness of these problems to see if the standards should be applied to these vehicles.

Since then, more detailed accident data has become available within the Department; however, the Safety Administration has not fully analyzed it to assess the extent of potential safety problems. We analyzed data from the agency's Fatal Accident Reporting System which showed strong indications that occupant safety has been considerably less in light trucks than in passenger cars. Although our analyses do not provide the full story, we believe that they provide adequate support for undertaking more detailed investigations to clearly identify and isolate specific safety problems.

PASSENCER CAR SAFETY

The motor vehicle fatality rate in the United States has been decreasing steadily since 1966. When the National Traffic and Motor Vehicle Safety Act was enacted, the fatality rate was 5.7 deaths per hundred million vehicle miles. By 1976, the rate had decreased to 3.3. The fatality rate reductions can be attributed to the combined effects of improved vehicles, highways, and drivers, as well as reduced speed limits.

The Safety Administration agrees with us that the Federal safety standards on passenger cars have contributed greatly to the decrease in deaths and injuries. We estimated in July 1976 ^{1/} that, overall, the standards may have saved about 28,000 lives through 1974. Although we recognized that injuries were also reduced, we could not estimate the amount with a sufficient degree of certainty.

^{1/}"Effectiveness, Benefits, and Costs of Federal Safety Standards for Protection of Passenger Car Occupants," July 7, 1976, CED-76-121.

There are considerable differences of opinion within the motor vehicle safety community--advocates, regulators, and manufacturers--as to the effectiveness of individual safety standards and the number of lives saved and the number of injuries avoided or reduced by safety devices. The primary cause of these differences is lack of representative and uniform accident data with which to analyze the effectiveness of existing or proposed safety devices.

LIGHT TRUCK SAFETY

Safety calculations are even more difficult for light trucks than they are for passenger cars. One reason is because light truck data is often combined with all other truck data--there is no separate category for light trucks. When light truck data is available, however, it may not be comparable among States because each State may define "light truck" differently.

Since there is no representative nationwide accident data for light trucks, the limited data available must be used to identify potential problems and to identify what additional statistical data should be gathered. We analyzed data from the Safety Administration and found strong indications of safety problems with light trucks.

Early indications of problems

The Safety Administration recognized that there might be a safety problem with light trucks as early as 1971. In their report to the Congress entitled "Safety '71--A Report On Activities Under The National Traffic And Motor Vehicle Safety Act," the Safety Administration reported that:

"Several of the investigating teams have alerted NHTSA to a special problem with accidents involving light trucks. Preliminary analysis suggests that light truck accidents may be causing more serious injuries than comparable passenger car accidents. The exemption of these vehicles from several important interior occupant protection standards may be part of the reason."

We found no evidence, however, that the Safety Administration acted, based on these reports, to (1) obtain additional data to verify that a problem existed or (2) extend the standards to light trucks. Safety Administration officials told us that the agency had considered initiating a study on the safety of light trucks, but such a study was not done due to other priorities.

In 1972, the National Transportation Safety Board issued a report 1/ which said that:

"NHTSA has internally taken notice of the wide use of light trucks as personal and recreational vehicles, and notes that while such trucks have a slightly lower incidence of accident involvement, the severity rate (serious and fatal injuries) is on the order of seven times 2/ as great for light trucks as for passenger cars."

The Board suggested that this difference was partly attributable to the exemption of light trucks from certain Federal safety standards.

The Board recommended that:

1. The Safety Administration extend the scope of its information gathering programs to include accident-frequency, accident-circumstance, and cause-analysis data for various recreational vehicle categories.
2. The Safety Administration add a specific category of "light trucks" (under 10,000 pounds gross vehicle weight) to separate these from the general "truck" heading in the Federal Motor Vehicle Safety Standards and recognize the extensive use of light trucks as personal or recreational vehicles in the promulgation of vehicle safety standards.

The Safety Administration responded to the Board's recommendations with a study "Recreational Vehicle Accident Research," contract DOT-HS-201-3-766, by the University of Kentucky. The results were issued in April 1975. Although the data from this study was limited, it concluded that the "number of injuries per occupant were minimally higher in the recreational vehicle population than for the nonrecreational vehicle-involved population." It also concluded that the risk of involvement in accidents by pickup campers was only

1/"Safety Aspects of Recreational Vehicles," Report Number NTSB-HSS-72-2, adopted June 14, 1972, p. 22.

2/We were unable to obtain the data supporting this severity rate difference.

70 percent of the risk in nonrecreational vehicles-- primarily passenger cars. This study, however, did not deal directly with light trucks; recreational vehicles were studied and light trucks were considered only if they were a component of a recreational vehicle.

The Safety Administration's response to the Board's second recommendation was as follows:

"The NHTSA definition of trucks encompasses all types of trucks. Light trucks used for recreational purposes make up approximately 60% of the trucks in the category of 10,000 pounds GVWR and under. Requirements of standards have been applied to trucks under 10,000 pounds GVWR and under when appropriate. Since it is the continuing activity of NHTSA to review all standards to extend their applicability to vehicles other than passenger cars where appropriate, this case is considered closed."

Recent indications of problems

The Safety Administration has a Fatal Accident Reporting System, which is a computerized data base containing information on fatal motor vehicle traffic accidents occurring in the 50 States, the District of Columbia, and Puerto Rico. In addition, the Safety Administration obtains accident data from the individual States whenever data is available. To analyze the safety of light trucks, we used data from the Safety Administration's data system.

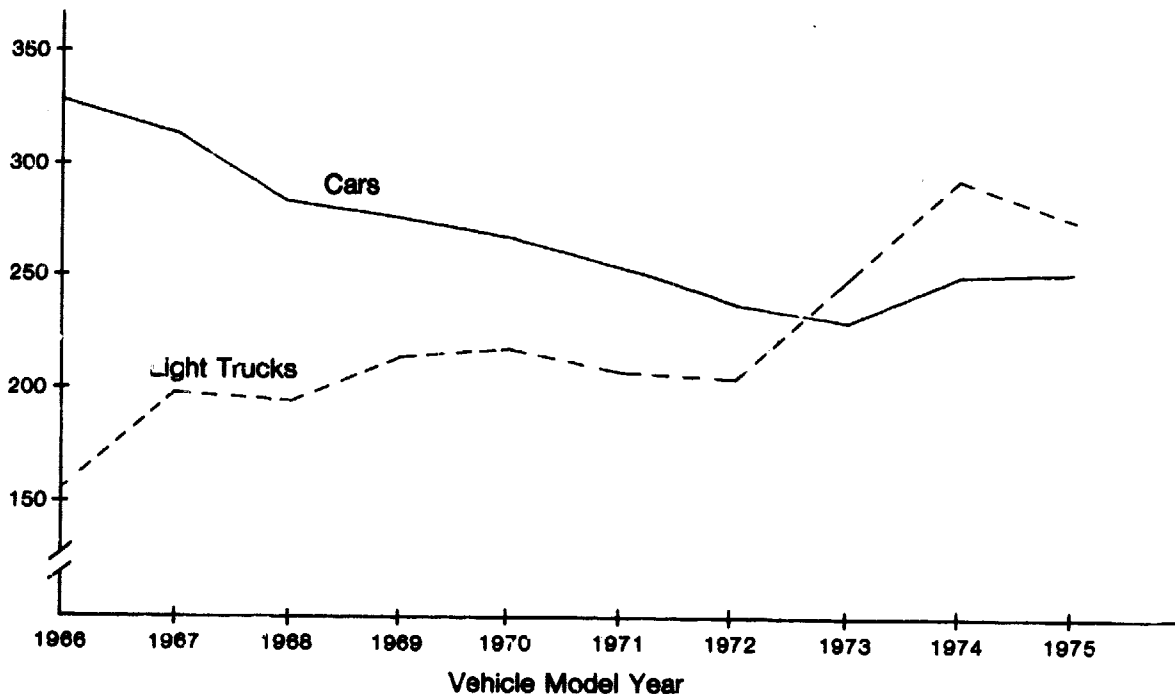
According to this data, in 1975, 4,295 light truck 1/ occupants were killed, compared to 26,273 passenger car occupants. In 1976, 4,847 occupants of light trucks were killed, compared to 26,589 passenger car occupants. Between 1975 and 1976, light truck fatalities increased 13 percent while passenger car fatalities increased only 1 percent.

Fatality rates can be computed for light trucks and passenger cars using the data from the Fatal Accident Reporting System. By calculating the rates by model year of vehicle, the safety improvement of

1/Light trucks here refers to pickup trucks and vans.

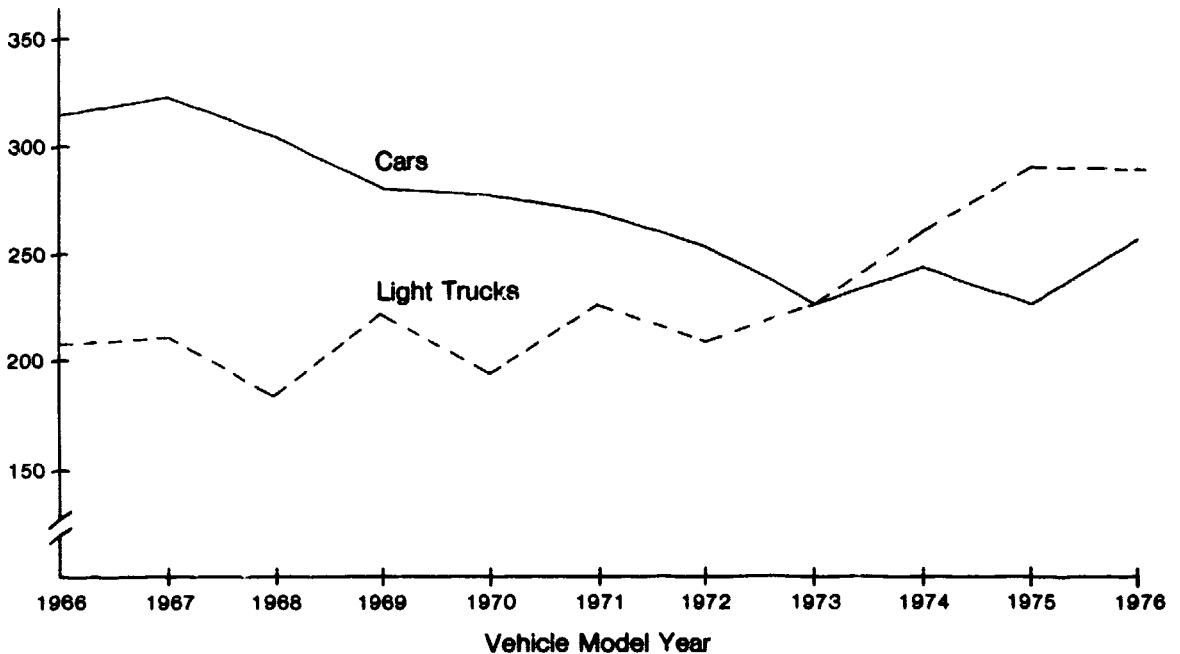
newer vehicles can be shown. Fatality rates 1/ for 1975 and 1976 accidents are shown below.

Fatalities Per Million Registered Vehicles in 1975



1/The rates were computed by comparing fatalities to number of registered vehicles rather than number of vehicle miles because reliable vehicle mile data for passenger cars and light trucks was not available by model year of vehicle. Recognizing that older vehicles travel fewer miles annually than newer vehicles would change the slope of the lines on the graphs, but not necessarily the relationships between light trucks and passenger cars.

Fatalities Per Million Registered Vehicles in 1976



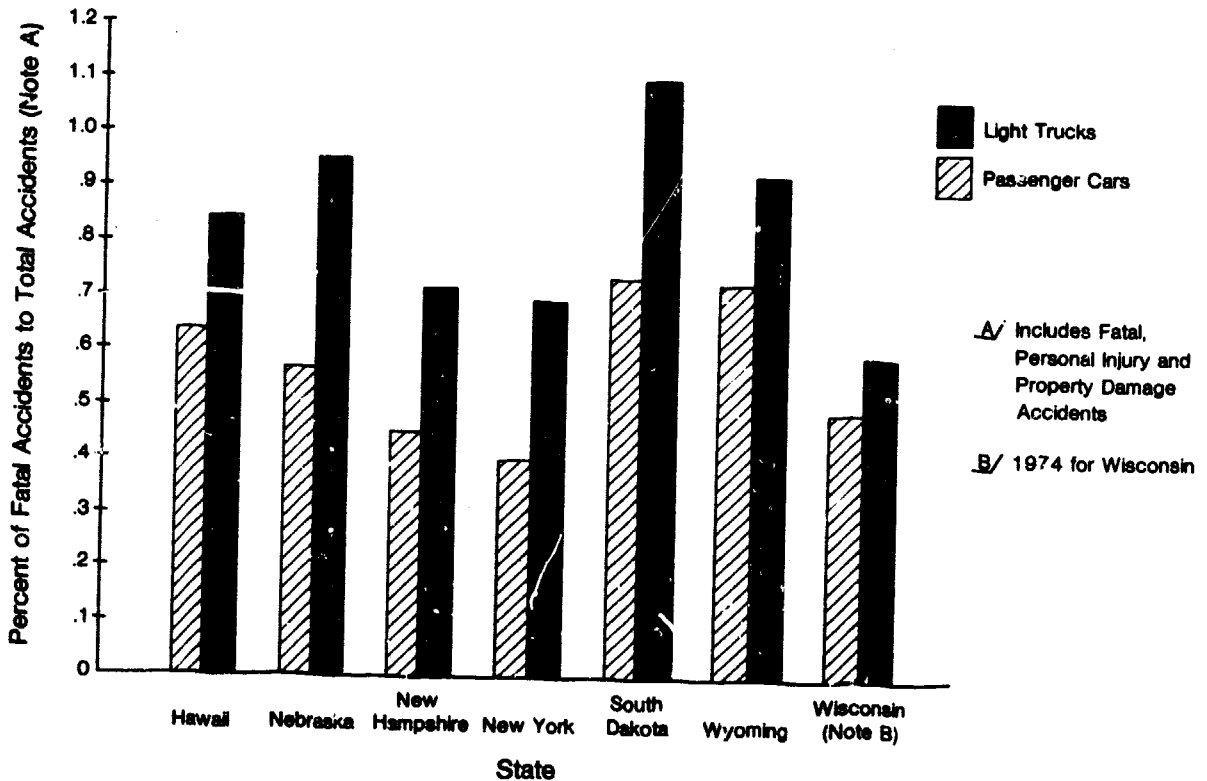
The above data shows that for most vehicle model years, light trucks had a noticeably lower fatality rate than passenger cars. Looking at that data superficially might indicate that no safety problem exists with light trucks. A closer look, however, reveals that it is the older light trucks which appear safer than passenger cars. The data shows that whatever advantage the older light trucks had over older passenger cars is not reflected in the newer vehicles. Newer passenger cars have a noticeably lower fatality rate than older passenger cars, but the same is not true for light trucks. The possible causes of these differences are not shown by the data, but the trends appear consistent with the relative attention focused on these vehicles by the Safety Administration.

In responding to our draft report, the Safety Administration stated:

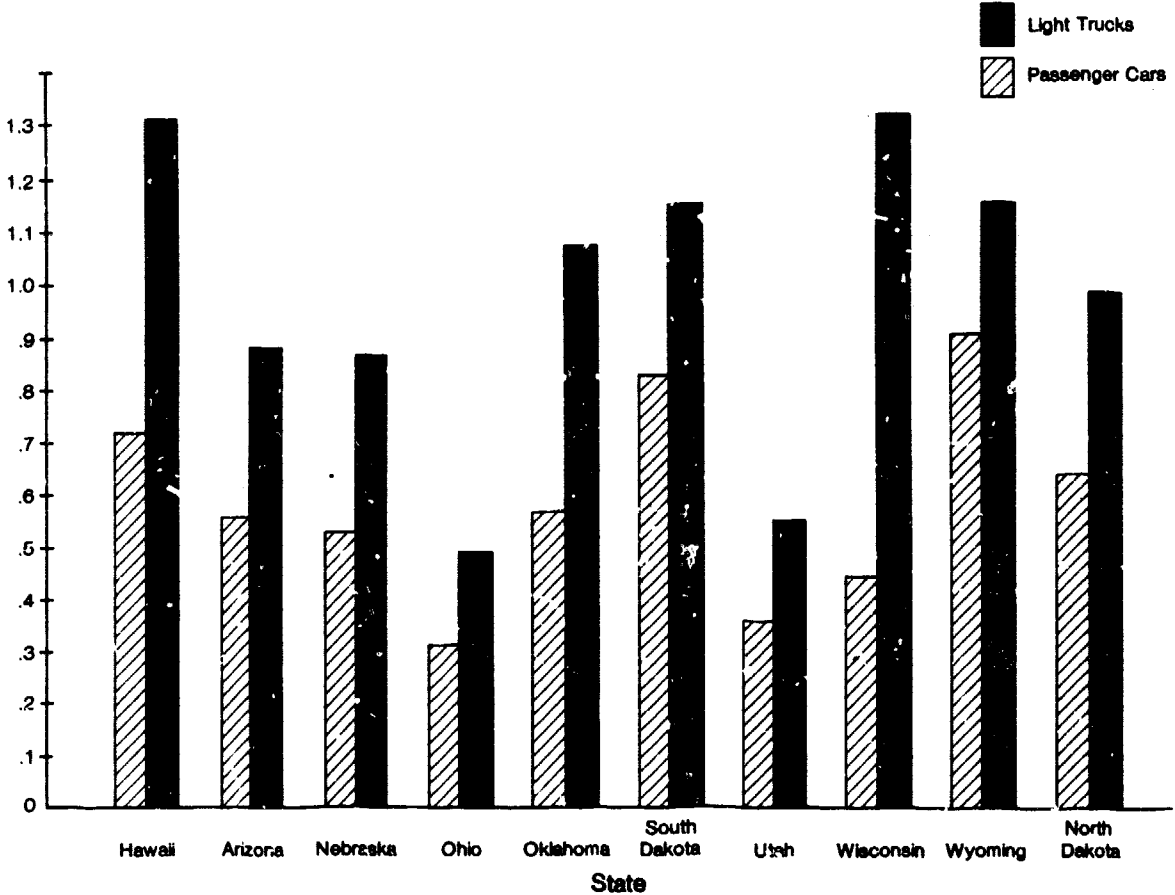
"The statistics and ratios cited here are meaningless. Not only have raw fatality figures not been related to the number of vehicles on the road, but no attempt to relate these data to exposure or to the type of drivers has been made."

Another way to compare the relative safety of passenger cars and light trucks is to compare the ratio of fatal accidents to total accidents. This type of comparison shows the relative protection the vehicles afford the occupants in a crash. The 1975 and 1976 data for cars and light trucks supplied to the Safety Administration by the individual States (not through the Fatal Accident Reporting System) were used for these computations and are shown below.

Percent of 1975 Fatal Accidents to Total Accidents Passenger Cars and Light Trucks



Percent of 1976 Fatal Accidents to Total Accidents Passenger Cars and Light Trucks



This data shows that occupants who were in crashes in light trucks instead of passenger cars were more likely to come out of the crash dead. Safety Administration officials suggested that some of the apparent safety differences between passenger cars and light trucks might be caused by errors and omissions in the data, differences in vehicle mileage and use, varying

accident reporting, and inconsistencies in vehicle definitions. However, the officials were unable to quantify any of these factors.

In most cases, sufficient accident data is not available to identify possible problems in individual vehicle standard areas. Using the Safety Administration's data from the Fatal Accident Reporting System, however, it is possible to calculate the rates at which pickup trucks and passenger cars are involved in fatal rollover accidents. In 1976, 717 pickup trucks were involved in such accidents, compared to 2,246 passenger cars. Rollover rates calculated on the basis of number of pickups and cars registered in 1976 reveal that the involvement rate for pickup trucks is over twice that of passenger cars.

The Safety Administration could, according to one of the agency's statistical analysts, use the data in the Fatal Accident Reporting System to identify specific makes and models of vehicles having a high rate of fatal rollover involvements. This could help the agency identify rollover or other problems with light trucks, specific vehicles, or subcategories of vehicles.

On April 8, 1977, we asked the Safety Administrator what the agency's plans were for extending standards currently applicable only to passenger cars to light trucks and multipurpose passenger vehicles. On June 17, the Administrator replied as follows regarding the roof crush resistance standard (number 216):

"Data is not available to support a finding that this standard would meet the safety need as applied to light trucks and MPVs. The agency is continuously seeking data to define any significant patterns of safety problems that may exist with these vehicle classes in rollover crashes, and stands ready to take appropriate rulemaking actions."

Although the Safety Administrator cites the lack of data to support rulemaking actions, she has indicated that the agency plans to extend some of the standards to light trucks. On March 13, 1978, the agency issued a new 5-year plan for rulemaking. The Administrator has told the Congress that extending some of the standards to light trucks is one of the agency's top priorities.

CONCLUSION

Although there were indications in the early 1970s that safety improvements for light trucks were warranted, the Safety Administration did not investigate the seriousness of the potential problems.

The current Safety Administrator has discussed the need to improve the safety of light trucks and has outlined agency rulemaking plans. However, we found little evidence that the agency has analyzed the data in its files to identify specific problems or assemble the needed information to support rulemaking actions.

We believe our analyses show the need for the Safety Administration to give more attention to light truck safety. Our analyses do not show what safety features might be appropriate for light trucks; a more detailed analysis of the data, such as separating the data by accident mode, is necessary to support future rulemaking. Such an analysis would help to identify those specific vehicle characteristics and crash circumstances for which safety standards would be appropriate.

CHAPTER 3

VEHICLE CLASSIFICATION

Motor vehicles are divided into categories for setting Federal safety standards. The major established categories are: passenger cars, multipurpose passenger vehicles, trucks, buses, school buses, motorcycles, trailers, and truck-tractors. There are some problems in using these categories because some subcategories and definition components are not clearly defined. This tends to confuse buyers who want to use the categories to identify applicable safety standards, since some vehicles may appear to belong in one category but are classified in another.

The Congress and the Safety Administration have recognized the need of the consumer to have information about the relative safety of the various vehicles; the consumer cannot always depend on dealer sales representatives to provide complete and accurate safety information. Although the Congress mandated that most information be provided to consumers about the relative safety afforded to occupants of various vehicles involved in crashes, the Safety Administration has not fulfilled that mandate. Information on the safety requirements for a particular vehicle is generally not readily available to the consumer.

FEDERAL CATEGORIES OF VEHICLES

The vast majority of vehicles under 10,000 pounds gross vehicle weight rating are commonly known as passenger cars, pickup trucks, and vans. Unfortunately, the categories do not remain that simple where Federal safety standards are concerned.

Categories and Definitions

Motor vehicles of less than 10,000 pounds gross vehicle weight rating having more than three wheels fall into the following basic categories.

Passenger car: a motor vehicle with motive power, except a multipurpose passenger vehicle, motorcycle, or trailer, designed for carrying 10 persons or less.

Multipurpose passenger vehicle: a motor vehicle with motive power, except a trailer which is constructed either on a truck chassis or with special features for occasional off-road operation, and designed to carry 10 persons or less.

- Truck: a motor vehicle with motive power, except a trailer, designed primarily for the transportation of property or special purpose equipment.
- Bus: a motor vehicle with motive power, except a trailer, designed for carrying more than 10 persons.
- School bus: a bus that is sold, or introduced in interstate commerce, for purposes that include carrying students to and from school or related events, but does not include a bus designed and sold for operation as a common carrier in urban transportation.

Within the above categories are subcategories which are used for setting standards. For example, in the occupant crash protection standard (number 208), the following types of trucks and multipurpose passenger vehicles under 10,000 pounds gross vehicle weight rating are exempted from certain requirements:

"Forward control vehicles, convertibles, open-body type vehicles, walk-in van-type trucks, motor homes, vehicles designed to be exclusively sold to the U.S. Postal Service and vehicles carrying chassis-mount campers."

Only two of the above subcategories are defined. Those definitions are as follows:

"Forward control" means a configuration in which more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length.

"Open-body type vehicle" means a vehicle having no occupant compartment top or an occupant compartment top that can be installed or removed by the user at his convenience.

While the above categories and definitions are used for setting safety standards, the Safety Administration

uses a different set of categories 1/ and definitions for establishing fuel economy requirements. Still another set of categories 2/ and definitions is used by the Environmental Protection Agency for the purpose of establishing vehicle emission requirements.

Problems in practical use

Safety Administration officials told us that the agency and the vehicle manufacturers have had no real problems with the established vehicle categories. Indeed, the representatives of light truck manufacturers we contacted mentioned no problems with the categories. We had some problems, however, and so have several others.

For example, in 1973, Volkswagen introduced "The Thing." It was classified as a multipurpose passenger vehicle because of its features for off-road operation. In July 1973, two consumer advocates asked the Safety Administration to require "The Thing" to meet passenger car safety standards. In August 1973, the Safety Administration attempted to do that by revising the definition of multipurpose passenger vehicle. In their comments to the docket 3/, manufacturers and other interested parties raised the following points:

- "Truck chassis" is not defined in the regulations and probably could not be defined in objective terms.
- No proof exists that vehicles built on a truck chassis are inherently any safer than those on passenger car chassis.

1/Examples of fuel economy vehicle categories are passenger automobiles, nonpassenger automobiles, jeep-type vehicles, four-wheel drive vehicles, two-wheel drive vehicles, and light trucks whose basic engines are not used in passenger automobiles.

2/Examples of emission vehicle categories are light duty vehicles and light duty trucks.

3/Information relevant to rulemaking, such as notices of proposed rulemaking actions and comments in response to the notices, are maintained by the Safety Administration in dockets.

--"Special features for occasional off-road operation" is not defined.

In spite of these comments, the definition remains unchanged and the components of the definition remain undefined. "The Thing" remained classified as a multipurpose passenger vehicle.

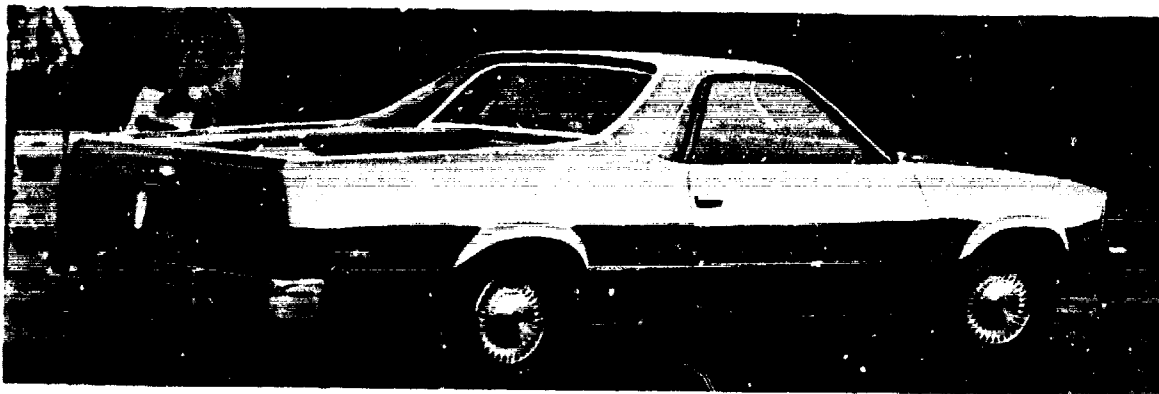
In responding to this report, the Safety Administration noted that "The Thing" is no longer exported to the United States. However, this does not solve the basic problem of vehicle definitions.

"The Thing" is not the only vehicle whose category has been questioned. The Subaru Brat, introduced in late 1977, is built on a four-wheel drive station wagon chassis and has a separate, open compartment in the back section like a pickup truck. (See photo below.) However, seats for two passengers have been installed in the open section, so the vehicle is classified as a multipurpose passenger vehicle. The United States Customs Service questioned the vehicle classification because of the differences in import duties, but has now agreed that the Brat is a passenger vehicle instead of the truck it appears to be. Subaru has certified the Brat to be a "multipurpose passenger vehicle," but a Subaru sales brochure refers to

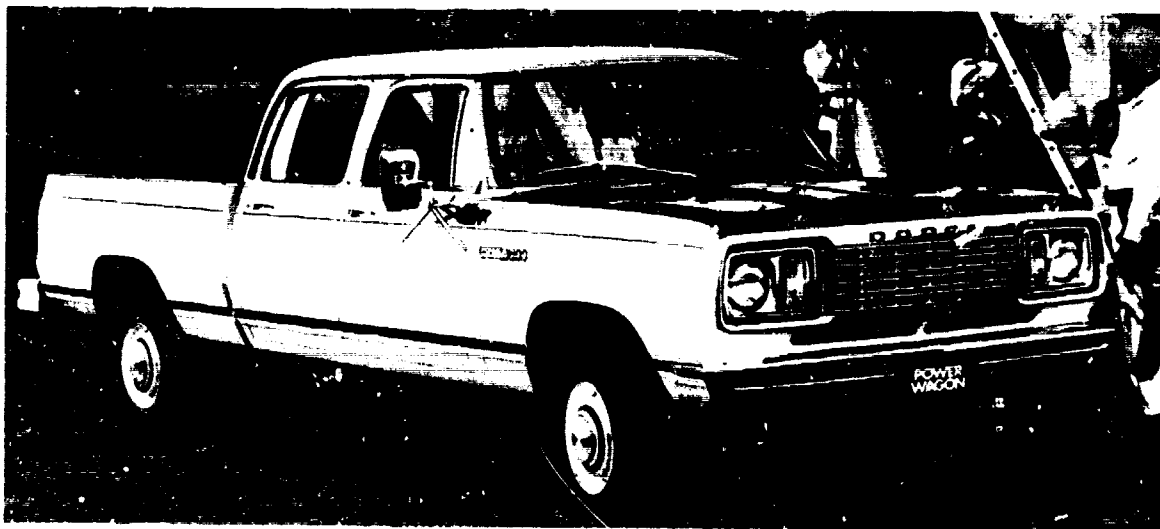


it as a "passenger car" and at least one Subaru dealer has advertised it as a "pickup truck." The Safety Administration has agreed with Subaru that the Brat is a multipurpose passenger vehicle for safety standard certification purposes.

Other vehicles that might be viewed as having unclear status are the trucks built on passenger car chassis, such as the Chevrolet El Camino and the Ford Ranchero. (See below.) However, because the rear cargo area is separate and has no established provision for passengers, the Safety Administration views these vehicles as trucks.



Pickup trucks with extended or "crew" cabs may have four doors and large passenger areas. (See below.) However, because they have a separate area for cargo, they are categorized by the Safety Administration as trucks.



Vans become more difficult to categorize because they have no separate cargo and passenger areas. The Safety Administration uses the number of passenger seating positions initially installed in the vehicle to determine its category. Generally, if the van has only front seats, it is classified as a truck. If it has rear seats but the total passenger capacity does not exceed 10, the vehicle is considered to be a multipurpose passenger vehicle. If the vehicle has seating for more than 10 passengers, then it is classified as a bus. (See p. 21.)

In the future vans may become a real problem for the Safety Administration to classify. As vans are downsized, questions may arise regarding whether they are built on a "truck chassis," which remains undefined. If a passenger van is not built on a "truck chassis" and does not have "special features for occasional off-road operation" (also undefined), the vehicle must be a passenger car and therefore meet all passenger car



Truck (Not Forward Control) (2 Passenger Van)



Multipurpose Passenger Vehicle – Forward Control (7 Passenger Van)



Bus – Forward Control (15 Passenger Van)

safety requirements. Manufacturers may attempt to avoid meeting the passenger car requirements by taking legal advantage of the lack of definition specificity.

IMPACT ON THE PUBLIC

What does all this discussion about vehicle classification and definition mean to the consumer? It means that potential purchasers, when considering the various types of vehicles available, may not know that

- differences exist in required safety equipment among the various vehicle types,
- vehicle types are not always what they appear to be, and
- even knowing major vehicle types will not necessarily provide sufficient information on what important safety features are required.

The Safety Administration has recognized that consumers need to be informed about safety features installed on vehicles. The Safety Administration requires vehicle manufacturers (49 C.F.R. 567) to place on each vehicle a certification label "to provide the consumer with information to assist him in determining which of the Federal Motor Vehicle Safety Standards...are applicable to the vehicle." The label, however, does not indicate which standards are, or more importantly are not, installed on the vehicle. In fact, there is no indication that some vehicle types have more or less vehicle standards than other vehicle types.

For example, if a van purchaser finds out that the van under consideration is a multipurpose passenger vehicle, he/she probably does not know what this means regarding safety standards required on this vehicle as compared to those required on passenger cars and other vehicle types. A van purchaser also should be aware of the difference between conventional and forward control vehicles, because forward control vehicles are exempt from some safety features, such as shoulder belts. (See p. 44 and note that General Motors and Chrysler vans are forward control and Ford vans are not.)

Another limitation of the certification label is its inconspicuous location. Except for trailers and motorcycles, the regulations state:

"The label shall be affixed to either the hinge pillar, door-latch post, or the door edge that meets the door-latch post, next to the driver's seating position, or if none of these locations is practicable, to the left side of the instrument panel."

We doubt that many consumers look at such places to determine the vehicle category before the vehicle is purchased.

We visited some light truck dealers to determine how much vehicle safety information is available to consumers from sales representatives. We found that dealer sales staff often did not provide complete or accurate information regarding standard or available safety features. For example, we were told in several cases that head restraints or shoulder belts were standard equipment, while vehicles on their sales lots clearly did not have such features. However, features such as steering column protection, windshield mounting, windshield zone intrusion, or rollover protection are not as easy to see, so the consumer must rely on statements by dealer sales staff.

The Congress wants accurate information regarding the relative safety of various vehicles to be available to consumers. In 1972, the Motor Vehicle Information and Cost Savings Act (Public Law 92-513), was enacted. This act directed the Secretary of Transportation to, among other things, provide the consumer with information about the relative safety afforded occupants of various vehicles involved in crashes. After attempting unsuccessfully to develop the mandated data, the Department essentially dropped all efforts in this area. However, on the basis of a new Department decision, the Safety Administration plans to try again to develop the required data. We believe some expansion of the certification requirements (see p. 22) would be in line with the intent of the 1972 legislation, and would help satisfy the stated purpose of the certification.

CONCLUSION

The Safety Administration has developed a series of vehicle categories, subcategories, and definitions to use in applying safety standards. However, these categories are of little value to consumers interested in finding out what safety features are installed on vehicles he/she is considering purchasing. The consumer cannot depend on receiving accurate and complete safety information from vehicle dealers. Without additional data

from the Safety Administration, the consumer will be unable to readily ascertain the relative safety of alternative vehicles.

CHAPTER 4

APPLICATION OF SAFETY STANDARDS TO LIGHT TRUCKS

The established Federal motor vehicle safety standards have been applied to various vehicles on the basis of their type or classification. There have been variations in application of the safety standards because some vehicles have different built-in safety advantages or disadvantages. In addition, the basic design of different vehicles may facilitate or hinder the application of certain safety features.

As discussed in chapter 2, safety standards are applied differently to light trucks and passenger cars, and these differences appear to cause a difference in the safety level of these vehicle types. We believe vehicle occupants deserve a reasonable level of built-in safety regardless of vehicle type or how the vehicle is used.

The following standards, applicable to passenger cars, are either not applicable to light trucks at all, or have noticeably reduced requirements for light trucks:

<u>Standard number</u>	<u>Title</u>
105	Hydraulic brake systems
114	Theft protection
115	Vehicle identification number
117	Retreaded pneumatic tires
118	Power-operated window systems
201	Occupant protection in interior impact
202	Head restraints
203	Impact protection for the driver from the steering control system
204	Steering control rearward displacement
208	Occupant crash protection
211	Wheel nuts, wheel discs, and hub caps
212	Windshield mounting
214	Side door strength
215	Exterior protection
216	Roof crush resistance - passenger cars
219	Windshield zone intrusion
Part 575	Consumer information regulations

These standards are discussed in this chapter. Some standards are discussed in detail and others are discussed briefly--the differences reflect the complexity of the issues. In some cases, the Safety Administration has

indicated that it intends to extend the current passenger car requirements to light trucks. We believe that it is important for the agency to closely analyze the inherent differences between passenger cars and light trucks to determine if passenger car requirements are optimal for light trucks. Appropriate requirements for light trucks may be more or less stringent than appropriate passenger car requirements.

The Safety Administration and the automotive industry have advanced various arguments for or against the applicability of the current standards to light trucks, some of which appear valid. Since similar arguments may be raised in future rulemaking, their discussion here will be helpful to the interested parties.

Many facts need to be considered before safety standards are issued or are extended to other classes of vehicles. The Safety Administration is responsible for obtaining and analyzing this data to decide whether to extend the standards' application or to undertake additional research. The Safety Administration has not researched or followed through on rulemaking for many of the above standards to improve light truck safety. We believe that such actions are appropriate to reduce the disparity in safety between passenger cars and light trucks.

The Safety Administration issued its new plan for rulemaking on March 13, 1978. The plan calls for extending some of the existing standards to light trucks. However, the agency had planned this in the past--many such plans were even in the rulemaking stages--but the plans were never implemented.

We have limited our discussion in this chapter to the existing Federal safety standards. However, we believe the Safety Administration should also identify those safety needs unique to light trucks (such as the potential danger of cargo shifting into the occupants of vans), since additional safety standards designed specifically to meet these needs may be necessary.

In commenting on this report, the Safety Administration noted that the crush characteristics and weight of light trucks create special hazards, not only to the occupants of the light trucks but also to the occupants of passenger cars whenever a truck/car collision occurs. (See p. 75.) This is an area where standards specifically for light trucks may be warranted. The Safety Administration is presently developing a statement of work to study and define these parameters.

HYDRAULIC BRAKES--STANDARD NUMBER 105

This standard is intended to provide safe braking performance under normal and emergency conditions. It has applied to passenger cars since January 1, 1968, and was extended to school buses on April 1, 1977; however, it contains no requirements for light trucks.

Safety Administration proposals to extend the hydraulic braking standard to light trucks date back to October 1967. The standard was amended in September 1972 to include light trucks. The effective date was later extended, and finally in April 1975, applicability to light trucks was eliminated altogether. As a result, light trucks have never been required to meet a braking standard. The Safety Administration's reason for this was that the costs of meeting the standard for these vehicles were not justified in terms of increased safety benefits.

This view was also expressed by the three manufacturers we interviewed. Certain requirements of the passenger car braking standard are too stringent; according to Chrysler representatives they go beyond requirements for the most severe use. General Motors officials said the stringency of the passenger car standard's multiple stopping requirement far exceeds the needs of the consumer, who is paying the price in terms of wear, cost, and brake squealing. The Safety Administration is not aware of any increase in wear, cost, or brake squealing resulting from this standard.

Ford officials raised the historic problem in setting safety standards--the lack of adequate accident data. They believe that Ford light trucks offer adequate braking performance, and without accident data clearly showing that inadequate braking performance is responsible for many accidents, there is no justification for braking standards. Ford does agree, however, that good truck-braking performance is important for accident avoidance.

These three companies agreed that the school bus hydraulic braking standard would be a more sensible alternative--both in terms of cost and safety. Requirements for school buses, however, are considerably less stringent than those for passenger cars. For example, the chart below shows the required stopping distances from 55 miles per hour for lightly loaded cars and school buses.

<u>Vehicle</u>	<u>Stopping distance from 55 mph (feet)</u>
Passenger cars	163
School buses less than 10,000 pounds GVWR (note a)	272
School buses more than 10,000 pounds GVWR (note a)	326

a/Gross vehicle weight rating.

According to the Safety Administration, stopping distances for multipurpose vehicles, trucks, and buses can be considerably greater than those for passenger cars. The agency believes that these differences create a safety problem contributing to rear-end collisions. According to the Safety Administration, wide differences between the weight of loaded and unloaded trucks makes controlled braking under both dry and wet road conditions a serious safety problem.

The Safety Administration informed us in June 1977 that it intended to propose an amendment to the standard in late 1977 and to issue the final rule in 1978. However, the Safety Administration's March 1978 plan estimated that the amendment will be proposed in 1979 and the final rule will be issued in 1980. It estimates the standard will be effective with the 1983 model year.

THEFT PROTECTION--STANDARD NUMBER 114

This standard is intended to reduce the number of accidents resulting from unauthorized vehicle use. It requires an ignition key locking system that will prevent normal activation of the vehicle's engine and either steering or forward mobility, or both. Currently, this standard applies only to passenger cars.

In March 1976, the Safety Administration proposed extending the standard to all vehicles except trailers. Industry objected to extending the standard because there was no data to suggest that light trucks have a significant involvement in accidents following theft. In June 1977, however, the industry appeared to modify its position. Both General Motors and Ford agreed that theft protection for trucks and vans would probably be beneficial, if only for customer satisfaction. However, they object to the present standard because it is too

design-oriented--making it easy for the professional car thief to overcome it. They maintained that it is the professional thief, not the amateur joyrider, who steals trucks and vans. Rather than making the present standard mandatory, they would rather design their own individual anti-theft systems.

The Safety Administration does not agree that the theft protection standard is design-oriented. It stated that the manufacturers are free to go beyond the minimum requirements.

The Safety Administration says it favors upgrading the existing passenger car standard and extending it to light trucks. The agency plans to issue a notice of proposed rulemaking in 1978 and the ruling in 1979 with an effective date of 1981.

VEHICLE IDENTIFICATION--STANDARD NUMBER 115

This standard is also aimed at reducing accidents involving stolen automobiles. It requires that an identification number, readable from the outside of the vehicle, must be mounted on the inside of the passenger compartment.

In September 1976, the Safety Administration proposed extending the standard to all vehicles. The extension was included in an advance notice of proposed rulemaking recommending a uniform vehicle identification numbering system. Industry endorsed both a uniform numbering system and extending the standard to light trucks.

General Motors representatives had no objections to extending the standard, and similar reactions were received from Ford Motor Company and Chrysler Corporation representatives. All three, however, were in agreement that such an extension should be preceded by adoption of a uniform, worldwide vehicle identification system.

The Safety Administration published a notice of proposed rulemaking on January 16, 1978, to provide a uniform identification system and extend the standard to light trucks. They plan to issue the rule by 1979 and the proposed effective dates are January 1, 1980, for passenger cars and September 1, 1980, for other vehicles which includes light trucks.

RETREADED PNEUMATIC TIRES--STANDARD
NUMBER 117

The purpose of this standard is to insure that retreaded tires meet performance requirements similar to those for new pneumatic passenger car tires. Requirements were set for strength, endurance, and high speed performance but were later removed by a court order. Certain labeling information is still required.

The Safety Administration originally proposed in 1967 that retreaded tires for passenger cars and light trucks meet this standard. However, at a technical conference held in 1969, many said it was not reasonable to apply this standard to light trucks until a standard is established for new tires for these vehicles. The Safety Administration apparently agreed, and the standard became effective only for passenger cars on January 1, 1972. A standard for new light truck tires (number 119) became effective on March 1, 1975, but no action has been taken to extend the new tire requirements to retreaded tires for light trucks.

The Safety Administration told us that legal difficulties with the passenger car retreaded tire standard caused some requirements to be revoked in early 1973. In June 1977, the Safety Administrator told us that they were resolving problems concerning a more effective standard for retreaded tires, and rulemaking would begin as soon as possible; however, no time estimate was provided.

Since then, the Safety Administration has apparently changed its position. In commenting on this report, the Safety Administration said:

"...the Agency is not sanguine about the possible benefits of extending the existing standard to light truck tires. Even without the extension to light truck tires, the tires on most light trucks are covered by the existing standard. The reason for this is that most light trucks (approximately 70 to 80 percent) use passenger car type tires."

POWER-OPERATED WINDOW SYSTEMS--STANDARD
NUMBER 118

This standard specifies requirements to minimize the likelihood of death or injury from accidental operation of power windows. The standard is applicable

to passenger cars and multipurpose passenger vehicles, but not light trucks and buses.

The Safety Administration told us that there has been no safety problem with power windows on light trucks and buses because few of these vehicles are equipped with power windows. In June 1977, the Administrator told us that the agency is attempting to determine if a trend toward power windows in these vehicles is evident, and will issue an amendment to the standard if there is such a trend. According to vehicle sales literature, power windows are available on the Ford Ranchero, Chevrolet pickup trucks (standard and El Camino) and Blazer, and similar GMC vehicles. The manufacturers told us that they believe these vehicles would meet the requirements of the standard.

The March 1978 plan indicates that new rulemaking activity on this standard has been deferred.

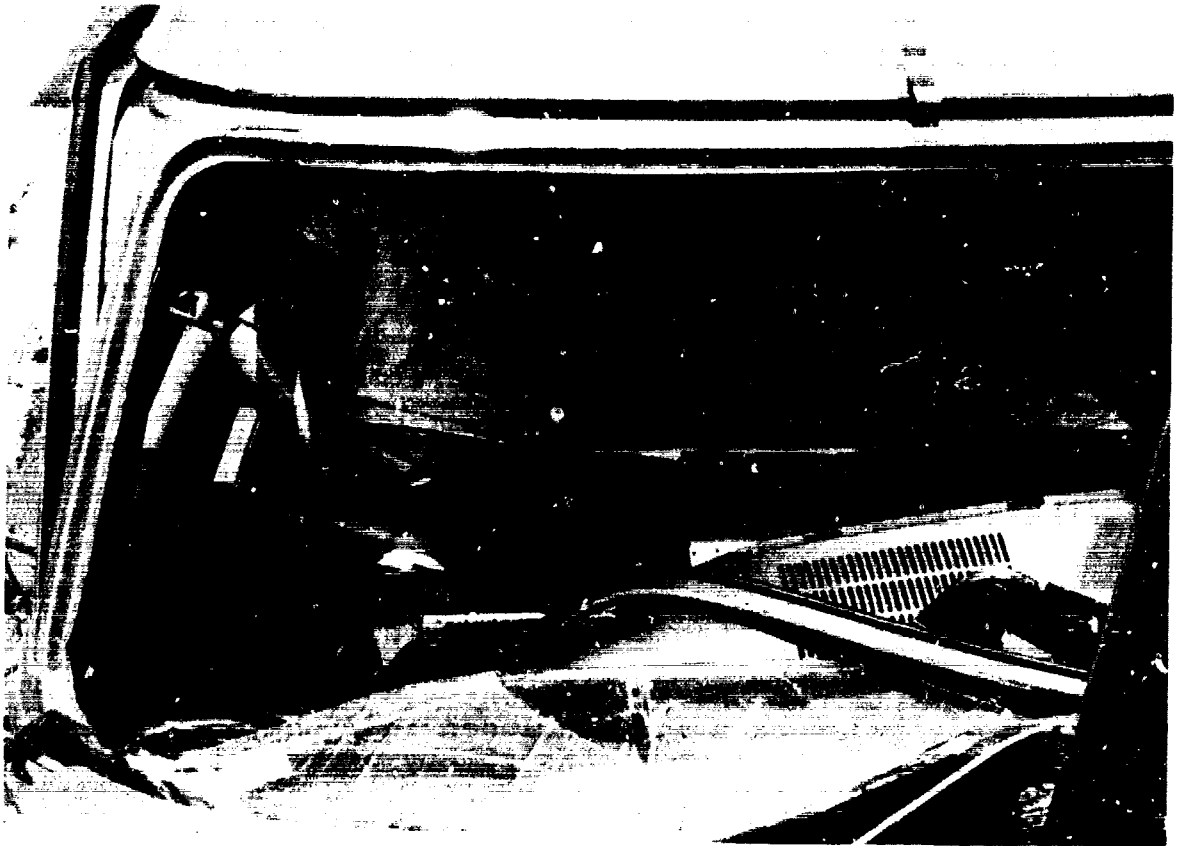
OCCUPANT PROTECTION IN INTERIOR IMPACT--
STANDARD NUMBER 201

This standard specifies requirements to afford impact protection for occupants of passenger cars. It provides requirements and testing procedures for instrument panels, seat backs, and interior compartment doors. Requirements for sun visors, armrests, and folding armrests are also provided but no testing procedures are given.

This standard, like other initial standards, had its origins in 1965 when the General Services Administration issued safety standards for vehicles purchased by the Federal Government. After the 1966 act requiring motor vehicle safety standards for all vehicles, an advance notice of proposed rulemaking was issued to obtain comments on extending the General Services Administration standards to all vehicles. These standards covered sedans, buses, carryalls, station wagons, and light trucks up to 10,000 pounds gross vehicle weight. Industry objected to the inclusion of vehicles other than passenger cars because the time available before the effective date of the standard was too short to bring these other vehicles into compliance with the requirements, and it felt that a separate proposal should be made when there was enough performance data to support extending the standard. As a result, the standard issued in 1967 applied only to passenger cars.

In 1970 the Safety Administration proposed extending the standard to light trucks because such vehicles were considered to have interior protection needs similar to those of passenger cars. In addition to extending the standard, the Safety Administration also proposed strengthening several performance requirements. Specifically, the amount of surface area covered by the standard would be increased to include the knee and leg impact area, seat back impact area, and the upper surface area of the instrument panel. Manufacturers objected to some of these changes, but not to extending the standard to light trucks. Despite the general industry acceptance, the proposed extension was not adopted. Since 1970, there have been no formal attempts to extend the standard; however, several attempts have been made within the agency to draft a proposal.

A Safety Administration standards engineer told us that there never were any technical or engineering reasons for not extending the standard to light trucks; all that was lacking was the management decision to move ahead. He also mentioned that some plastic dash panels shatter and splinter upon impact, but that no amendments to the standard have been proposed to correct this situation. The picture below shows what happened to the dash panel of a van containing belted dummies in a 30 mile per hour barrier impact.



Industry officials supported the general need for interior impact protection in light trucks. Aside from added cost and lead-time requirements, they foresaw no large problem in extending the present passenger car standard requirements to these other vehicles. Ford representatives emphasized, however, that any changes in this standard should be coordinated with any changes in standards 203, 204, and 208.

Several industry officials questioned the overall effectiveness of the standard. Their skepticism stemmed primarily from their inability to obtain consistent lab test results. Also, they believe the laboratory impact test procedures required by the standard do not represent "real world" crash conditions. Ford officials told us that in spite of this, the current standard may be a good test of dash panels.

Omitted from the standard is any consideration for knee and leg impact area.

The Safety Administration plans to extend the current standard to light trucks effective about 1981-83. However, no notice of proposed rulemaking has been issued.

HEAD RESTRAINTS--STANDARD NUMBER 202

This standard specifies requirements for head restraints to reduce the frequency and severity of neck injury in rear-end and other collisions. It became effective on January 1, 1969, for passenger cars only. In March 1974, a notice of rulemaking was issued proposing to combine this standard with an upgraded standard for seating systems (standard number 207). The combined standard would have applied to passenger cars and light trucks. At that time, industry objected to extending the head restraint requirement to light trucks because

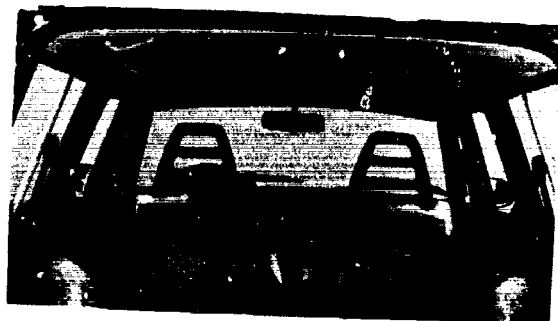
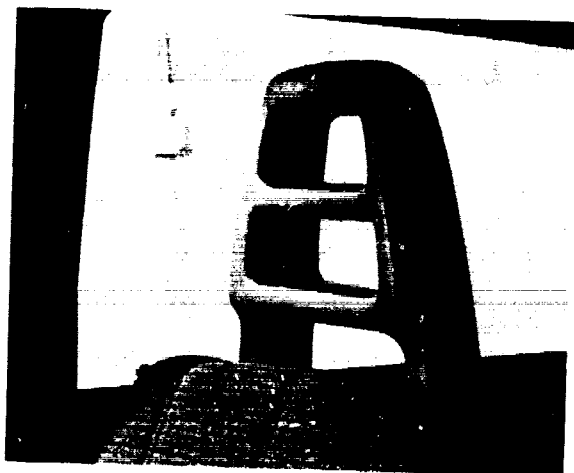
--cost effectiveness data was unavailable and

--a safety need had not been established.

Industry questioned the effectiveness of head restraints even in passenger cars and concluded that the standard does not contribute much to the safety of vehicle occupants. Automotive officials also said head restraints tend to reduce driver visibility.

One reason for the questions about the effectiveness of head restraints in passenger cars might be that they are often not adjusted properly. A recent study sponsored by the Safety Administration showed that in cars with adjustable head restraints, about half are improperly adjusted. The March 1974 amendment proposed by the Safety Administration had provisions to reduce the incidence of improper adjustment.

The argument that head restraints restrict visibility is true to the extent that manufacturers design them that way. Some manufacturers have essentially overcome the visibility problem by providing open spaces in "oval" or "ladder" shaped fixed head restraints. (See photos below.)



Despite industry criticism that some head restraints restrict rearward visibility, such restraints or high-back bucket seats are offered as optional equipment on many light trucks. (See below and pp. 66 and 71.)

As long as industry chooses to build head restraints that reduce visibility and permit or encourage improper adjustment, questions about visibility and effectiveness will probably remain.

Industry also cited a design problem in pickup trucks. To install the head restraint, they said, the cab would have to be extended at the expense of the cargo area. However, we noted that 1978 General Motors pickup trucks have high-back bucket seats available as an option with no apparent change in the cab size or cargo area. We also noted that the Datsun "King Cab" pickup truck and the Toyota "SR-5" pickup truck (standard size cab) have head restraints or high-back bucket seats as standard equipment. (See photos below.)



Industry also has claimed that on a pickup truck, a head restraint is unnecessary since the back window of the cab can serve this purpose. (See photo below.) However, a glass panel provides a less than optimal head restraint as indicated by a recent study ^{1/} which found lacerations or contusions on the back of the heads of pickup truck drivers in fatal crashes. Injuries were noted even in frontal crashes when the head rebounded back into the structures behind the drivers. Ford and General Motors' representatives characterized such lacerations and contusions as minor injuries.



The Safety Administration has identified this standard to be low priority and has announced its plan to terminate any further rulemaking. The agency, however, has announced plans to look at head/neck injuries as part of a broader rear crash protection standard. No timeframe estimates have yet been announced.

^{1/} "Fatally Injured Truck Drivers," Trudy Karlson, Susan Baker, and Bert Morton; Proceedings of the 21st Conference of the American Association for Automotive Medicine, September 15-17, 1977, p. 370.

IMPACT PROTECTION FOR THE DRIVER FROM THE
STEERING CONTROL SYSTEM--STANDARD NUMBER 203

This standard was intended to minimize chest, neck, and facial injuries to passenger car drivers from steering assemblies. Accident studies and laboratory tests made before the enactment of this standard showed that the steering assembly--the column and the steering wheel rim--was one of the major causes of fatal and serious injuries to drivers in automobile crashes. An intensive 4-year study made in Michigan showed that only deaths resulting from ejection exceeded steering assembly fatalities, and then only slightly. The accident studies and laboratory tests indicated that if the driver's torso impacted an energy absorbing steering system rather than a rigid one, less force would be transmitted to the vital chest and abdominal organs, and a reduction in both the number of fatalities and severe injuries could be expected.

This standard became effective in January 1968 and applies only to passenger cars. It requires that passenger car steering control systems be tested by measuring energy forces on a torso-shaped manikin as it strikes a steering system. The impact force developed on the chest of the manikin cannot exceed an established level. In September 1970, the Safety Administration proposed extending this standard to light trucks and multipurpose passenger vehicles. However, the proposal was never implemented.

The effectiveness of the energy-absorbing steering system has been questioned by several safety researchers. According to the researchers, in "real world" crashes, drivers often hit the steering wheel at an angle reducing the effectiveness of the collapsible column. They indicated that when an occupant impacts the steering wheel at an angle rather than head on, the column bends and the sliding elements of the column lock, making it unable to collapse in its designed mode. The experts generally found that as the lateral angle increases, the amount of column collapse lessens. The experts also found that as the accident severity increases, even in direct frontal collisions, the column bends, causing the sliding elements to lock, thus preventing the designed collapse. Further, as the amount of vehicle crush increases, column collapse lessens. Thus, what appears to work in the laboratory may be less effective in the real world.

Two of the manufacturers--General Motors and Chrysler Corporation--voiced similar concern. Both indicated that the test procedures do not measure "real world" crash

conditions. General Motors officials said the manikin torso prescribed by the Safety Administration for testing the column does not perform as a human would in a crash. They believe better safety engineering design could be obtained with a more realistic test procedure and test dummy.

Representatives from the three manufacturers agreed that some form of energy absorbing steering system could be beneficial in light trucks (though not necessarily worth the cost). However, all three pointed out that extending the current standard to vans would involve extensive design problems. In most vans the front end is short and the steering column is in a more vertical position, making it difficult to incorporate the current energy absorbing column. With the van's short front end there is less room for vehicle crush, and with the high angle of the steering assembly the column bends and the sliding elements of the column lock. (See illustration below.)

Figure A
passenger car/
pickup truck
steering column

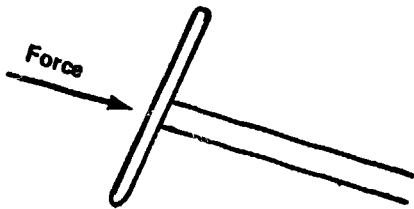
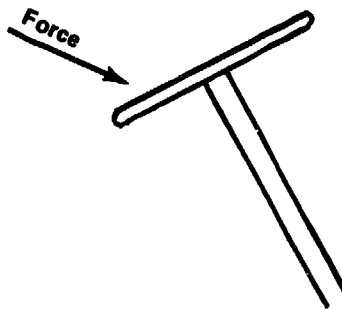


Figure B
forward control
steering column



In Figure A, the steering column absorbs the energy from the driver along the axis of the column. In Figure B, the steering column's angle is greater and is less likely to be loaded along the axis of the column.

A Safety Administration standards engineer agreed with researchers that problems exist with many current steering columns in "real world" accidents. Funding for research has been requested in the past but not approved. He told us that there are energy absorbing steering columns, other than those most frequently used, which meet the current standard and which seem to be less sensitive to angle impacts. He said, however, that the current columns, if used on light trucks, would reduce deaths and injuries. He agreed with industry

representatives that additional effort would be required to provide adequate protection on vans, but he said that the greater need for such protection justifies the greater effort.

We noted that several light truck models already have energy absorbing steering columns. We do not know, however, if they meet current standard requirements. The Safety Administration told us that the agency has not tested light truck steering columns to see how they might perform because the standard does not apply to light trucks.

The Safety Administration plans to extend the current standard to light trucks effective about 1981-83. The agency also plans to consider upgrading the present standard requirements. No notice of proposed rulemaking has yet been published.

In commenting on this report, the Safety Administration said the funding for research has been requested and approved and is being allocated.

STEERING CONTROL REARWARD DISPLACEMENT-- STANDARD NUMBER 204

This standard was designed to minimize chest, neck, and head injuries by assuring that the steering control assembly does not intrude excessively into the passenger compartment. This standard became mandatory for passenger cars in January 1968. It requires that the upper end of the steering column and shaft shall not be displaced more than 5 inches toward the rear of the passenger compartment in a fixed barrier collision test at 30 miles per hour. In October 1970 this standard was proposed for extension to light trucks but, to date, no action has been taken.

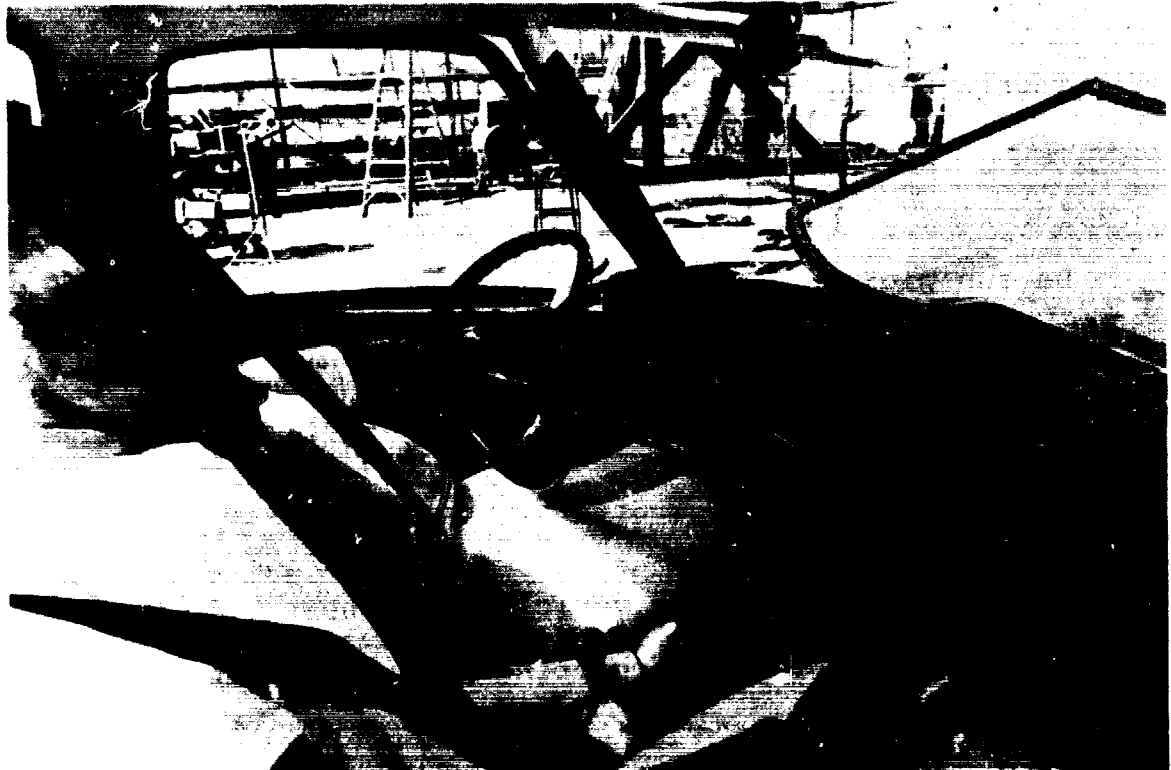
Manufacturers agreed that limiting steering control rearward displacement on light trucks would be beneficial. General Motors officials said some of their light trucks have steering columns similar to those on their passenger cars. Although the light trucks have not been tested for this standard, General Motors officials think some of these vehicles would probably pass the standard. However, manufacturers said some vans would not pass standard 204 because of differences in the design of the vehicle front end. Due to the shorter front end on vans, the steering column is closer to the barrier and there is less room for crushing action. As a result, they said it would be very difficult to achieve this standard on vans.

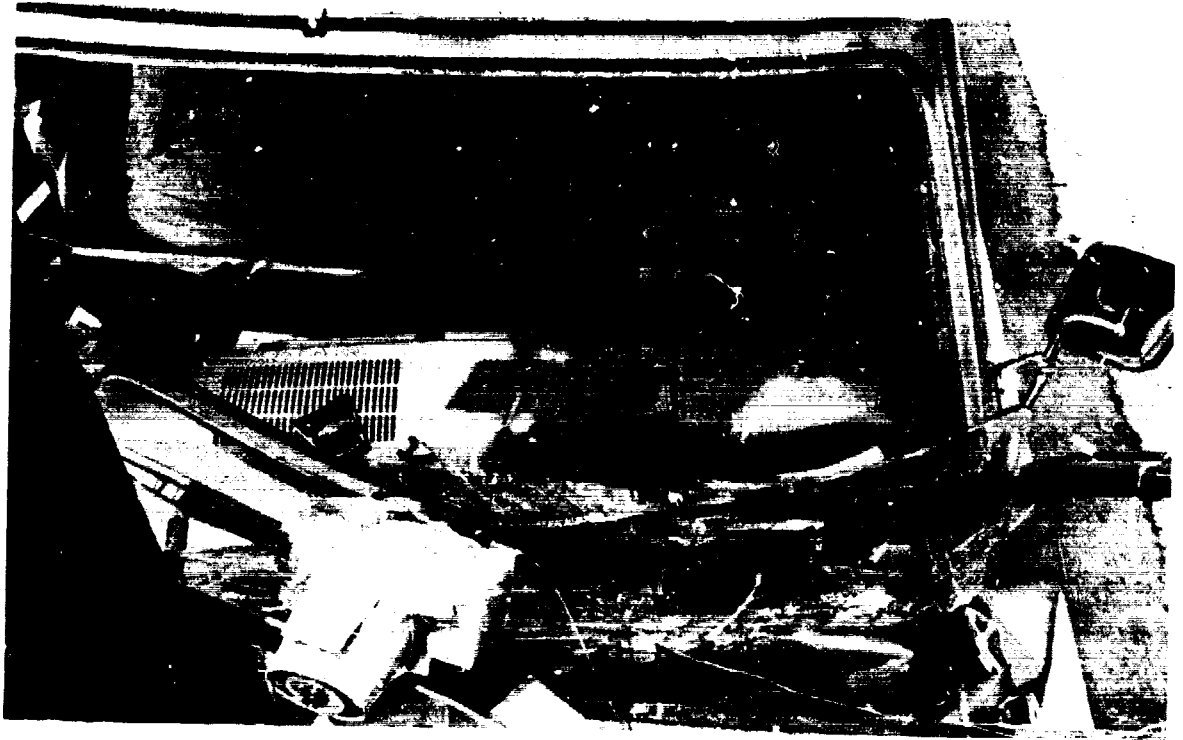
The forward end of the steering assembly in some vans is 3 to 4 inches behind the front bumper. Because of this, a relatively low speed crash can cause the steering column to shoot back towards the driver's chest and face. A Safety Administration standards engineer told us that vans are a particular problem because of the upward movement of the steering assembly towards the driver's face. In addition, he said the angle of the steering wheel causes more concentrated loads on the body compared to more vertical steering wheel angles which tend to spread the forces over the whole rim and hub area.

The Safety Administration tested six 1977 light trucks in 30 mile per hour frontal barrier crashes for fuel system integrity (standard number 301-75). Agency engineers noted the following steering control movements.

<u>Vehicle make</u>	<u>Steering control movements</u>
Chevrolet G-10 van	Extreme vertical and horizontal movement after detachment from the dash.
Dodge D-100 pickup	The steering column shaft with the attached wheel was displaced rearward into the occupant compartment about 7 inches.
Toyota pickup	The steering control rotated into the windshield with a force sufficient to break away 50 percent of the windshield mounting.
Datsun pickup	Steering control moved rearward into the occupant compartment about 6 inches.
Ford F-100 pickup	Steering column separated from the dash support.
GMC C-1500 pickup	Steering control moved rearward about 5 inches.

Photographs of three of the vehicles are shown below. Note the movement of the steering columns and the bent steering wheels caused by impacting with the belted dummies.





The current standard requires limiting only rearward movement of the steering assembly. There are no requirements to reduce upward movement of the assembly toward the driver's neck and face. Since there is such upward movement in some vehicles, a requirement restricting upward movement might help reduce deaths and injuries.

The Safety Administration told us that because the standard does not apply to light trucks, engineer observations on steering control movements were "for information purposes." Likewise, they said the agency has not tested light truck performance with this standard because this standard does not apply to light trucks.

The Safety Administration plans to extend the current standard to light trucks effective about 1981-83. The agency also plans to consider upgrading the current standard. No notice of proposed rulemaking has yet been issued.

OCCUPANT CRASH PROTECTION--STANDARD
NUMBER 208

This standard specifies requirements for active and passive occupant restraint systems. The most recent ruling, issued June 30, 1977, mandates the installation of passive restraint systems (requires no action by the front seat occupants) for all passenger cars sold in the United States, by September 1, 1983.

Light trucks are not included in the new ruling. Instead, light trucks can have either a passive protection system or an active belt protection system. The latest rulemaking action affecting these vehicles was a June 2, 1977, announcement which indefinitely postponed requirements for a passive system in such vehicles. The Safety Administration claims that manufacturers have not had the benefit of experience with passive systems in light trucks as they have in passenger cars, and thus are not ready to install the passive restraints in light trucks.

Industry has raised many objections to the passive restraint mandate. Some of these objections question its effectiveness, excessive cost, and the adequacy of the Government test dummy. Industry officials also expressed concern over possible adverse public reaction. Regarding light trucks in particular, industry said that the higher angle of the steering column and shorter front end of vans would present design problems in installing passive restraint systems.

Regarding the current active belt requirements, we noted a provision important to potential buyers and occupants of vans and certain other vehicles. The provision exempts some vehicles from having shoulder belts. 1/ In effect it allows the chest, face, and/or head of fully belted occupants of these vehicles to smash against the windshield, windshield pillars, steering wheel, and/or dash panel in a crash. The current vans built by Chrysler and General Motors are forward control vehicles and do not have shoulder belts as standard equipment, while Ford vans are not forward control and

1/Convertibles, open-body type vehicles, and walk-in type trucks are exempt without qualification. Forward control vehicles, motor homes, postal service vehicles, and chassis-mounted campers are exempt if the windshield header is outside the head impact area.

and are therefore required to have shoulder belts. Chrysler and General Motors officials told us that shoulder belts are available as options on their vehicles.

We also observed during our inspection of the vehicles that some belts seemed inconvenient to use. Some belts did not have retractors, so they would tend to tangle and fall out of easy reach. Some belts were not even attached to the seat cushions--when unbuckled, they would just fall to the floor beside or behind the bucket seats.

A few days before the decision mandating passive restraints for passenger cars, the Safety Administration told us that:

"Occupant crash protection requirements of FMVSS No. 208 are the same for passenger cars, light trucks, and multipurpose passenger vehicles. Only the effective dates for incorporating the protection options are different. Production changes to be undertaken by manufacturers are considered when establishing effective dates."

The Safety Administration plans to issue a notice of proposed rulemaking in 1980 and a rule in 1981 to extend passive restraint system requirements to certain light trucks. However, the agency has not yet determined the performance and feasibility of passive restraints in the various types of light trucks. The agency estimates an effective date of September 1984 1/ for passive restraints on light trucks.

A Safety Administration official told us that the agency possibly should reconsider exempting forward control vehicles from having shoulder belts; however, no such plans have been announced.

1/Note that small cars have a planned effective date of September 1983 and the rule for those vehicles was issued in 1977. Manufacturers were given a lead time between the rule and effective date of 6 years for small cars and an estimated 3 years for light trucks.

WHEEL NUTS, WHEEL DISCS, AND HUB CAPS--
STANDARD NUMBER 211

The purpose of this standard is to eliminate a potential hazard to pedestrians and cyclists. It requires that "spinner" hub caps and other winged projections (both functional and nonfunctional) be deleted from wheel nuts, wheel discs, and hub caps. The standard became effective on January 1, 1968, and applies to passenger cars and multipurpose passenger vehicles, but not to light trucks and buses.

We did not analyze this standard in much detail because we could not find any evidence that such features have been a problem on any vehicle. Logic indicates, however, that any light vehicles using protruding wheel nuts, wheel discs, or hub caps would be a similar, although remote, hazard.

The Safety Administration, citing the lack of a demonstrated safety need, does not plan to extend this standard to other vehicles.

WINDSHIELD MOUNTING--STANDARDS NUMBER 212
AND 212-75

The purpose of this standard is to reduce injuries and fatalities by providing for retention of the vehicle windshield during a crash. This is accomplished by (1) using the penetration-resistance and injury-avoidance properties of the windshield glazing material and (2) preventing the ejection of occupants from the vehicles. The standard became effective for passenger cars on January 1, 1970, and is scheduled to become effective for light trucks on September 1, 1978, except for forward control vehicles, ¹/_{walk-in van-type vehicles, and open-body type vehicles with fold-down or removable windshields.}

Of the six light trucks tested by the Safety Administration, only two (the Ford and the Dodge pickup trucks) fully retained their windshield. One pickup truck (the Toyota) retained half of its windshield and the other three (the Chevrolet van and the Datsun and GMC pickup

¹/See p. 16 for the definition of "forward control." Note that General Motors and Chrysler vans are forward control while Ford vans are not. This is an example of directly competing vehicles which have safety differences that are not readily apparent to the prospective buyer.

trucks) had no windshield retention. The Safety Administration pointed out that these vehicles do not have to meet the requirements of this standard.

On the basis of recent discussions, industry representatives did not argue against the need for establishing windshield retention requirements for forward control vehicles. They did point out, however, that there would be design problems involved because of their short front ends. General Motors officials said that to retain the windshield upon impact the front window opening or frame must not distort. (See photo on p. 43.) Because of these problems, some industry officials believe a barrier test is not appropriate for forward control vehicles.

The Safety Administration has not indicated its intent to establish windshield retention requirements for forward control vehicles, walk-in van-type vehicles, and open-body type vehicles with fold-down or removable windshields. The agency has deferred new rulemaking activity on this standard.

SIDE DOOR STRENGTH--STANDARD NUMBER 214

This standard specifies strength requirements for the side doors of a motor vehicle to minimize the hazard caused by intrusion into the passenger compartment in a side impact accident. It applies to passenger cars only. The only proposal to extend it to light trucks came in an advance notice of proposed rulemaking in 1967. The proposed extension was not adopted. Industry commented at that time that significant configuration, size, and weight differences in trucks and multipurpose passenger vehicles would require different test procedures from those used for passenger cars.

Industry representatives told us that there is no evidence showing any safety benefits in passenger cars; therefore, they believe there is no need for side door beams in light trucks. Industry also believes that the higher height of light trucks makes side door beams unnecessary. They said that light trucks would receive the impact from a car/truck collision on the frame below the passenger seat position.

The Safety Administration agrees that the requirements of this standard are not appropriate to light trucks because of their greater height. Some light trucks, however, are closer to the height of passenger cars

than to most trucks. Examples of these trucks are the domestic pickup trucks built on passenger car chassis and the imported pickup trucks.

The Safety Administration and industry argument that standard applicability be related to vehicle height appears valid. However, the standard currently does not consider different vehicle heights at all. The standard, in fact, is written so that all it measures is door strength--impact with any other side structures is intentionally avoided. The test involves pushing a 12-inch diameter barrel-shaped form into the center of the door starting at 5 inches above the lowest point of the door.

The current standard, then, does not test for impacts with things people commonly run into or are hit by, such as other vehicles, trees, utility poles, guard rails, and bridge abutments. These items are likely to strike something in addition to the center of the door, such as the frame in front or behind the door or the door sill. Safety Administration officials told us that the standard was not intended to represent any actual crash situation.

In our view, the standard needs revision to accurately reflect what is likely to happen to the vehicle, and more importantly to the occupants, in "real world" side impact crashes. We believe such a standard should cover all vehicles which have similar needs for side impact protection regardless of the vehicle category.

The Safety Administration took a step in this direction, but the action may not result in many vehicles having better side impact protection for occupants. The passive occupant crash protection section of standard number 208 has a test procedure for measuring dummy responses in a lateral moving barrier crash. Although the test appears promising because it measures actual occupant responses in a dynamic crash situation, its effect may be limited because

- manufacturers can avoid this requirement entirely if they install a nonpassive lap belt,

- a barrier impact may not resemble what would happen in many "real world" crashes, such as if the vehicle hit a tree or was hit by another vehicle, and

--only passenger cars are covered by this part of the standard while other vehicles of similar size, weight, and height are ignored.

In June 1977, the Administrator told us that because light trucks are higher off the road than passenger cars, the side door strength standard is not appropriate for light trucks. According to the Safety Administration plan announced in March 1978, however, the requirements of standard 214 will be modified so that the test is more representative of real accidents. The plan also indicates that the standard will be extended to light trucks. The agency estimates the changes will become effective around 1984-85.

EXTERIOR PROTECTION--STANDARD NUMBER 215

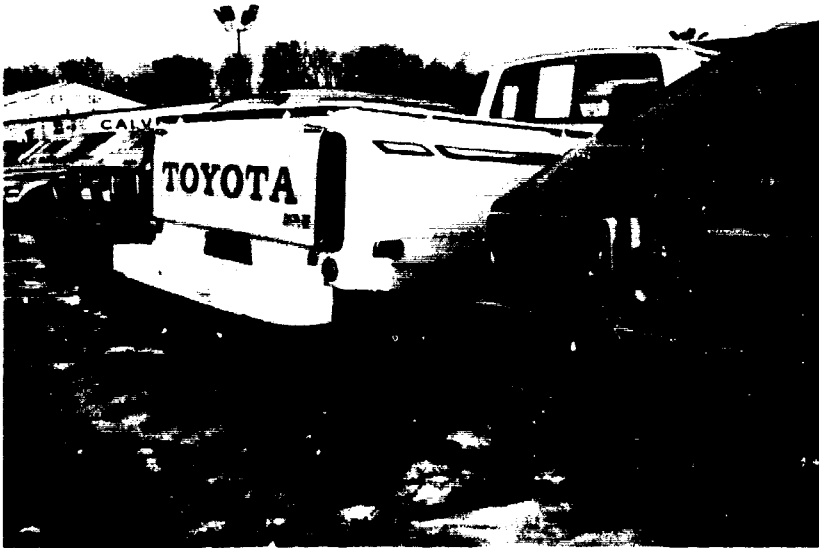
This standard requires passenger cars to withstand barrier and pendulum impacts of 5 miles per hour front and rear without damage to lighting, fuel, exhaust, cooling, and latching systems. The pendulum tests also assure a uniform bumper height among all passenger cars. The standard became fully effective for passenger cars on September 1, 1973, although some requirements were effective 1 year earlier.

Additional bumper requirements are scheduled to become effective for passenger cars on September 1, 1978, and to become even more stringent by September 1, 1979. These bumper requirements are designed to reduce the economic loss resulting from crashes, and are based on the 1972 mandate under the Motor Vehicle Information and Cost Savings Act (Public Law 92-513). This standard is in part 581, title 49, of the Code and requires that the vehicle body panels and bumper systems, as well as the items in standard 215, receive minimal or no damage. The Safety Administration estimates these new bumper systems will add a total of about \$150 to the cost of each new passenger car.

Bumper standards were initially proposed in 1967 to cover both passenger cars and light trucks. Applicability to light trucks, however, was dropped because industry said that applying a bumper height standard could easily interfere with the performance of these vehicles. Their position remains the same today and the Safety Administration has agreed. Therefore, the agency does not plan to extend the bumper standard to light trucks.

A Safety Administration standards engineer told us that the bumper height of light trucks is not much different

than passenger cars. We observed that the lower edge of light truck front bumpers is usually within 2 inches of the required passenger car lower bumper height. Rear bumpers are more varied. Some light truck rear bumpers (generally imported pickup trucks--see photo below--and domestic pickups on passenger car chassis) are clearly within passenger car height range; a few (several four-wheel-drive vehicles) are more than 4 inches above passenger car bumper height; and most are within 4 inches above passenger car bumper height.

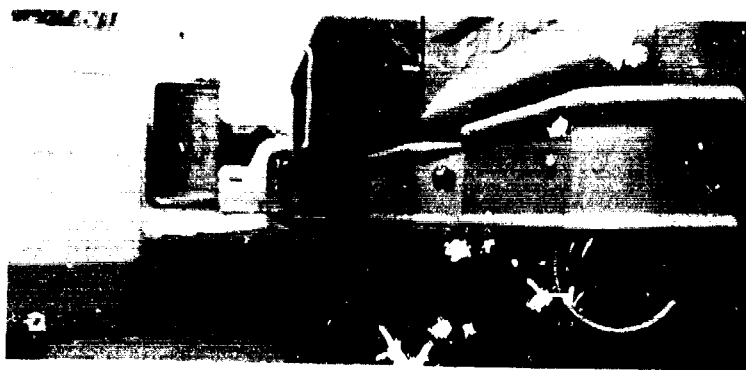


Most light trucks sold in the United States (domestic pickup trucks) do not have any rear bumper 1/ as standard equipment. Even a slight impact will damage the vehicle's sheet metal and possibly the rear lights.

The bumper height differences among light trucks, cars, and other vehicles increase the damage potential to all vehicles. For example, a passenger car bumper is of absolutely no value in a minor impact if the other vehicle involved is higher than the passenger car bumper.

1/Dealer sales staff told us that rear bumpers do not interfere with tailgate operation.

The vehicle will crash directly into the sheet metal, grill, lights, cooling system, fuel filler area, hood, or trunk areas. (See photos below.) Bumper differences may become more important in the future as passenger car bumpers become more expensive, to meet the new Federal requirements, and more light trucks are produced.



The Safety Administration believes that the need for different heights on many light trucks precludes any consideration of bumper standards for these vehicles.

ROOF CRUSH RESISTANCE--STANDARD NUMBER 216

This standard is intended to establish roof strength requirements to reduce deaths and injuries in roll-over accidents. It applies only to passenger cars. There have been no attempts by the Safety Administration to extend its application to other vehicles.

Industry sees no justification for extending the standard to light trucks in the absence of data demonstrating safety benefits. In addition, the manufacturers told us that their light trucks would probably already meet the standard. Ford Motor Company officials said that their pickups--due to smaller roof area and pillar design--and vans would probably exceed the current standard's performance requirements. Chrysler and General Motors officials maintained that their truck roofs would probably also meet the passenger car requirements. Industry representatives saw no particular production or design problems in extending the standard. Assuming the vehicles already meet the standard, the only cost incurred would be for testing and formally documenting compliance.

As noted on p. 13, accident data maintained by the Safety Administration shows that pickup trucks in 1976 had over twice the incidence of involvement in rollover fatalities as passenger cars.

The Safety Administration believes more data is necessary before any action can be taken. However, the agency has not taken actions on the basis of data currently in its files.

In commenting on this report, the Safety Administration stated:

"The coverage of light trucks by FMVSS 208 will include a rollover protection requirement which should reduce the need for a roof-crush resistance standard."

However, unless standard number 208 is modified, it may have no impact on the need for a roof-crush resistance standard. The Safety Administration allows the rollover passive restraint requirements to be met by the installation of a lap belt. Thus, the manufacturers need not test vehicle roof strength to meet the requirements of standard number 208.

WINDSHIELD ZONE INTRUSION--STANDARDS NUMBER 219 AND 219-75

This standard is intended to reduce crash injuries and fatalities by reducing the possibility of vehicle components outside the occupant compartment coming through or into contact with the windshield. First announced in a November 1969 advance notice of proposed rulemaking, and again in August 1972, this standard was not formalized

until June 1975. The effective date for light trucks was September 1, 1977.

All light trucks, however, do not have to meet the standard. Exempt from this standard, like several other standards, are forward control vehicles, open-body type vehicles with fold-down or removable windshields, and walk-in van-type vehicles.

Some industry officials believe there is a valid safety need in the excluded vehicles. But, as with the windshield mounting standard, achievability appears to be the problem. Ford representatives said that short nose vehicles tend to have problems in frontal barrier tests. General Motors representatives told us that a windshield zone intrusion standard for the exempted vehicle types may be practicable and appropriate, but not necessarily cost beneficial. Chrysler representatives said that if any windshield zone intrusion standard is appropriate for these vehicles, it would need different test procedures than those presently used.

The Safety Administration does not plan to extend this standard to the exempted vehicles.

CONSUMER INFORMATION REGULATION--PART 575

This regulation became effective on January 1, 1970, and provided that the following information be available to buyers of new vehicles:

- Vehicle stopping distance. Manufacturers of passenger cars and motorcycles must provide information on stopping distance at specified speeds and under various conditions.
- Tire reserve load. Manufacturers of passenger cars must provide information as to the difference between the load imposed on a tire by the vehicle and the maximum load rating for the tire at recommended inflation pressures.
- Acceleration and passing ability. Manufacturers of passenger cars and motorcycles must provide information on acceleration and passing ability under low and high speed conditions.

The only consumer information regulation applicable to light trucks involves trucks capable of accommodating slide-in campers. It became effective for vehicles

manufactured after April 1, 1973, and provides the following information to buyers of new trucks:

- Truck-camper loading. Cargo weight rating and the longitudinal limits within which the center of gravity for the cargo weight rating should be located.

According to the regulations, manufacturers are required to:

- Include this information with the vehicle at the time of sale.
- Maintain this information at the location where the vehicles are offered for sale (only for the vehicles sold at that location).
- Supply this information to the Safety Administration at least 30 days before the vehicles are offered for sale.

According to an agency official, in 1972, the Safety Administration began assembling the vehicle stopping distance, tire reserve load, and acceleration and passing ability information provided by the manufacturers into booklets, and made the information available to the public. However, this practice was halted in 1976 because the booklets

- could not be made available to consumers early in the sales year,
- became quickly outdated because of frequent changes by the manufacturers,
- received only minimal interest by the public,
- were quite complex because of the differences in optional equipment offered by the manufacturers, and
- were not detailed enough in some cases, because some manufacturers were generalizing rather than adjusting the data for all the differences in optional equipment.

Industry representatives questioned not only the need for extending the information on vehicle stopping distance, tire reserve load, and passing ability to light trucks, but also retaining the data for passenger

cars. Chrysler officials claimed they had no objection to giving the information to vehicle owners if it was meaningful to them. They said the cost of providing it is relatively small. However, there has been no customer feedback on the usefulness of the information.

General Motors objects to extending the consumer information standards to light trucks. It also believes they should be abolished for passenger cars. General Motors officials said the published data for stopping distance, acceleration and passing ability, and tire reserve load provide no benefits to the consumer. They said this information is provided to the Safety Administration 30 days before the introduction of the new models, but is not made available to the general public until late in the model year. General Motors officials also pointed out that this information is available at dealerships but is virtually ignored by customers. In their opinion, the information is of no use to the consumer after the purchase.

General Motors officials also said that some consumer information requirements are unnecessary because of other already existing safety standards. For example, the hydraulic brake safety standard (number 105) governs stopping distances. General Motors has petitioned the Safety Administration to rescind consumer regulations on stopping distance, tire reserve load, and acceleration and passing ability.

The single information requirement applicable to light trucks is truck-camper loading. General Motors representatives said this information is beneficial to consumers and should be retained, because it helps light truck buyers safely match truck capacity to slide-in campers.

We believe consumer information might be more valuable to purchasers of light trucks than passenger cars. One reason why stopping distance is important is because the hydraulic brake standard does not apply to light trucks. Purchasers of light trucks cannot simply assume that brakes will perform comparably with other vehicles on the road. Another reason for increased importance in light trucks is the heavy loads owners may carry. These vehicles, with their large volume capacity, could be substantially overloaded, which could overload tires and impair acceleration and braking. Further, a potential buyer does not usually have an opportunity to test a fully loaded vehicle for handling, acceleration, and braking before the vehicle is purchased. Without

adequate information, buyers may ultimately find themselves with undesirable and/or unsafe vehicles.

CONCLUSION

The Safety Administration has generally not acted to improve the safety of light trucks. When research appeared warranted, it was not done. When the need for certain safety features was evident and applying the features to light trucks appeared feasible, rulemaking was not completed. Even when the manufacturers appeared to agree that some actions were warranted, the Safety Administration failed to act.

On March 13, 1978, the Safety Administration issued a new rulemaking plan which indicated that certain passenger car safety standards will be extended to light trucks. The agency, however, has previously developed plans and promised to extend many of the same standards to light trucks. Most of the standards discussed in this chapter were, at one time or another, planned for extension to light trucks. Even though many were incorporated into notices of proposed rulemaking, light trucks still remain exempt from safety features which have been on passenger cars for over 10 years. Although the Administrator has informed the Congress that improving the safety of these vehicles is one of the agency's top priorities, we see little actual movement in that direction.

CHAPTER 5

CONCLUSIONS, RECOMMENDATIONS, AND AGENCY COMMENTS

CONCLUSIONS

The occupants of any motor vehicle should be assured of a high degree of built-in safety against the risk of vehicle accidents and against the risk of death or injury when an accident does occur. To provide this safety, the Congress enacted the National Traffic and Motor Vehicle Safety Act of 1966. The Act requires the establishment of minimum standards for motor vehicle performance or motor vehicle equipment performance. The Congress recognized the differences in vehicle design which may necessitate different requirements within the standards on the basis of need for particular safety features and the feasibility of providing such features in each type of vehicle.

Since 1966, most of the Federal attention has been directed toward developing and applying safety standards to passenger cars. These efforts have been successful; the fatality and injury rates in passenger cars dropped noticeably after the safety features were put in the vehicles. However, other light-duty vehicles have not received the same degree of Federal attention, despite the indication that the safety of the occupants in these vehicles is less than that of those in passenger cars.

Light trucks (primarily pickup trucks and vans) are exempt from some of the major safety standards, such as braking, interior padding, head restraints, impact absorbing steering columns, side door strength, and roof crush resistance. Also, standards which have been applied to these vehicles often contain requirements that are less stringent than those for passenger cars. The safety of the passengers for this class of vehicle can no longer be ignored, since one out of every four light-duty vehicles built in the United States today is a light truck. The sales of these vehicles has risen dramatically in recent years and the future looks even more promising. As passenger cars become smaller, people who want or need a larger vehicle may have no alternative but to buy a light truck. The van will become even more attractive to passenger car buyers as smaller versions of vans become available.

Many light trucks have similar size and weight characteristics and passenger and cargo capacities as passenger cars. They also appear to have similar crash avoidance

and occupant protection needs. Some of the same requirements of the existing standards which currently apply only to passenger cars may be appropriate for many light trucks. For example, it would appear appropriate for vehicles of similar size and weight to have similar braking performance. It also appears reasonable to provide occupants of many light trucks with similar assurances as passenger car occupants against unreasonably hazardous dash panels and steering columns, as well as side and roof structures.

However, as light truck characteristics become substantially different from passenger cars, it becomes necessary to analyze how these affect standard applicability. As the characteristics change, the need for specific safety features may change, and the feasibility of applying safety features may either increase or decrease. The Safety Administration might find that some safety features are more difficult to apply to some light trucks, but that the greater need for such features justifies the greater effort. An example of this type might be steering column protection for vans.

We believe that expeditious rulemaking and research actions are warranted. The Safety Administration has done little to fully identify the problems or improve the safety of light trucks. Needed research has not been initiated, and only one notice of proposed rulemaking has been issued recently to extend the application of a safety standard to light trucks. On March 13, 1978, the Safety Administration issued a new rulemaking plan which indicated that certain passenger car safety standards will be extended to light trucks. The agency, however, has previously developed plans and promised to extend many of the same standards to light trucks. Most of the standards discussed in chapter 4 were, at one time or another, planned for extension to light trucks. Even though many were incorporated into notices of proposed rulemaking, light trucks still remain exempt from safety features which have been on passenger cars for more than 10 years. Although the Administrator has informed the Congress that improving the safety of these vehicles is one of the agency's top priorities, we see little actual movement in that direction.

In addition to improving vehicle safety, we believe the Safety Administration should serve the consumer by making information available regarding the relative safety of alternative vehicles. Such information would be in line with the Motor Vehicle Information and Cost Savings Act of 1972, which calls for consumer information on the

degree of safety afforded occupants of various vehicles involved in crashes. This information has not been developed. In addition, the series of vehicle categories, subcategories, and definitions used by the Safety Administration in applying safety standards, makes it extremely difficult for the consumer to determine what safety features are actually required for any one vehicle type.

Such information would let the consumer know what the inherent safety advantages or disadvantages are in different vehicles, as well as differences created by differing safety standard applicability. It could be used to let the consumer know that certain potential problems have been identified in particular vehicles and solutions have not yet been found or implemented. The following purposes could also be served:

- It would let the consumer know that there are safety differences among the alternative vehicles offered for sale.
- It would provide general information on what aspects of the vehicles perform better or worse than other vehicles.
- It could initiate some market pressure on vehicle manufacturers to improve the safety of vehicles.

Currently, a buyer cannot depend on getting complete and accurate safety information from dealers. To be effective, the information should be readily available to the consumer before the vehicle is purchased. One way to do this is to require vehicle manufacturers to provide some information on a window sticker. The information on the sticker could at least warn the consumer that there are differences in safety, and note the general categories of performance differences. Additional information could be provided in a pamphlet possibly published by the Safety Administration, and the window sticker could specify that the pamphlets are available where the vehicles are sold.

RECOMMENDATIONS

We recommend that the Secretary of Transportation direct the Safety Administration to take actions to improve the safety of light trucks. In cases where the need for safety features is known and applying the safety features to light trucks appears feasible, expeditious rulemaking should be initiated. In cases where the need or feasibility is in doubt, appropriate research should be started.

We also recommend that the Secretary take steps to provide prospective buyers with accessible objective information on the relative safety of the wide variety of vehicles offered for sale.

AGENCY COMMENTS

The Department of Transportation concurs that expeditious research and rulemaking are of great importance to improve the safety of light trucks. (See app. III.) The Department believes that the Safety Administration's new 5-year rulemaking plan, which establishes light truck safety as a major priority, should be given more emphasis in this report. We have done this in the discussion of each standard in chapter 4. This plan proposes that, where applicable, motor vehicle safety standards be extended to light trucks.

However, the plan is just the first step in the process. Similar plans which were announced in the past have not yet been fulfilled. To date, the Department has initiated few research or rulemaking actions which could lead to safer light trucks.

The Safety Administration concurs that providing consumers with information on the relative safety of alternative vehicles has a great deal of merit and plans further work in this area.

FEDERAL MOTOR VEHICLE
SAFETY STANDARD APPLICABILITY

Standard number	Title	Dates applicable to (note a)				All vehicles meet similar requirements
		type of vehicle (note b)				
		<u>PC</u>	<u>TR</u>	<u>MPV</u>	<u>BUS</u>	
100 series--accident avoidance:						
101	Control location, identification, and illumination	1/68	9/72	9/72	9/72	Yes
102	Transmission shift lever sequence, starter interlock, and braking effect	1/68	1/68	1/68	1/68	No
103	Windshield defrosting and defogging systems	1/68	1/68	1/68	1/68	No
104	Windshield wiping and washing systems	1/68	1/69	1/69	1/69	No
105	Hydraulic brake system	1/68	-	-	-	No
106	Brake hoses	1/68	9/74	1/68	9/74	No
107	Reflecting surfaces	1/68	1/68	1/68	1/68	Yes

a/Date of initial applicability shown.

b/PC-passenger cars; TR-trucks; MPV-multipurpose passenger vehicles; and BUS-buses.

APPENDIX I

Standard number	Title	Dates applicable to type of vehicle				All vehicles meet similar requirements
		<u>PC</u>	<u>TR</u>	<u>MPV</u>	<u>BUS</u>	
108	Lamps, reflective devices, and associated equipment	1/68	1/68	1/68	1/68	Yes
109	New pneumatic tires	1/68	-	-	-	No
110	Tire selection and rims	4/68	-	-	-	No
111	Rearview mirrors	1/68	1/68	1/68	1/68	Yes
112	Headlamp concealment devices	1/69	1/69	1/69	1/69	Yes
113	Hood latch systems	1/69	1/69	1/69	1/69	Yes
114	Theft protection	1/70	-	-	-	No
115	Vehicle identification number	1/69	-	-	-	No
116	Motor vehicle brake fluids	3/72	3/72	3/72	3/72	Yes
117	Retreaded pneumatic tires	1/72	-	-	-	No
118	Power-operated window systems	2/71	-	2/71	-	No
119	New pneumatic tires for ve- hicles other than passen- ger cars	-	3/75	3/75	3/75	No

APPENDIX I

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Standard number	Title	Dates applicable to type of vehicle				All vehicles meet similar requirements
		<u>PC</u>	<u>TR</u>	<u>MPV</u>	<u>BUS</u>	
120	Tire selection and rims for motor vehicles other than passenger cars	-	8/76	8/76	8/76	No
121	Air brake systems	-	3/75	-	1/78	No
122	Motorcycle brake systems	-	-	-	-	-
123	Motorcycle con- trols and displays	-	-	-	-	-
124	Accelerator con- trol systems	9/73	9/73	9/73	9/73	Yes
125	Warning devices	-	-	-	-	-
126	Truck-camper loading	-	-	-	-	-
200 series--crash survivability (during crash):						
201	Occupant pro- tection in in- terior impact	1/68	-	-	-	No
202	Head restraints	1/69	-	-	-	No
203	Impact protec- tion for the driver from the steering con- trol system	1/68	-	-	-	No
204	Steering control rearward dis- placement	1/68	-	-	-	No
205	Glazing materials	1/68	1/68	1/68	1/68	Yes

APPENDIX I

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Standard number	Title	Dates applicable to type of vehicle				All vehicles meet similar requirements
		<u>PC</u>	<u>TR</u>	<u>MPV</u>	<u>BUS</u>	
206	Door locks and door retention components	1/68	1/72	1/70	-	No
207	Seating systems	1/68	1/72	1/72	1/72	Yes
208	Occupant crash protection	1/68	7/71	7/71	7/71	No
209	Seat belt assemblies	3/67	3/67	3/67	3/67	Yes
210	Seat belt assembly anchorage	1/68	7/71	7/71	7/71	Yes
211	Wheel nuts, wheel discs, and hub caps	1/68	-	1/68	-	No
212	Windshield mounting	1/70	9/78	9/78	9/78	No
213	Child seating systems	-	-	-	-	-
214	Side door strength	1/73	-	-	-	No
215	Exterior protection	9/72	-	-	-	No
216	Roof crush resistance	8/73	-	-	-	No
217	Bus window retention and release	-	-	-	9/73	No
218	Motorcycle helmets	-	-	-	-	-
219	Windshield zone intrusion	9/76	9/77	9/77	9/77	No

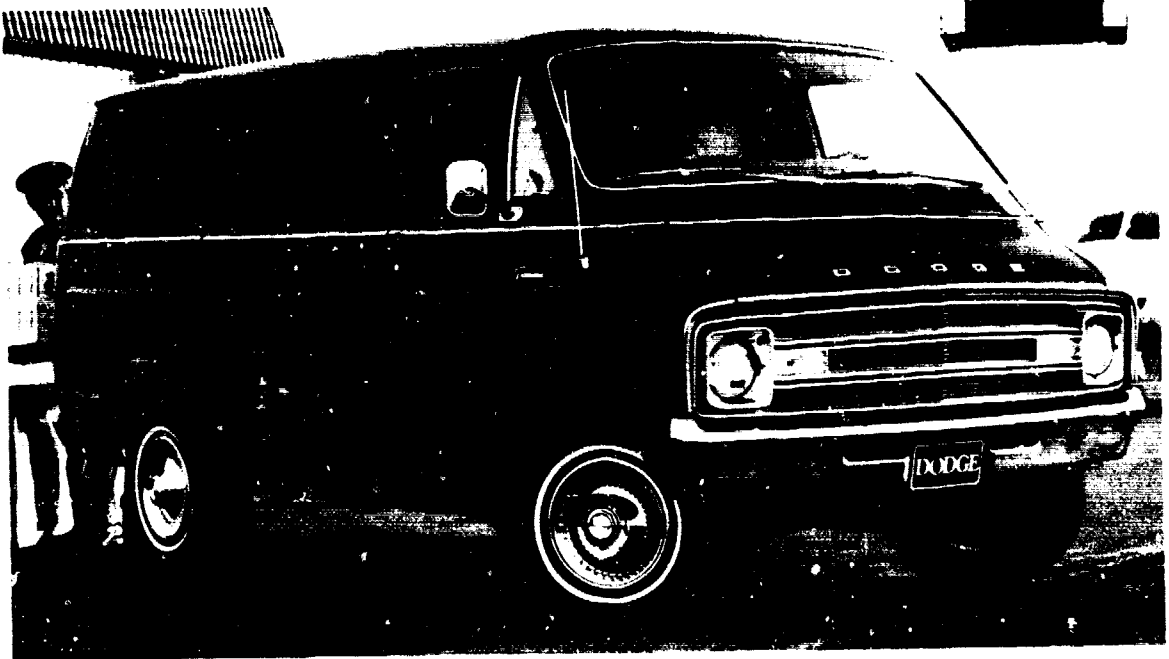
APPENDIX I

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<u>Standard number</u>	<u>Title</u>	<u>Dates applicable to type of vehicle</u>				<u>All vehicles meet similar requirements</u>
		<u>PC</u>	<u>TR</u>	<u>MPV</u>	<u>BUS</u>	
220	School bus roll- over protection	-	-	-	-	-
221	School bus body joint strength	-	-	-	-	-
222	School bus pas- senger seating and crash protection	-	-	-	-	-

300 series--crash survivability
(after crash):

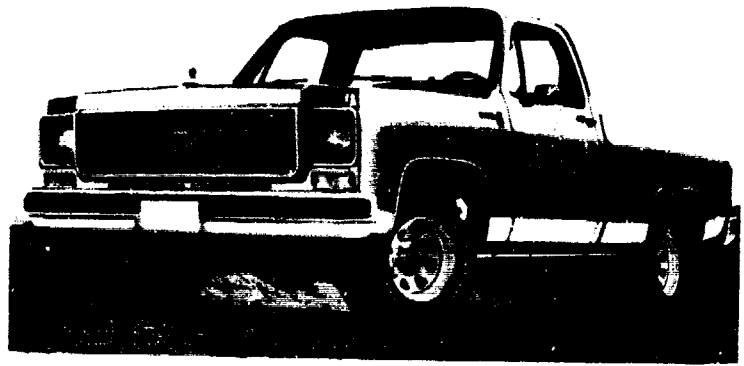
301	Fuel system integrity	1/68	9/76	9/76	9/76	Yes
302	Flammability of interior materials	9/72	9/72	9/72	9/72	Yes



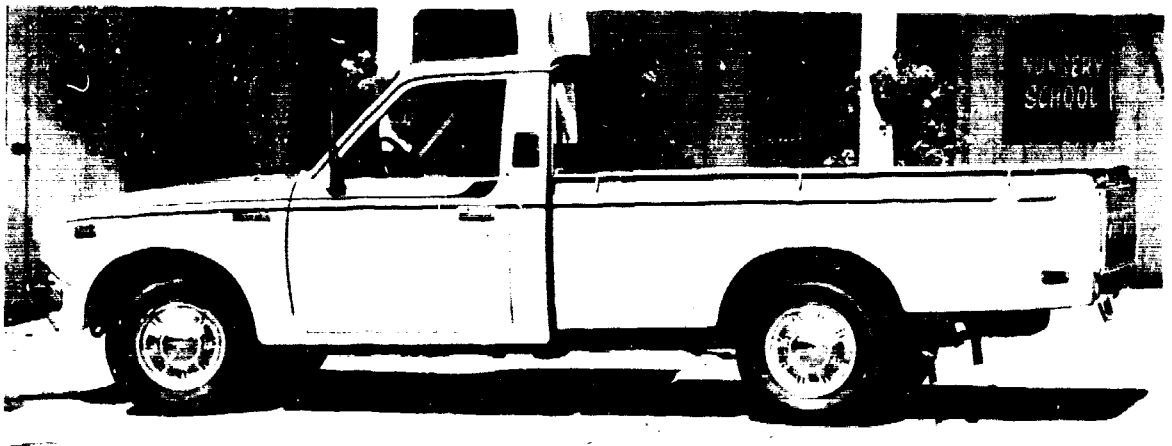
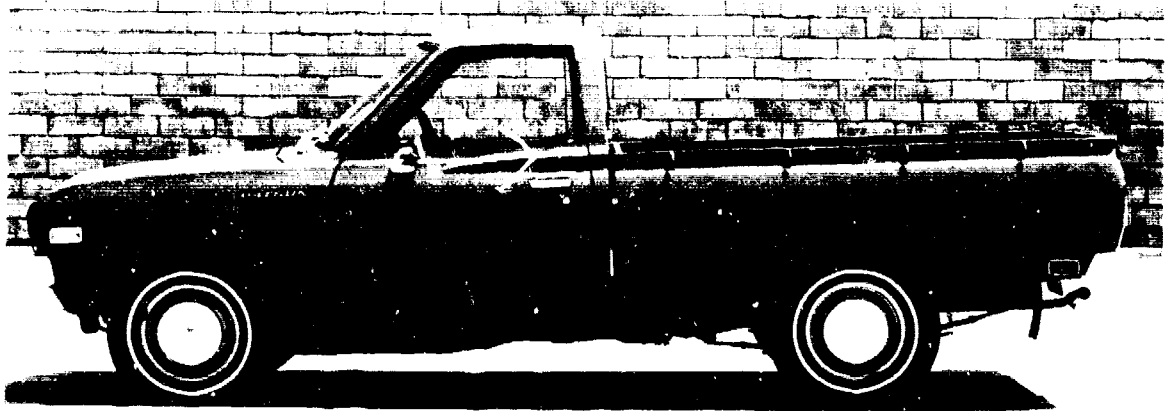
Truck – Forward Control (2 Passenger Van)



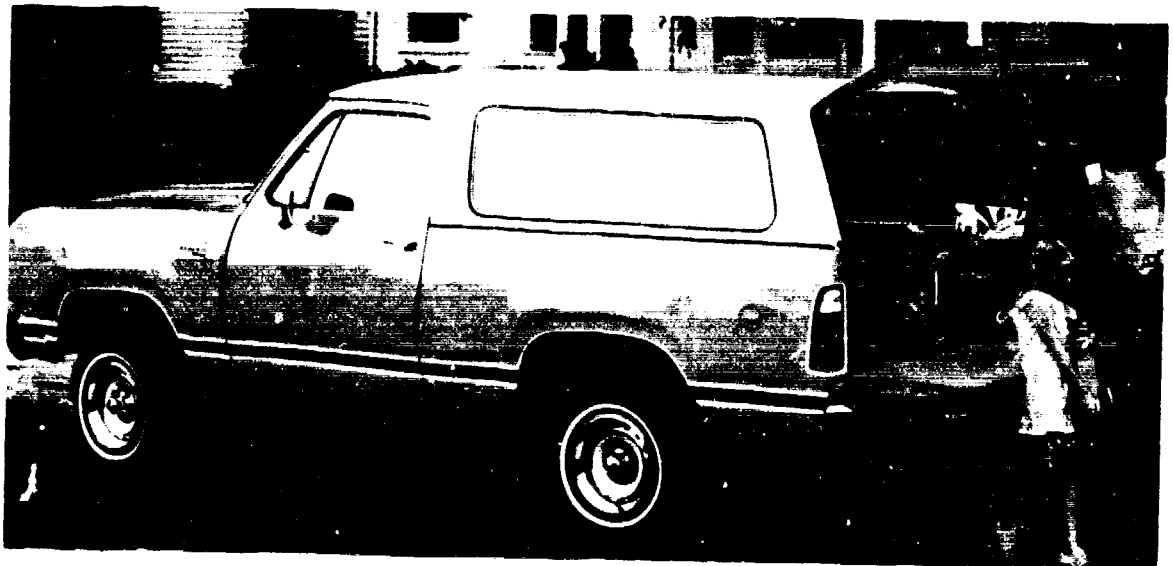
Multipurpose Passenger Vehicle (Not Forward Control)
(8 Passenger Van)



Trucks



Trucks



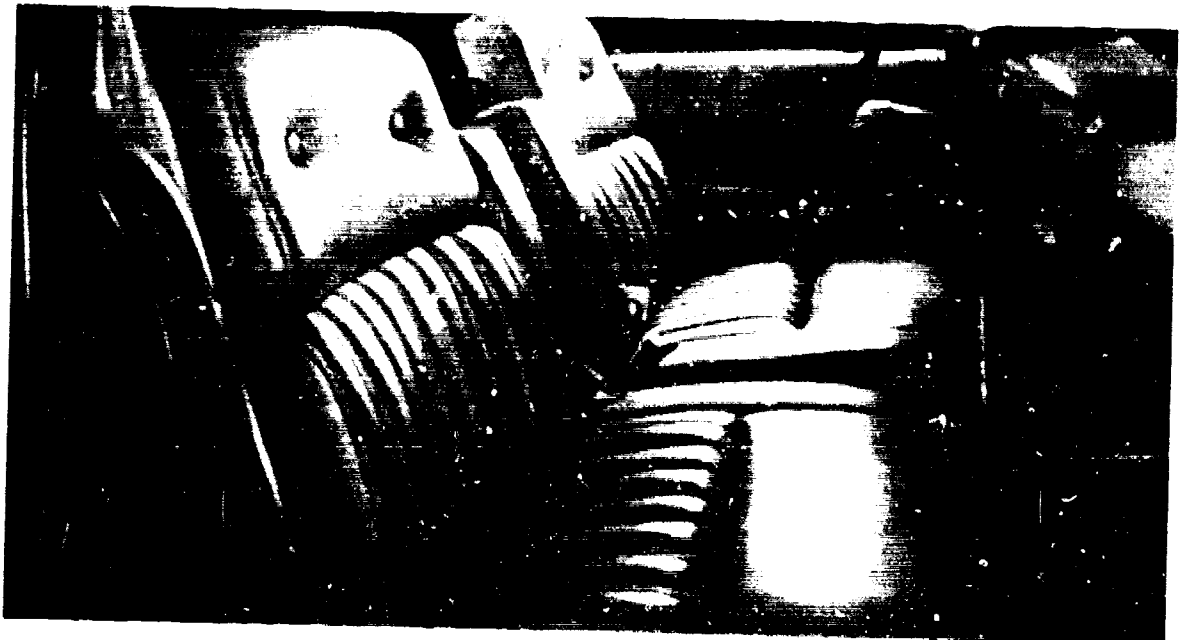
Multipurpose Passenger Vehicles



Multipurpose Passenger Vehicles



Bus Seating
(12 Passenger Van — Forward Control)



Truck Seating



OFFICE OF THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

ASSISTANT SECRETARY
FOR ADMINISTRATION

May 22, 1978

Mr. Henry Eschwege
Director
Community and Economic
Development Division
General Accounting Office
Washington, D.C. 20548

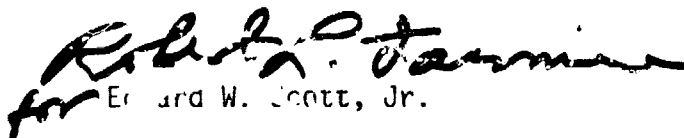
Dear Mr. Eschwege:

We have enclosed two copies of the Department of Transportation response to the General Accounting Office (GAO) draft report "Federal Action Delayed on Light Truck Safety."

The Department is committed to improving the safety of light trucks, and we agree that expeditious rulemaking and research in this area are of great importance. The GAO draft report, however, makes only passing reference to the National Highway Traffic Safety Administration's five year Rulemaking Plan which includes light truck safety as a major priority. Since the GAO draft report may have been prepared before our Rulemaking plan was published, we believe that the report should be revised to include a more balanced statement of our current activities and future priorities in the area of light truck safety. The Department will continue to assign high priority to research in support of rulemaking for these vehicles.

If we can assist you further please let us know.

Sincerely,


for Edward W. Scott, Jr.

Enclosure

DEPARTMENT OF TRANSPORTATION

REPLY TO

GAO DRAFT REPORT OF APRIL 3, 1978

ON

FEDERAL ACTION DELAYED ON LIGHT TRUCK SAFETY

SUMMARY OF GAO FINDINGS AND RECOMMENDATIONSFINDINGS:

Since 1966, most of the Federal attention has been directed towards developing and applying safety standards to passenger cars. These efforts have been successful -- the fatality and injury rates in passenger cars dropped noticeably after the safety features were put in the vehicles. However, other light-duty vehicles have not received the same degree of Federal attention, despite the indication that the relative safety of the occupants in these vehicles is less than that experienced in passenger cars.

Light trucks (primarily pickup trucks, and vans) are exempt from some of the major safety standards such as braking, interior padding, head restraints, impact absorbing steering columns, side door strength, and roof crush resistance. Also, other standards which have been applied to these vehicles often contain requirements that are less stringent than those for passenger cars. The safety of the passengers for this class of vehicle can no longer be ignored since one out of every four light-duty vehicles built in the United States today is a light truck. Some of the same requirements of the existing standards which currently apply only to passenger cars may be appropriate for many light trucks.

However, as light truck characteristics become substantially different than passenger cars, it becomes necessary to analyze how these affect standard applicability. As the characteristics change, the need for specific safety features can either be increased or decreased. The Safety Administration might find some safety features which are more difficult to apply to some light trucks but that the greater need for such features justifies the greater effort necessary.

We believe that expeditious rulemaking and research actions are warranted. The Safety Administration has done little to fully identify the problems or improve the safety of light trucks. Needed research has not been initiated and only one notice of proposed rulemaking has been issued recently to extend the application of a safety standard to light trucks.

Although the Administrator has informed the Congress that improving the safety of these vehicles is one of the Agency's top priorities, we see little actual movement in that direction.

In addition to improving vehicle safety, we believe the Safety Administration should also serve the consumer by making information available regarding the relative safety of all vehicles.

RECOMMENDATIONS

We recommend that the Secretary of Transportation direct the Safety Administration to take actions to improve the safety of light trucks. In cases where the need for safety features is known and applying the safety features to light trucks appears feasible, expeditious rulemaking should be initiated. In cases where the need or feasibility is in doubt, appropriate research should be started.

We also recommend that the Secretary take steps to provide prospective buyers with ready access to objective information on the relative safety of the wide variety of vehicles offered for sale.

SUMMARY OF DEPARTMENT OF TRANSPORTATION POSITION

The GAO suggests that the Secretary of Transportation direct NHTSA to take actions to improve the safety of light trucks. Apparently the GAO is not aware that several months ago the NHTSA informed the Secretary of Transportation that it intended to take a number of actions to improve the safety of vans and light trucks. The priorities clearly spelled out in our new rulemaking plan are not included in the report. The GAO April 3, 1978, draft report made only a passing reference to the agency's 5-year rulemaking plan which was issued on March 13, 1978. This plan proposes that, where applicable, motor vehicle safety standards be extended to light trucks and vans. However, GAO goes on to suggest that we should do basic research even where NHTSA decided an item was not of high priority and to extend standards because there is no industry opposition, even if we saw no utility to such extensions.

Rulemaking for light trucks is a major priority in the NHTSA rulemaking plan, yet, GAO says that "Although the Administrator has informed the Congress that improving the safety of these vehicles is one of the Agency's top priorities, we see little actual movement in that direction." ^{1/} This is an unfair conclusion and disregards extensive planning efforts as reflected in our Rulemaking Plan. The GAO does not define "little actual movement." Apparently preparation of proposed rules is not sufficient. In contrast, industry assertions (e.g., p. 63 on side door beams) are often accepted uncritically. It is true that the agency for a number of years failed to recognize the increased use of light trucks and vans for personal transportation purposes and failed to assign higher priorities to research in support of rulemaking for such vehicles. Research and rulemaking plans underway since last fall do not perpetuate these deficiencies. It appears the GAO has looked at the agency's announced priority and said it should be a priority.

1/ Page 78, GAO draft

In reviewing the GAO report, it is apparent that the relative aggressivity of the truck in two-vehicle collisions (truck-to-passenger-vehicle) has not been covered. Early statistics for 1975 and 1976 indicate that in these two-vehicle accidents where fatalities occur, more than 70 percent of the fatalities are experienced by occupants of the passenger car. That is, the difference in weight, stiffness, etc., between the truck and car puts the occupants of the car at a pronounced disadvantage. This condition does not contradict the GAO statements regarding the higher rate of fatalities in truck accidents since the stiffness parameters of the truck will also tend to transmit higher loads to the occupant in single vehicle accidents (truck-into-bridge-abutment, etc.). However, in developing safety standards for trucks and vans, the reduction of the aggressive characteristics must be a leading factor. In establishing a less aggressive truck frontal structure, the single vehicle collision will also be improved by the better energy management (more crush) requirements. Any report to Congress should include this vehicle mix-interaction consideration.

NHTSA is presently developing a statement of work to study and define these parameters.

POSITION STATEMENT

The most serious deficiency of the report is that GAO has failed to recognize the commitment made to light truck safety by the Agency in the Program Plan. The report was apparently drafted before the Program Plan was published and, at the very least, the report should be revised to balance the criticism of past Agency inaction against the items in the Program Plan showing current or future actions. The conclusions and recommendations should be in terms of what GAO believes should be done that is not covered in the Program Plan.

The format for the individual safety standard discussions is misleading relative to the industry comments. Industry comments are presently without GAO analysis leading the reader to conclude that the GAO accepts these comments. The reader is unable to determine how industry comments assisted the GAO in their conclusions and recommendations.

There are several references made to an unidentified "standard engineer" with whom GAO has talked. Statements allegedly made by this unidentified source are taken to be NHTSA policy statements, resulting in erroneous conclusions by GAO.

As a result, the report is internally inconsistent and in some parts obsolete. Our specific comments are attached.

Attachment [See GAO Note]

GAO note: Attachment was deleted because specific agency comments were incorporated into the report as appropriate.



U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
WASHINGTON, D.C. 20590

MAY 30 1978

THE ADMINISTRATOR

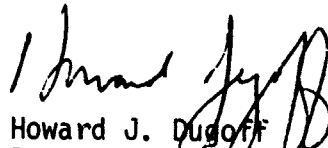
Mr. Henry Eschwege
Director
Community and Economic
Development Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

It has come to my attention that a further response is in order from the National Highway Traffic Safety Administration to the General Accounting Office's recommendation that the "... Secretary take steps to provide prospective buyers (of light trucks) with ready access to objective information on the relative safety of the wide variety of vehicles offered for sale."

As you may know, the efforts of this Agency to develop a basis for comparing the safety of motor vehicles and disseminating the information to consumers is being given substantial new emphasis. A new office has been established and we intend to rekindle an effort that has received little attention in the recent past. While most of the past effort has been geared towards rating passenger automobiles, we see a great deal of merit in pursuing the development and dissemination of comparative safety information for light trucks. Many of the technical problems associated with rating passenger automobiles could also be problems with rating light trucks. We nonetheless plan further work in this area.

Sincerely,


Howard J. Dugoff
Deputy Administrator

PRINCIPAL OFFICIALS
RESPONSIBLE FOR ADMINISTERING
ACTIVITIES DISCUSSED IN THIS REPORT

Tenure of office
From To

DEPARTMENT OF TRANSPORTATION

SECRETARY OF TRANSPORTATION:

Brock Adams	Jan. 1977	Present
William Coleman	Mar. 1975	Jan. 1977
John W. Barnum (acting)	Feb. 1975	Mar. 1975
Claude S. Brinegar	Feb. 1973	Feb. 1975
John A. Volpe	Jan. 1969	Feb. 1973
Alan S. Boyd	Jan. 1967	Jan. 1969

ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC

SAFETY ADMINISTRATION (note a):

Joan Claybrook	Apr. 1977	Present
Alan A. Butchman (acting)	Mar. 1977	Apr. 1977
John W. Snow	July 1976	Mar. 1977
James B. Gregory	Aug. 1973	July 1976
Vacant	Apr. 1973	Aug. 1973
Douglas W. Toms	Jan. 1970	Mar. 1973
Robert Brenner (acting)	Feb. 1969	Jan. 1970
William Haddon	Apr. 1967	Feb. 1969

a/The predecessor agency, National Highway Safety Bureau, was part of the Federal Highway Administration before March 1970, and the title of Director changed to Administrator in July 1971.