1014

AUTOMOBILE SEAT BELT STANDARDS

HEARING

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE HOUSE OF REPRESENTATIVES

EIGHTY-SEVENTH CONGRESS

SECOND SESSION

ON

H.R. 134

A BILL TO PROVIDE THAT SEAT BELTS SOLD OR SHIPPED IN INTERSTATE COMMERCE FOR USE IN MOTOR VEHICLES SHALL MEET CERTAIN SAFETY STANDARDS

AUGUST 17, 1962

Printed for the use of the
Committee on Interstate and Foreign Commerce

U.S. GOVERNMENT PRINTING OFFICE
88693 WASHINGTON : 1962

COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE

OREN HARRIS, Arkansas, *Chairman*

JOHN BELL WILLIAMS, Mississippi
PETER F. MACK, JR., Illinois
KENNETH A. ROBERTS, Alabama
MORGAN M. MOULDER, Missouri
HARLEY O. STAGGERS, West Virginia
WALTER ROGERS, Texas
SAMUEL N. FRIEDEL, Maryland
TORBERT H. MACDONALD, Massachusetts
GEORGE M. RHODES, Pennsylvania
JOHN JARMAN, Oklahoma
LEO W. O'BRIEN, New York
JOHN E. MOSS, California
JOHN D. DINGELL, Michigan
JOE M. KILGORE, Texas
PAUL G. ROGERS, Florida
ROBERT W. HEMPHILL, South Carolina
DAN ROSTENKOWSKI, Illinois
JAMES C. HEALEY, New York
HORACE R. KORNEGAY, North Carolina

JOHN B. BENNETT, Michigan
WILLIAM L. SPRINGER, Illinois
PAUL F. SCHENCK, Ohio
J. ARTHUR YOUNGER, California
HAROLD R. COLLIER, Illinois
MILTON W. GLENN, New Jersey
SAMUEL L. DEVINE, Ohio
ANCHER NELSEN, Minnesota
HASTINGS KEITH, Massachusetts
WILLARD S. CURTIN, Pennsylvania
ABNER W. SIBAL, Connecticut
VERNON W. THOMSON, Wisconsin
PETER H. DOMINICK, Colorado

W. E. WILLIAMSON, *Clerk*
KENNETH J. PAINTER, *Assistant Clerk*

Professional Staff

ANDREW STEVENSON
KURT BORCHARDT
SAM G. SPAL
MARTIN W. CUNNINGHAM

SUBCOMMITTEE ON HEALTH AND SAFETY

KENNETH A. ROBERTS, Alabama, *Chairman*

GEORGE M. RHODES, Pennsylvania
LEO W. O'BRIEN, New York
PAUL G. ROGERS, Florida

PAUL F. SCHENCK, Ohio
ANCHER NELSEN, Minnesota
PETER H. DOMINICK, Colorado

CONTENTS

AUTOMOBILE SEAT BELT STANDARDS

FRIDAY, AUGUST 17, 1962

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON HEALTH AND SAFETY OF THE
COMMITTEE ON INTERSTATE AND FOREIGN COMMERCE,
Washington, D.C.

The subcommittee met at 10 a.m., pursuant to call, in room 1334, New House Office Building, Hon. Paul G. Rogers presiding.

Mr. ROGERS of Florida. The Subcommittee on Health and Safety of the Committee on Interstate and Foreign Commerce of the House of Representatives will come to order.

This morning we are having a hearing on H.R. 134, a bill to provide that seat belts sold or shipped in interstate commerce for use in motor vehicles shall meet certain safety standards.

This is a very important measure to protect the health and safety of our people. As everyone knows, many, many thousands of people lose their lives and are seriously injured in automobile accidents every year. Anything that we can do to minimize the slaughter on the highways is very beneficial.

I regret to state that the chairman of the subcommittee, Mr. Roberts, the author of this bill, is unfortunately called out of the city owing to a death in the family. I know he would want us to continue with the hearings as scheduled.

A copy of the bill and the agency reports will be included in the record at this point.

(The documents referred to follow:)

[H.R. 134, 87th Cong., 1st sess.]

A BILL To provide that seat belts sold or shipped in interstate commerce for use in motor vehicles shall meet certain safety standards.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of Commerce shall prescribe and publish in the Federal Register standards for seat belts for use in motor vehicles. Such standards shall be designed to provide the public with safe seat belts so that passenger injuries in motor vehicle accidents can be kept to a minimum. Standards first established under this section shall be prescribed and published not later than one year after the date of enactment of this Act.

SEC. 2. (a) The manufacture for sale, the sale, or the offering for sale, in interstate commerce, or the importation into the United States, or the introduction, delivery for introduction, transportation or causing to be transported in interstate commerce, or for the purpose of sale, or delivery after sale, in interstate commerce, of any seat belt manufactured on or after the date this section takes effect shall be unlawful unless such seat belt meets the standards prescribed by the Secretary of Commerce as set forth in the first section of this Act.

(b) Whoever violates this section shall be fined not more than $1,000, or imprisoned not more than one year or both.

SEC. 3. As used in this Act—

(1) The term "interstate commerce" includes commerce between one State, Territory, possession, the District of Columbia, or the Commonwealth of Puerto Rico and another State, Territory, possession, the District of Columbia, or the Commonwealth of Puerto Rico.

(2) The term "motor vehicle" means any other vehicle or machine propelled or drawn by mechanical power and used on the highways principally in the transportation of passengers.

(3) The term "seat belt" means any strap, webbing, or similar device designed to secure a passenger in a motor vehicle in order to mitigate the results of any accident, including all necessary buckles, and other fasteners, and all hardware designed for installing such seat belt in a motor vehicle.

SEC. 4. This Act shall take effect on the date of its enactment except that section 2 shall take effect on such date as the Secretary of Commerce shall determine but such date shall be not less than one hundred and eighty days nor more than one year after the date of publication of standards first established under the first section of this Act. If such standards first established are thereafter changed, such standards as so changed shall take effect on such date as the Secretary of Commerce shall determine but such date shall be not less than one hundred and eighty days nor more than one year after the date of their publication in accordance with the provisions of the first section of this Act.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington, D.C., August 16, 1962.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, House Office Building,
Washington, D.C.

DEAR MR. CHAIRMAN: This is in response to your request for the views of the Bureau of the Budget on H.R. 134, a bill to provide that seat belts sold or shipped in interstate commerce for use in motor vehicles shall meet certain safety standards.

The Department of Commerce, in its report to your committee on this bill, is recommending its enactment for the reason that the promulgation of standards embodied in H.R. 134 would promote the public interest by improvement of safety on our highways.

The Bureau of the Budget would have no objection to enactment of this legislation.

Sincerely yours,

(Signed) PHILLIP S. HUGHES,
Assistant Director for Legislative Reference.

THE SECRETARY OF COMMERCE,
Washington, D.C., August 21, 1962.

Hon. OREN HARRIS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This is in further reply to your request for the views of the Department of Commerce with respect to H.R. 134, a bill to provide that seat belts sold or shipped in interstate commerce for use in motor vehicles shall meet certain safety standards.

H.R. 134 would require the Secretary of Commerce to prescribe and publish standards for motor vehicle seat belts, and would provide criminal penalties for certain transactions in interstate commerce respecting substandard seat belts manufactured after the effective date of the standards prescribed by the Secretary.

The Department of Commerce would favore enactment of H.R. 134.

After extensive hearings on the subject of seat belts conducted in 1957, the Special Subcommittee on Traffic Safety of the Committee on Interstate and

Foreign Commerce, House of Representatives, concluded in its report (H. Rept. 1275, 85th Cong., 1st sess.) as follows:

"It is the opinion of the subcommittee * * * that seat belts, properly manufactured and properly installed, are a valuable safety device and careful consideration for their use should be given by the motoring public."

H.R. 134 would relate directly to one significant condition of such conclusion, "properly manufactured."

The Department of Commerce, in recognition of the value of adequate seat belts, has been requiring the installation of this equipment in its own vehicles for over a year. While the accident experience of this Department has not been numerically extensive enough during this period to warrant a statistical conclusion it has been demonstrated clearly by the nature and circumstances of several major collisions involving Department vehicles that the required seat belts have prevented fatal or serious injury. These seat belts were purchased and installed pursuant to Federal standards promulgated by the General Services Administration for governmental procurement.

Encouragement of the general use of seat belts by the motoring public has been the objective of nationwide educational and promotional programs conducted by private organizations, as well as by the Federal agencies concerned. Moreover, three States have enacted legislation requiring the installation of belts in new cars in those States. Ample evidence exists that these programs are beginning to show results. However, these efforts, governmenal and private, could be largely nullified if a substantial segment of the public were to be furnished equipment which was improperly manufactured, and offered little or not real protection. Not only would the inadequate seat belts fail their users, but public confidence in the value of the equipment generally could be seriously impaired. With the rapidly growing public acceptance of and demand for seat belts, there is a present danger that a good part of this demand may be met by the marginal operator offering an inadequate and unsafe product.

It is true that standards for most of the American automotive industries are determined cooperatively by the industries themselves, national standards groups, Federal agencies such as General Services Administration and this Department, rather than under the authority of Federal legislation. However, as the President pointed out in his March 15, 1962, message on consumer protection and interest program, consumers have a right to be protected against the marketing of goods which are hazardous to health or life. The President made clear that the Federal Government had a responsibility to consumers in the exercise of this right and that additional legislation would be required in some fields for the Federal Government to meet such responsibilities. The Department of Commerce believes that substandard seat belts are a hazard to the safety of the public and that the Federal Government may therefore justifiably be considered to have a responsibility in this area. Moreover the seat belt is actually a unique item of personal safety equipment, originally derived from aircraft practice, rather than a safety feature which is exclusively automotive.

The Federal Aviation Agency has promulgated standards governing certain aircraft equipment by issuance of technical standards orders, which refer to or incorporate the standards or criteria of authoritative industry organizations. In the trucking field, certain technical requirements established by the Interstate Commerce Commission for commercial carriers are referenced by a similar means to specifications and standards of the Society of Automotive Engineers.

Inasmuch as the bill deals only with the quality of belts and related hardware, rather than with such traditional State matters and installations and use, it would appear to furnish a new ground for effective Federal-State cooperation. We believe that the promulgation of such standards as would be required by H.R. 134 would be desirable and advantageous to the interests of the general public and would unquestionably promote safety on our highways.

The Bureau of the Budget advised there would be no objection to the submission of this report from the standpoint of the administration's program.

Sincerely yours,

EDWARD GUDEMAN,
Under Secretary of Commerce.

Mr. ROGERS of Florida. I see our colleague, Congressman Kyl, and I wondered if he wanted to testify?

Mr. KYL. I would like to make a statement, Mr. Chairman.

Mr. ROGERS of Florida. The committee will be pleased to have your statement now if you would desire.

STATEMENT OF HON. JOHN KYL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF IOWA

Mr. KYL. Mr. Chairman, as you indicated in your opening remarks, this is not a picayune little problem that we are discussing here. We have spent much time in the Congress of the United States talking about diseases, about safety factors which involve much less in human suffering and in loss of life and in property than is involved in this matter of safety seat belts and the subject of highway safety in general.

I appear this morning, Mr. Chairman, to designate my interest in the safety belt field in its entirety and to the development of proper safety standards.

On January 25 last year I introduced H.R. 3295, a bill which would require that all automobiles sold in interstate commerce a year after enactment would be equipped with approved seat belts. Obviously if there were no proper standards, such devices would only give a false sense of security, perhaps would contribute to the problem rather than help solve it and would also mean a hoodwinking of the public so far as the ethics of selling are concerned.

I would hope that that measure becomes law and as a prelude I certainly hope that the proposal under consideration today becomes law.

Even if neither does actually become law, the fact that the Congress is taking time and that this fine committee has recognized the significance of the problem should assist in giving publicity both to the use of safety belts and to general highway safety.

I would like to point out, Mr. Chairman, that the latest figures available point to the seriousness of the matter before us. When we are talking about safety belts we should interpret or limit the general overall statistics. Last year 29,850 people died in automobile accidents in automobiles. In other words, this figure, 29,850, does not include those people who were killed as pedestrians, as cyclists, or any other category, only those people killed in actual automobile accidents.

In that same definitive character, 1,253,000 people were injured in automobile accidents as such. The rate of these injuries is greatest in the age group between 15 and 24. In fact, in that group there were 1,600 injuries per 100,000 persons, which in itself is a very striking and a very frightening figure.

There were 10 million hospital days spent last year because of automobile accidents. There were 1,400,000 disabling injuries and 8.5 percent of these resulted in permanent disability.

The best estimates we can find indicate that proper seat belts could perhaps reduce this total of serious injuries by 35 percent. When we are dealing in such figures as these, we can readily see that this matter is very important.

It is also interesting to note that those who must help prevent accidents, the safety conscious, the law enforcement officers, and investi-

gators, with very few exceptions, endorse the belt as a realistic and valuable safety device.

Many governmental agencies as you know have provided for the installation of seat belts and many individuals who have utilized seat belts pursuant to that policy have credited the seat belt with preventing serious injury or even death.

We usually interpret statistics which are cold and hard in terms of personal experience. Only 2 weeks ago a very dear friend of mine narrowly missed death. He was crossing an intersection in his automobile when a car approaching the right side of his car hit him broadside at a good rate of speed. He was thrown through the windshield with great force and with great injury.

The interesting thing here is that he was not thrown into the windshield ahead of the steering wheel, but at the extreme upper righthand corner of the windshield. When I said, "Do you think maybe a safety belt would have prevented this?" he said, "It is interesting you should ask because the patrolman said flatly a safety belt would have prevented my personal injury almost entirely."

We all know of such instances. While I certainly would not want to get involved in the emotional side of this thing, it is difficult to make cold statistics tell the facts.

I say again that unless we have the kind of standards which are necessary, these safety devices could become a mockery which would actually hurt the entire safety effort rather than assist it.

I would summarize very briefly by reading to you, Mr. Chairman, a quotation by Dr. Leroy E. Berney, who said:

> This seat belt is the most effective available means to bring about an immediate reduction in automobile accident deaths and injuries.

I would personally append to that statement once more the fact that unless there are satisfactory standards, this goal could not be accomplished.

I thank you, Mr. Chairman.

Mr. ROGERS of Florida. Thank you very much.

Any questions?

Mr. SCHENCK. Mr. Chairman, I want to commend our colleague, Mr. Kyl, for his longtime continuing interest in the problems of automobile and traffic safety and to assure him that this committee has also had a longtime interest in rather extensive hearings on the value of seat belts in automobiles. I do not know how many of these 29,000 to whom you have referred in these fatal accidents would have been saved if seat belts had been in use but our hearings have indicated that a very substantial number of fatal accidents and injuries would have been prevented as is the case in the injury of your friend that you mentioned.

The entire automotive industry has also been deeply interested in these questions and the 1963 models will have seat belt anchorage attachments through voluntary action of the industry on all automobiles so that it is very simple to snap a seat belt into place.

The bill we have under consideration here in addition to yours would establish certain requirements as standards for seat belts and make them withstand certain pressures which we feel is very important in order to protect the public from buying a safety appliance that may not measure up to its complete expectation.

88693—62——2

I would also like to say, Mr. Chairman, that in my own personal experience and in the experience of others, in addition to the safety feature of seat belts, actually seat belts improve the comfort in riding in the automobile.

I wonder if our friend has any further comment because I want to assure him that personally I think all the members of our committee are deeply dedicated to the principle that the use of seat belts should be encouraged in every possible way.

Mr. KYL. If the gentleman will permit, I mentioned not the overall death and accident figures here, but those in which seat belts could have been a factor.

There is another thing of which the gentleman reminds me. I think the use of seat belts, and I say this as a result of some personal experience, enables the driver to better control his car in unusual circumstances and therefore might even help in some of these other pedestrian, cyclist, and so on accidents that occur.

In connection with another subject mentioned, I realize this is not the subject of discussion today, it has been my view that if automobiles sold in interstate commerce had seat belts as a requirement under law that the automobile manufacturers as a matter of competition in a field which is keenly competitive would then perhaps strive even harder to develop not only the best kinds of seat belts there are in the present concepts but also improve in such matters as possibly shoulder straps or other devices of which we have not even thought at this time.

Also the inclusion at the factory would make the installation more reasonably priced beyond a doubt and probably would remove another objection so many people have that the belts they put in their cars do not harmonize with the interiors and so on, again a problem which I have witnessed personally because my daughter has objected very strenuously to the very bright blue color of the belts which were installed in our automobile.

I mentioned a moment ago in regard to this first factor a little personal experience. One time on an icy stretch of road when the car slid into the ditch, since I was rather securely fastened behind the wheel, I was quite confident that I was better able to control the car and prevent a more serious accident than that in which I was involved.

Mr. ROGERS of Florida. Thank you very much. The subcommittee certainly does appreciate your help and testimony this morning and your deep interest in this subject.

The next witness will be Mr. James K. Williams, Director of the Office of Highway Safety, Bureau of Public Roads.

Mr. Williams, the committee will be pleased to hear from you.

STATEMENT OF JAMES K. WILLIAMS, DIRECTOR, OFFICE OF HIGHWAY SAFETY, BUREAU OF PUBLIC ROADS

Mr. WILLIAMS. Mr. Chairman and members of the committee, I am pleased to represent the Department of Commerce at this hearing concerning standards for automobile seat belts. While I assumed duties as Director of the Office of Highway Safety in the Bureau of Public Roads only last month, my interest in the use of seat belts dates back over a number of years.

Prior to my present position, I served for 6 years as executive director of the Connecticut Safety Commission. In this capacity, I was responsible for the coordination of Connecticut's statewide traffic safety program—including public education activities to promote the installation and use of automobile seat belts.

Prior to that I served as a district director on the field staff of the National Safety Council and also served for 4 years as director of the Safety Council of Western Massachusetts, a regional safety organization.

I mention this professional experience in the field of traffic safety only to indicate that I have been in a position to observe the growing public interest in automobile seat belts from a community, a State, and a National perspective.

In reviewing previous testimony before this committee it is obvious that a large amount of evidence has been made available as to the value of automobile seat belts as a device to reduce injury to automobile occupants involved in traffic accidents.

Traffic safety officials realize that automobile seat belts are not intended, or perhaps I should emphasize not primarily intended, to prevent traffic accidents, but reliable studies show that the universal installation of seat belts could reduce fatal and serious injuries by one-third.

I noted from Congressman Kyls' comments that he referred to a personal experience in which the seat belts gave him the type of security to maintain better control of the car in a situation where he might have lost control. I think this is another value of seat belts over and above the injury reduction qualities.

During the past several years Federal agencies, National safety organizations, and State and community safety agencies have conducted intensive educational programs to create a public interest in and a public acceptance of automobile seat belts as an important automotive safety device.

From all indications these educational efforts have been effective. Survey reports reveal that the motoring public is becoming increasingly aware of the value of seat belts. This is evidenced by the growing number of sales and installations of seat belts in private and commercial passenger vehicles.

As an example, seat belts were directed to be installed in all passenger vehicles operated by the Department of Commerce in April 1961. At the present time, seat belts have been installed in 1,018 Department of Commerce vehicles. The vehicles rented by the Department from the General Services Administration would raise this number to over 2,000 vehicles.

In the light of efforts to promote the installation and use of automobile seat belts in all passenger vehicles, it would appear both desirable and necessary to protect the public from inferior seat belts placed on the market by some manufacturers and dealers who are more concerned with profit than with the public safety. The vast majority of seat belt manufacturers are vitally concerned with maintaining high standards of quality. Unfortunately, however, a newly created public demand for a product often results in the marketing of substandard equipment.

Automobile seat belts of inferior quality and design have been placed, and are now, on the market in response to the growing public interest in automotive safety devices. There is no way to determine exactly how many substandard seat belts are now being used by unsuspecting motorists, but the number will increase unless, and until, there is some means to regulate through standards.

The States have traditionally exercised regulatory authority of motor vehicle safety features, and there may be some question as to the entry of the Federal Government into the field of the automotive safety standards.

However, as the President pointed out in his March 15, 1962, message on consumer protection and interest program, consumers have a right to be protected against the marketing of goods which are hazardous to health or life. The President made clear that the Federal Government has a responsibility to consumers in the exercise of this right and that additional legislation would be required in some fields for the Federal Government to meet such responsibilities.

The Department of Commerce believes that substandard seat belts are a hazard to the safety of the public and that the Federal Government may therefore justifiably be considered to have a responsibility in this area.

Moreover, it is significant to note that Federal standards have been established in other areas of public safety. The Federal Aviation Agency has promulgated standards governing certain aircraft equipment. In the trucking field certain technical requirements have been established by the Interstate Commerce Commission and are referenced to specifications and standards of the Society of Automotive Engineers.

The language of H.R. 134 would appear adequate to allow similar action by the Department of Commerce on seat belt standards. Inasmuch as the bill deals only with standards to insure the high quality of seat belts and related hardware, rather than with such traditional State matters as installation and use, the bill does not appear to conflict with State regulatory authority. In fact, it may very well furnish new ground for effective Federal-State cooperation in the field of highway safety.

We agree with the principles of the bill and believe it would protect the public from marketing of substandard and inferior automobile seat belts. Enactment of H.R. 134 is, therefore, favored by the Department of Commerce.

Mr. ROGERS of Florida. Thank you very much, Mr. Williams, for this statement.

Any questions, Mr. Schenck?

Mr. SCHENCK. I want to commend Mr. Williams for his splendid statement. I would assume from what he says that the Department of Commerce would have no difficulty through cooperative work with the industry and the Society of Automotive Engineers to establish standards which would meet the proper requirements.

Mr. WILLIAMS. No, sir, we would anticipate no problems. I believe that the pattern of using the consulting services of groups with experience in these areas would be applied to establishing standards as proposed in this legislation.

Mr. ROGERS of Florida. Mr. Williams, do you anticipate upon the passage of this legislation that it would incur any additional costs in the Department of Commerce?

Mr. WILLIAMS. Inasmuch as the bill does not assign enforcement responsibility to the Department of Commerce, I would say that this would require no additional expense.

As far as the development of standards, of course, this unit of Government is within the Department of Commerce at the present time. The new structure of the Office of Highway Safety also includes at this time a branch on traffic safety engineering which will direct attention to automotive safety engineering features so that I believe the administration of such legislation would require no additional expense.

Mr. ROGERS of Florida. No additional personnel?

Mr. WILLIAMS. It would not appear likely, sir.

Mr. ROGERS of Florida. You do not anticipate any?

Mr. WILLIAMS. No, sir.

Mr. ROGERS of Florida. Now in establishing the standards to be used, I believe you stated in answer to Congressman Schenck's question that it is anticipated that it would be the procedure for you to get with the industry groups who have and are setting standards and work closely in connection with those groups.

Mr. WILLIAMS. Yes, sir. The matter of establishing standards for seat belts would not be an area where efforts would have to start from scratch. There already have been efforts to set minimum standards.

The Society of Automotive Engineers and the General Services Administration have established some standards. I believe this background and consulting with these people and people in the industry would provide us with the type of information necessary to come up with the best and the most realistic standards.

Mr. ROGERS of Florida. Of course the SAE standards I suppose would certainly be considered on this?

Mr. WILLIAMS. Yes, sir.

Mr. ROGERS of Florida. I am sure this committee is very pleased to see you take over because we are very anxious to have a great deal done in this field of public safety. This committee is going to work very closely with you and I am sure do all that we can to bring about results in this field.

I think you will find that the Congress is putting added emphasis on this entire program and we intend to get some results. I think that a great deal has been accomplished already and I am pleased to see the entire change of attitude already exhibited in the Department of Commerce in the safety field, I think. Certainly the reports that we are getting now from our departments recognize a new awareness that something can be done and should be done in this field, and this committee is pleased to see that.

Thank you very much.

Mr. WILLIAMS. Thank you very much, sir.

Mr. ROGERS of Florida. The next witness will be Dr. Seward Miller, chairman of the Committee on Medical Aspects of Automotive Safety of the American Medical Association.

I believe you are accompanied by Mr. Paul Donelan.

We are pleased to have you gentlemen here and will be glad to have your statement at this time.

STATEMENT OF SEWARD MILLER, M.D., CHAIRMAN, COMMITTEE ON MEDICAL ASPECTS OF AUTOMOTIVE SAFETY, AMERICAN MEDICAL ASSOCIATION; ACCOMPANIED BY PAUL R. M. DONELAN, LEGISLATIVE ATTORNEY, AMERICAN MEDICAL ASSOCIATION

Dr. MILLER. Thank you.

Mr. Chairman and members of the committee, I am Dr. Seward Miller, of California, where I am professor of preventive medicine at the UCLA Medical Center in Los Angeles.

I am appearing here today on behalf of the American Medical Association in my capacity as chairman of its committee on medical aspects of automotive safety in support of H.R. 134, 87th Congress. Accompanying me is Mr. Paul R. M. Donelan, legislative attorney in the Washington office of the American Medical Association.

The association is most appreciative of the opportunity which this committee has afforded it to appear today to comment on H.R. 134, a bill to provide that seat belts sold or shipped in interstate commerce for use in motor vehicles should meet certain safety standards. This proposal is wholeheartedly endorsed by the American Medical Association as being consistent with its continuing policy of emphasizing the need for safety equipment and safety in design of all automobiles.

I would like to take a few moments to review for you the activities and policies of the association with respect to the use of automobile seat belts. The American Medical Association first took official action in regard to seat belts in June 1954, when its house of delegates adopted the following resolution:

Resolved, That the American Medical Association recommends to motor car manufacturers of America that they consider equipping all automobiles with safety belts and, furthermore, that they give increasing emphasis to safety in design of all automobiles.

In June 1955 the association approved a resolution urging a recording of information on original accident reports to determine if automobiles involved in accidents were equipped with seat belts and to learn if the seat belts were in use at the time of accident.

The house of delegates, in June 1955 adopted a resolution urging the State medical societies to establish traffic safety committees.

In June of 1961 the house of delegates voted to commend the major automobile manufacturers for their cooperation and major contribution to the public health in installing seat belt anchorages as standard equipment for the front seats of all 1962 model passenger carrier motor vehicles.

In November 1961 the house of delegates adopted the following resolution:

Resolved, That the house of delegates of the American Medical Association urge every physician in the United States to use seat belts, and that the members of this house, the officers and the members of the board of trustees, of the committees and councils, and the employees of the American Medical Association set a good example in this matter by the use of seat belts in their own cars.

The most recent action of the house of delegates took place in June 1962 when the following resolution was adopted:

Whereas the wearing of seat belts materially reduces the number of serious and fatal automobile injuries: Therefore be it

Resolved, That this house of delegates reaffirm its past actions in encouraging the use of automobile seat belts; and be it further

Resolved, That the American Medical Association, in furtherance of these efforts, respectfully urges the automobile manufacturers to make seat belts, approved by the Society of Automotive Engineers, standard equipment on all automobiles.

The American Medical Association, through its various publications, has undertaken a continuing educational program directed both to its members and the public.

The magazine, Today's Health, which is the association's magazine designed for providing health information to the public, has carried several feature articles on the value of seat belts. The Journal of the AMA has published the results of scientific studies, and the AMA News has carried many articles on successful local seat belt programs.

Since 1954 the association has reiterated its support of seat belt programs many times. The American Medical Association, the National Safety Council, and the U.S. Public Health Service began in 1958 a national educational campaign encouraging the use of seat belts. This campaign is continuing. A joint publication, "Seat Belts Save Lives," has been widely distributed in this country.

Representative copies of these publications have been filed with the clerk of this committee and I would request insofar as feasible that these articles and pamphlets be considered part of my testimony and made a part of the record of this hearing.

I would also like to commend to the committee's attention the publication "Seat Belts for Passenger Cars," published in 1961 by the American Automobile Association of Washington, D.C. This is publication No. 3849.

On pages 15 and 16 it lists the present specifications for seat belts of the General Services Administration and the Society for Automotive Engineers. Moreover, there is listed on pages 17, 18, and 19 the specifications of over 20 presently manufactured belts, including their price and size and other pertinent information concerning them.

Mr. ROGERS of Florida. Without objection then, the "Seat Belts for Passenger Cars" pamphlet will be made a part of the record. The other items will be put in the file for reference for the committee.

Dr. MILLER. Thank you, sir.

(The pamphlet referred to follows:)

SEAT BELTS FOR PASSENGER CARS

(No. 3849)

SEAT BELTS FOR PASSENGER CARS

I. CURRENT INTEREST IN SEAT BELTS

With 38,200 people killed and 1,400,000 injured in traffic accidents during 1960, there naturally is widespread public interest in any method or device which will reduce the severity of these accidents. Seat belts fall into this

category. A coordinated campaign favoring the installation of seat belts was launched by the American Medical Association, the U.S. Public Health Service, and the National Safety Council in November 1958. Much research has been done, but there is still much left to do. This report is an effort to present factual information that is available on this subject for persons interested in purchasing seat belts or in further study.

II. POLICIES OF NATIONAL ORGANIZATIONS

Several organizations have a definite interest in standards for seat belts and in the use of seat belts. Policies of some of these organizations are given below:

1. American Automobile Association, 1712 G Street NW., Washington, D.C.

The American Automobile Association has not taken a stand directly related to seat belts. However, the AAA policies in effect January 1, 1961, included the following statement:

"*Research.*—The AAA urges adoption of a national research program giving major emphasis to most warranted researches including continued crash injury studies with the objective of safer 'packaging' of drivers and passengers as part of the basic design of motor vehicles."

2. American College of Surgeons, 40 East Erie Street, Chicago, Ill.

The Board of Regents of the American College of Surgeons at its meeting in Cleveland, Ohio, February 19, 1955, approved the following resolution which is still in effect in 1961:

"*Be it resolved*, That the Committee on Trauma of the American College of Surgeons request that the boards of regents of the college recommend to the motorcar manufacturers of America that they stress occupant safety as a basic factor in automobile design, to include (1) doors which will not open on impact, (2) seats and cushions which will not become displaced on impact, (3) energy absorbing interiors, (4) adequate safety belts or other passenger stabilizing devices that will resist impacts of at least 20 g's."

3. American Medical Association, 535 North Dearborn Street, Chicago, Ill.

In its meeting in San Francisco, June 21–25, 1954, the reference committee on hygiene, public health, and industrial health offered the following resolution for adoption by the house of delegates:

"*Resolved*, That the American Medical Association recommends to motorcar manufacturers of America that they consider equipping all automobiles with safety belts and furthermore that they give increasing emphasis to safety in design of all automobiles."

In addition to the passage of the above resolution at that time, the AMA has joined the national educational campaign, launched in November 1958, to publicize the beneficial use of seat belts in reducing traffic deaths and minimizing injuries.

4. General Federation of Women's Clubs, 1734 N Street NW., Washington, D.C.

A nationwide "Women's Crusade for Seat Belts" is being conducted by this organization with its goal and slogan "A Million and One in '61."

This crusade is based on their opinion as stated by Mrs. E. Lee Ozbirn, their president:

"Numerous studies of auto crash injury cases have proved beyond doubt that the regular use of automobile seat belts can materially reduce the possibilities of severe injury, disfigurement, and death. Club members will now enter into another of their lifesaving efforts by encouraging immediate installation of seat belts in personal and family cars."

5. National Safety Council, 425 North Michigan Avenue, Chicago, Ill.

In a policy statement adopted October 16, 1955, and still in effect in 1961, the National Safety Council recommends the use of seat belts in motor vehicles, recognizing that belts will not prevent accidents but that they may reduce the severity of injuries in certain types of crashes.

The National Safety Council has joined the national educational campaign, launched in November 1958, to publicize the beneficial use of seat belts in preventing traffic deaths and minimizing injuries.

6. U.S. Public Health Service, Department of Health, Education, and Welfare, Washington, D.C.

In November 1958 the Public Health Service formally joined the American Medical Association and the National Safety Council in a cooperative campaign to prevent deaths and reduce the severity of injuries in traffic accidents by greatly extending the use of seat belts. The basis of this campaign is the opinion given below:

"The seat belt has been called the most called the most effective means immediately available to bring about dramatic reduction in the highway accident toll. Since seat belt use involves the human element in accidental deaths and injuries, and since acceptance of this safety device involves behavioral changes which can be effected by information and education techniques, Public Health Service is concerned with the promotion of seat belts."

III. EFFECTIVENESS OF SEAT BELTS

Considerable research has been done on the subject. While much has been learned there is still some difference of opinion as to effectiveness of seat belts. However, there is more or less general agreement on the following principles:

1. A restraining device, such as an approved seat belt, can reduce the seriousness of an injury in case of an accident, if so installed and worn that it prevents the person from being thrown against unyielding objects inside the car or from being thrown from the car against the pavement or other unyielding objects. An Indiana study of 495 fatal accidents, made in 1954, revealed that 47 percent of the 616 people killed were ejected through the door. Seat belts proved particularly effective in crashes at moderate speeds. (It is of interest to note that 45 percent of the fatal accidents occur at speeds under 40 miles per hour.) The effectiveness of seat belts for crashes at excessive speeds is more doubtful. But even if a driver is driving at a high speed when a crash looks imminent, he frequently has a chance to slow down before the collision occurs.

2. In case of an accident, the seat belt helps to restrain the driver behind the wheel so that he has better control of the car.

3. Many people report added comfort in driving since the seat belt holds them in place on turns and rough roads.

4. In general, a satisfactory seat belt should have the following characteristics (a seat belt meeting these specifications sells for about $10):

(*a*) It should be made for only one person.

(*b*) The belt assembly should withstand a loop load of 4,000 pounds. This would restrain a 200-pound man if a car going 30 miles per hour were uniformly decelerated (stopped) in a distance of 1½ feet, which is equivalent to a force of 20 g.'s. (To protect against wear and deterioration, the initial strength of the belt webbing should be 3,000 pounds, equivalent to a loop strength of 6,000 pounds.)

(*c*) The belt should be at least 2 inches wide.

(*d*) The buckle should be of the quick-release type. It should release with a force of less than 45 pounds after a loop load of 4,000 pounds has been applied and then reduced to 250 pounds. It should be simple so it can be threaded in only one way.

5. The belt should be properly installed. The anchorage to the floor or frame of the car should withstand a total loop load pull of 4,000 pounds. Each side of the belt should go straight back and make an angle of approximately 45° with the floor of the car. The belt should fit comfortably and limit hip movement to not over 4 inches.

6. Obviously, a seat belt must be worn to be of any value. Because of the slight nuisance in buckling and unbuckling the belts, there is a tendency to avoid using them on short local trips. If money is spent on a seat belt installation, the belt should be used at all times. (In 1958, 66 percent of all fatal accidents took place within 25 miles of the drivers' residences.) Buckling seat belts on entering the car should become as much a part of the routine before starting as checking traffic or turning on the ignition. This may require frequent reminders on the part of the driver to the passengers.

7. Is the installation of seat belts justified economically? For 1960 the National Safety Council has estimated the total cost of motor vehicle injuries and deaths to be $6,500 million or about $93 for each motor vehicle on the highway. This includes wages lost because of death or injury, medical expenses, property damage, overhead cost of insurance. In deciding whether or not to install

seat belts, the individual will have to balance the cost of a seat belt installation against the possible reduction in the average of $93 cost of injuries per car per year.

8. How do the Nation's insurance companies view seat belts? If the seat belt reduces the seriousness of injury in case of collision, it follows that the use of seat belt should reduce the claims paid by insurance companies and thus rates to policyholders. Some insurance companies are taking this into consideration as follows:

(*a*) *Industrial Indemnity Co., 155 Sansome Street, San Francisco, Calif.*

A 10-percent reduction is given on bodily injury, property damage, medical payments and commercial, subject to a maximum discount of $15, when the insured automobile is equipped with seat belts.

(*b*) *Standard Insurance Co., Post Office Box 1051, Tulsa, Okla.*

A 10-percent reduction in premiums is given to drivers who have seat belts installed in the front seats of their car. This credit applies only in the State of Oklahoma.

IV. A SURVEY OF THE USE OF SEAT BELTS

In connection with the campaign of the American Medical Association, the National Safety Council and the U.S. Public Health Service to promote the use of seat belts as a safety device for the reduction of injury and death due to automobile accidents the following surveys and statistics have been accumulated:

"In a nationwide poll conducted in May and June of 1961 in 47 States and the District of Columbia in connection with the national vehicle safety-check program it was learned by the Auto Industries Highway Safety Committee that of the 757,164 vehicles included 3.3 percent, or 24,897, were equipped with seat belts. Seventy-three percent of the drivers of the 24,897 vehicles so equipped responded to the survey regarding seat belt use: (1) Always use seat belt, 34.5 percent; (2) use on long trips only, 37.3 percent; (3) seldom use seat belt, 29.4 percent.[1]

"Nearly identical accidents in 22 States have been studied. Reduction in injury and deaths to those who wore belts is significant. Seat belts are responsible for one-third to two-thirds fewer injuries and up to four-fifths fewer deaths.

"Cornell researchers have found that three out of four belt owners were using their belts when involved in an accident." [2]

Despite this optimistic data from Ford Motor Co., "according to a recent National Safety Council survey, of the people that purchase and install belts only 38.8 percent always use them, 43.7 percent use them sometimes, and 12.6 percent use them occasionally." [3]

"In investigations of 699 accidents involving a driver wearing a seat belt, California highway patrolmen reported that in their opinion injury had been prevented among 42.2 percent, mitigated among 16.2 percent, death prevented among 4.7 percent and no effect for 36.5 percent. They thought the seat belt aggravated injury among 4 percent and caused no deaths.

"In California, a State considered to be ahead of most of the rest of the country on seat belts, a joint study by the California Highway Patrol and the Automotive Crash Injury Research of Cornell University reported that only 3.6 percent of 54,348 accidents involving automobiles had seat belts. Of the 1,974 cars that did have seat belts the belts were not in use at the time of the accidents in 63.3 percent of the cases." [4]

As reported by the National Safety Council "none of the 442 motorists killed during the July 4, 1960, holiday wore belts. Investigators stated definitely that in 42 percent of the crashes which did not involve a pedestrian, belts would have prevented death. In another 20 percent investigators felt that seat belts probably would have saved the victims' lives.[5]

---

[1] "Seat Belt Installation and Use Poll," Auto Industries Highway Safety Committee, Aug. 19, 1961.
[2] "The Big Plus—Seat Belts," Traffic Safety and Highway Improvement Department, Ford Motor Co., Dearborn, Mich.
[3] "Today's Health," American Medical Association, July 1960.
[4] "Why They Don't Wear Seat Belts," by John Naisbitt, Traffic Safety, May 1961.
[5] "A Seat Belt May Save Your Life," by Tom Mahoney, Traffic Safety, March 1961.

"State police cars of 32 States have belts and 11 States require cars of all their agencies to have them. The U.S. Forest Service has used seat belts in its firefighting and other vehicles since 1954." [5]

In a recent article on the Forest Service it was stated that the "Forest Service's policy on belts is still on an optional basis. Seat belts are termed 'a recommended practice' from the Chief's Office in Washington. Once they are installed, however, they must be worn at all times, regardless of the distance to be traveled or the length of time involved. The Forest Service now has 6,300 vehicles equipped with about 13,500 belts. It also has 40 belts in tractors, road graders, and end loaders. They are worn 80 percent of the time." [6]

"Belts have been installed in more than 500 State police cars in California and several other States are taking similar action. In the Armed Forces many Army camps are 100 percent equipped." [5]

In addition to this, a study made in August 1960 of the motor vehicle fleet operators who are National Safety Council members "showed that of the 1,438 usable questionnaires returned, 513 indicated that some or all of their passenger cars and/or commercial vehicles were equipped with belts. Of the 1,279 passenger car fleets reported, 508, or 40 percent, indicated that some or all of their vehicles were equipped. Of the 1,238 truck fleets, 133, or 10.8 percent, indicated that some or all of their vehicles were equipped with belts.

"Of the total sample of 184,018 motor vehicles, 47,539, or 25.8 percent, are equipped with belts: (1) 43.2 percent of passenger cars are equipped with belts; (2) 10.9 percent of commercial vehicles are equipped with belts," [7]

V. LEGISLATION (AS OF AUGUST 17, 1961)

With the greatly increased interest in seat belts during the past years and with the decision of the five major automobile manufacturers to equip all 1962 model cars with seat belt anchorage points, has come the need for protecting the public from inferior products. As a result, several States have adopted legislation covering the sale and use of seat belts. This legislation is briefly summarized below:

California.—After January 1, 1962, all new autos sold or used in California must be equipped with seat belt anchorage points for the two front seats. All belts sold in California must be of a type approved by the department of motor vehicles. The latest approved list of belts was published in January 1961.

Connecticut.—No new motor vehicle may be sold or registered after January 1, 1962, without anchorage units for at least the two front seats. These units must be able to support a loop strength load of 4,000 pounds. All belts sold in Connecticut must have a loop strength of at least 4,000 pounds and be releasable with a pull of less than 45 pounds.

District of Columbia.—If a vehicle has seat belts, they must be installed according to the manufacturer's instruction for that vehicle to pass inspection.

Michigan.—All private passenger vehicles manufactured after January 1, 1962, must have brackets or bolts for the attachment of seat belts in the two front seats in order to be salable. The State of Michigan has standards for seat belts sold or installed, webbing strength of at least 2,250 pounds, and assembly strength of 3,000 pounds.

New York.—As of October 1, 1962, any new vehicle sold in New York must have knockouts or points of attachment for seat belts.

North Carolina.—Belts must meet SAE standards and are listed by the State. This list is available upon request.

North Dakota.—Recommends but does not require the tensile strength of belts to be at least 4,000 pounds and that seat belts be anchored to the frame of the car.

Ohio.—Seat belt brackets are required on all new cars sold or operated in Ohio after January 1, 1962.

Pennsylvania.—There are State requirements for belts, included in the Pennsylvania Vehicle Code, stating that they must meet SAE standards for belts and be of the floorboard mounting type. A list of approved belts is available.

Utah.—Publishes regulations governing the installation and sale of seat belts.

Virginia.—Publishes a list of seat belts approved for sale and use in Virginia.

---

[6] "Eighteen Miles of Seat Belts," by Richard Williford, Traffic Safety, June 1961.

[7] "Final Report of the Survey of Safety Belt Usage Among Motor Vehicle Fleet Operators National Safety Council Members," prepared by Traffic Operations Division, National Safety Council, August 1960.

Washington.—Publishes a list of belts approved by the State commission on equipment (latest list June 1960).

Wisconsin.—A bill requiring seat belts in the two front seats of all 1962 model cars sold in the State has passed both houses of the legislature and has gone to the Governor for his signature. This would apply to all new cars only.

The Department of motor vehicles in the following States advise persons interested in seat belt purchases to make certain they meet SAE and/or GSA standards: Arizona, Colorado, Indiana, and Oregon.

IV. THE CAUSES AND METHODS OF REDUCING INJURY IN A CRASH STOP

There are three factors involved in injury sustained in a traffic accident:

(*a*) The speed from which the automobile and the occupants must decelerate (stop).

(*b*) The distance in which the car (and the people involved) must decelerate,

(*c*) The human body area that is struck with the force of deceleration within the given distance.

Many of the principles that apply to packing freight for shipment apply to passengers riding in an automobile. In the first place, the package should be strong enough so that it will not collapse and damage the contents. In the case of automobiles the body of the car should be strong enough so it will not collapse on the occupants and should have doors and lock which will prevent the occupants from being thrown against obstacles outside of the car during moderate-speed collisions. Or, of course, restraining devices, such as seat belts, may be used to hold the person in the car.

Assuming that the package (the automobile body) is built to prevent crushing the contents, consideration must be given to protecting the contents when thrown about inside the package. In the case of an automobile this means (1) securing the occupant so that he cannot be thrown about, and (2) cushioning parts of the car that are likely to come in contact with him.

The injury is generally caused by excessive force applied to a smaller or larger area of the body. This force in turn depends directly on how quickly a moving object is brought to rest. In the normal stopping of a car the brakes provide a force to slow the car down. At 20 miles per hour (29.3 feet per second) the Uniform Vehicle Code requires that the brakes be capable of stopping the car in 25 feet. To do this, the braking force must be about 55 percent of the weight of the car or what is called .55 g. (55 percent of the pull of gravity).

In crash studies the term "g." is frequently used. One g. meant that the stopping force is equal to the weight of the object stopped. If a 150-pound man makes a 1 g. stop it means that a force of 150 pounds was used to stop his forward motion. A 2 g. stop for this same man means that the stopping force was 300 pounds. If the stopping force is 1 g., a car going 30 miles per hour will be stopped in 30 feet.

In general, injuries can be reduced if the stopping force applied to the body can be reduced by increasing the stopping distance.

If two cars, each going 30 miles per hour, collide, they do not stop instantaneously but may slide into or past each other for some distance from the point of first impact. In other words, each car may come to a stop in 1½ feet which is equivalent to an average stopping force of 20 g.'s. If the car weighed 3,000 pounds, the average stopping force should be 60,000 pounds (20×3,000). If an occupant of the car also stopped in a distance of 1½ feet, the average stopping force applied would be 3,000 pounds (20×150 pounds). If a seat belt were used to keep the person in the seat while the car was stopped in a distance of 1½ feet, it would have to have a loop strength of 3,000 pounds, which means that tensile strength in each half of the belt would have to be 1,500 pounds.

While the driver's compartment of a car may be stopped over some distance such as 1½ feet, frequently the occupant of the vehicle is brought to a stop in a much shorter distance. Thus, the stopping forces are increased accordingly. As a practical matter, the car may be stopped in 1½ feet but the occupant may continue forward until he hits a solid part of the car, such as the instrument panel. By this time the car may be stopped and the instrument panel may "give" 2 inches. The occupant is then actually brought to a stop in 2 inches instead of 18 inches. Consequently, the stopping force is 180 g.'s (9×20) instead of 20 g.'s. Fundamentally, this principle of physics is the basis of injuries in a collision. If a 150-pound person is brought to a complete stop from 30 miles per hour in 2 inches, the stopping force is then 27,000 pounds (180×150).

This mathematical analysis applies if the car is slowed down at a uniform rate. Unfortunately, in a crash the deceleration is not uniform and the maximum deceleration may be several times the average deceleration. This is what causes the severe damage.

Obviously, the seriousness of injury can be reduced by reducing the stopping force and this can be reduced only by increasing the distance during which the occupant of the vehicle is stopped. This can be done in two ways: (1) Using seat belts that slow the occupant down as the car slows down; (2) Using energy-absorbing material on the interior of the car to increase the distance the occupant uses to stop in after he hits the interior surface of the car.

Assuming that the occupant is stopped in a given distance by a certain total force, the pressure applied to any part of the body depends on the area over which the force is applied. This why injuries are greater when the occupant is stopped by the end of the steering column or knob on the instrument panel. If the occupant is stopped by the steering wheel or a padded instrument panel, then the stopping force is applied over a larger area of the body and consequently the force per square inch of body surface is reduced.

In summary, forces causing bodily injury in a collision may be reduced by the following steps:

1. Building the package (the car body) strong enough so it will not collapse, crushing the contents (the occupants).
2. Constructing the body, including doors that will stay closed, to prevent the occupants from being thrown out of the car against some solid object. Doors should open easily after a crash so the occupants can get out.
3. Restraining the occupant so that he will decelerate with the car instead of hitting the interior of the car, thus reducing g. or the stopping force.
4. Designing the interior of the car so that when the occupant is thrown forward he will come in contact with larger areas, thus reducing the stopping force per square inch.
5. Using energy-absorbing material on surfaces the occupant is likely to hit so as to increase the distance during which deceleration takes place and thus reduce the stopping force. This also applies to a seat belt which exerts a stopping force on the body.

VII. RESEARCH STUDIES AND REPORTS

A number of organizations have conducted extensive research on seat belts. Some of the more important reports are listed below:

1. American Society of Safety Engineers, 425 North Michigan Avenue, Chicago, Ill.
2. Crysler Corp., Detroit, Mich.
3. Cornell University Medical College, Automotive Crash Injury Research, 316 East 61st Street, New York, N.Y.:

"Annual Report," April 1, 1954, to March 31, 1955, 16 pages.
"A Study of Crash Injury Patterns as Related to Two Periods of Vehicular Design," March 1955, 18 pages.
"A Study of Automobile Doors Opening Under Crash Condition," by J. Moore and Boris Tourin, August 1954.
"Aircraft Safety Belts; Their Injury Effect in Human Bodies," by Hugh DeHaven.
"A Sample Reliability Study," by J. O. Moore, et al., January 1955, 20 pages.
"Seat Belts 'Operation Follow-Up'," 1958.
"Safety Belt Effectiveness in Rural California Automobile Accidents," by B. Tourin and J. W. Garrett, February 1960.
"A Report on Safety Belts to California Legislature," by B. Tourin and J. W. Garrett, February 1960.

4. Cornell Aeronautical Laboratory, Inc., Post Office Box 235, Buffalo, N.Y.:

"Kinematics of Human Body Under Crash Conditions," by Edward R. Dye, Clinical Orthopaedics No. 8, 1956, J. B. Lippincott & Co.

5. Ford Motor Co., Traffic Safety and Highway Improvement Department, the American Road, Dearborn, Mich.:

"Safety Belts Saves Lives," 5 pages.
"Safety in Automotive Transportation," by Robert H. Fredericks, 9 pages, June 23, 1958.

"Crash Studies of Modern Care With Unitized Structure," by R. H. Fredericks and R. W. Connor, 9 pages, August 1960.
"Frontiers in Traffic Safety," by Fletcher N. Platt, 4 pages.

6. Indiana State Police, Stout Field, Indianapolis, Ind.

"Auto Crash Injury Research Annual Report," October 1, 1954, 11 pages.
"Crash and Live," 23 pages.

7. Motor Vehicle Research, Inc., Newmarket, South Lee, N.H.

"An Engineering Pilot Study To Determine the Comparative Injury Potential of Steering Wheel Assembly Design," by Andrew J. White, June 1955, 22 pages.
"The role of Safety Belts in the Motorist's Safety" by Andrew J. White, Clinical Orthopaedics No. 9, 1957, 13 pages, J. B. Lippincott & Co.
"Motor Vehicle Research Report No. 3—Seat Belts," 1958.

8. Society of Automotive Engineers, 485 Lexington Avenue, New York, N.Y.:

"Motor Vehicle Seat Belt Installation," SAE recommended practice No. TR–177, March 1960.
"SAE Handbook Supplement TR–219, Motor Vehicle Seat Belt Assemblies—SAE J4, SAE Standard," advance issue for 1962.
"Human Factors of Crash Protection in Automobiles," by John P. Stapp and Sidney T. Lewis, SAE preprint No. 764, June 1956.
"Evaluation of Lap-type Automobile Safety Belt With Rereference to Human Tolerance," by John P. Stapp & D. L. Endfield, SAE paper No. 62A, June 1958.
"Automobile Barrier and Rear-End Collision Performance," by D. M. Severy and J. H. Mathewson, SAE preprint No. 62C, June 1958.
"Automobile Side-Impact Collisions," by D. M. Severy and J. H. Mathewson, Journal of the Society of Automotive Engineers, SP 174, 62 pages, 1960.
"Automobile Head-On Collisions, Series III," by J. H. Mathewson, D. M. Severy and A. W. Siegel, Journal of the Society of Automotive Engineers, August 1960.

9. University of California at Los Angeles, Institute of Transportation and Traffic Engineering, Department of Engineering, Los Angeles, Calif.:

"Automobile Impact Research," by J. H. Mathewson and D. M. Severy, Transactions, National Safety Council, v. 28, 1954, pp. 93–101.
"Automobile Barrier Impacts, Series II," by D. M. Severy and J. H. Mathewson, Clinical Orthopaedics No. 8, fall 1956, pp. 275–300, J. B. Lippincott & Co.
"Technical Findings From Automobile Impacts Studies," by D. M. Severy and J. H. Mathewson, January 1956.
"Crashworthiness of Automobile Seat Belts," by D.M. Severy, J. H. Mathewsor and A. W. Siegel, hearing before a subcommittee of the Committee on Inter state and Foreign Commerce, House of Representatives, 85th Cong., August 1957, pp. 157–180.
"Photographic Instrumentation for Collision Injury Research," by D. M. Severy, Journal of the Society of Motion Picture and Television Engineers, v. 67, No. 2, February 1958, pp. 69–77 (reprint 63).
"Automobile Head-On Collision, Series II," by D. M. Severy, J. H. Mathewson and A. W. Siegel, SAE transactions, v. 67, pp. 238–262, 1959.
"Auto Crash Studies," by D. M. Severy, J. H. Mathewson and A. W. Siegel, report 50–10, January 1959.
"Automobile Collisions on Purpose," by D. M. Severy, Journal of the Human Factors Society, November 1960.

10. U.S. Department of Health, Education, and Welfare, Public Health Service, Washington, D.C.:

"Operation Seat Belt," by Barry Miller, M.D., John Switzer, M.P.H., Jerry Seabury, M.S.W., William McGraw, Joy Jaegling, R.N., and Virginia McClenahan, California's Health v. 17, No. 1, July 1959.
"Introduction Seat Belts," by Alvin R. Leomard, M.D., M.P.H., Alberta W. Parker, M.D., and Barry Miller, M.D., Public Health Reports, v. 75, No. 4, April 1960.
Film: "Safety Through Seat Belts," obtainable free from M. White, Chief, Information Service Division of Accident Prevention, Public Health Service, Washington, D.C.

11. American Medical Association, 535 North Dearborn Street, Chicago, Ill.:
"Seat Belts: Safe or Hazardous?" by E. E. Fales, Jr., reprint from Today's Health, October 1958.

"Seat Belts: No Longer Why, But Why Not?" by J. Wilfred Gagen, reprint from Today's Health, July 1960.

VIII. STANDARDS AND SPECIFICATIONS

Standards for safety products are generally desirable where the quality cannot be readily determined by inspection on the part of the purchaser. Seat belts for passenger cars are relatively new and all types have been put on the market. Essentially, a good seat belt should be wide enough to minimize injury to the individual; it should be strong enough; and it should be securely anchored to the frame of floor of the car and buckle should be opened with a minimum of force after the crashload is applied. The specifications which have been prepared attempt to cover most of these points.

1. Civil Aeronautics Administration, U.S. Department of Commerce, Washington 25, D.C.

"Specifications initially adopted on July 1, 1950, apply to belts used on civil aircraft. The current isue is Safety Belt Technical Standard Order C–22(d) copies of which may be obtained from the Federal Aviation Agency, Washington, D.C.

"The complete one-person belt assembly is required to have a minimum rated strength of 1,500 pounds. For this test, the ends of the belt are attached to the stationary and movable heads of the testing machine. These heads shall separate at a maximum rate of 4 inches per minute under no load. With the assemble in axial alinement, and all precautions taken to prevent eccentric loading, it shall be applied to at least 1,500 pounds. After removal of the load, the webbing and stitching shall show no signs of failure or weakening and the metal components shall show no permanent deformation. The total allowable slippage in the adjusting arrangement or the quick release mechanism shall not exceed 1 inch.

"The webbing for a one-person belt shall have minimum breaking strength 50 percent greater than the minimum tensile load for which the belt is to be rated. If approval is intended for the minimum rating stated above, the webbing must have a tensile strength of $1,500 \times 1.5 = 2,250$ pounds.

"The safety belt assembly shall be adjustable and shall include an easily operable, quick release mechanism which will permit the wearer to release himself easily under a load simulating the wearer hanging in the belt. For this test a load of 2,850 pounds is applied by means of a body block to a 36-inch belt length assembly suspended between anchorage fittings which are 20 inches apart horizontally. The load is then relieved to 250 pounds at which time the quick release mechanism shall be operable at no more than a 45-pound pull applied in the direction which would normally actuate the release. The total slippage in the quick release mechanism shall not exceed 1 inch and after removal of the loads, it shall show no signs of failure or sufficient permanent deformation to prevent operation of the release.

"The webbing width shall be at least $1\frac{15}{16} \pm \frac{1}{16}$ after all necessary manufacturing processes and shall pass a prescribed flame resistance test."

2. American Standards Association, 70 East 45th Street, New York, N.Y.

Whenever there is general agreement that an "American standard" is needed, the American Standards Association organizes a committee with representatives of all interested organizations. In this way, any standard finally adopted is likely to have wide general acceptance.

On November 30, 1954, the Association of Casualty & Surety Companies requested the American Standards Association to initiate a project on specifications for auto seat belts. Three meetings were held—June 7, 1955, December 20, 1955, and March 28, 1956. While most of the organizations interested thought an "American standard" was desirable, members representing the Society of Automotive Engineers and the Automobile Association did not believe the project should be initiated. The question submitted to the Highway Traffic Standards Board of the ASA was for ballot vote. It was decided that there was not a consensus of opinion in favor of an ASA standard, so no standard was developed.

3. Cornell Aeronautical Laboratory, Inc., Post Office Box 235, Buffalo, N.Y.

The loop strength of the belt, buckle, and attachments, when installed, should have a breaking strength of at least 3,000 pounds. After a 3,000 pound load has been applied and then reduced to 250 pounds, the buckle should open with less than 45 pounds of force. The seat belt should be anchored in a manner that will transmit the full force of the belt to a load carrying part of the car without causing permanent deformation. The tip should be impregnated with plastic and molded. Only one person should be supported by one belt. The seat belt in use should make an angle of approximately 45° with the horizontal plane and should fall in vertical planes approximately parallel to the longitudinal axis of the car. The belt should be worn snugly so as to limit forward hip movement to not over 4 inches.

4. General Services Administration, Federal Supply Service, General Services Building, Washington, D.C.

The General Services Administration has issued the Federal specification "Belt: Seat, Passenger Type, Automotive" No. JJB–185a dated January 19, 1960 and the Federal standard "Belt: Seat, Passenger Type, Automotive, Methods of Installation" No. 119a dated January 19, 1960. The publication No. JJB–185a is available from the U.S. Government Printing Office, Washington 25, D.C., for 10 cents each and the latter pamphlet for 5 cents each.

A brief outline of these specifications is tabulated below:

Belt specification

Width of webbing	$1\frac{1}{16}$ to $2\frac{5}{16}$ inches.
Tensile strength of webbing	4,000 pounds.
Maximum elongation of webbing	25 percent with 2,500-pound load.
Loop strength of complete assembly	5,000 pounds.
Maximum force to release buckle	45 pounds with 100-pound loop-load.
Maximum slippage in buckle under load	1 inch.
Type of buckle required	Metal to metal.
Thickness of reinforcing plate	$\frac{1}{16}$ inch.
Area of reinforcing plate	4 square inches.

Installation requirements.—(1) The belt half with the release mechanism buckle should be installed on the side nearest the center of the car.

(2) Holes in metal should be no more than $\frac{1}{32}$ of an inch larger than the bolts for which they are drilled. Lock nuts or lock washers should be used.

(3) With the seat in the rear-most position and the belt in use, the angle the belt makes with the floor should not be over 75°.

5. Society of Automotive Engineers, Inc., 485 Lexington Avenue, New York, N.Y.

The Society of Automotive Engineers, Inc. has recommended practice (SAE–J4) revised in June 1961 and bulletin "Motor Vehicle Seat Belt Installations" issued in March 1960.

A brief outline of these specifications is tabulated below:

Belt specifications

Width of webbing	1⅞" plus.
Tensil strength of webbing	4,000 pounds.
Maximum elongation of webbing	25 percent with 2,500-pound load.
Loop strength of complete assembly	4,000 pounds.
Maximum force to release buckle	45 pounds with 250-pound loop load.
Maximum slippage in buckle under load	1 inch.

Installation specifications.—(1) Anchor to adequate structures such as frame or floor pan but not to seat.

(2) When worn, the belt should pull downward and rearward at about 45 degrees and the two ends should be parallel.

(3) Use reinforcing plates with "U" or "I" bolts.

(4) Follow manufacturer's instructions for threading belt through attachments.

IX. MANUFACTURERS OF SEAT BELTS

The list of seat belt manufacturers given below is for information only and in no way represents endorsement or approval by the American Automobile Association. Specifications are also included when they were furnished by the manufacturer. The following key explains the specifications given.

A. Model number.
B. Retail price of one belt for front seat.
C. Width of belt in inches.
D. Loop strength of belt in pounds.
E. The percent of elongation under 2,500-pound load.
F. The type of bolt, "U", "eye" or plain.
G. Diameter of bolt used to attach to floor pan in inches.
H. Diameter of washer for attaching to floor pan in inches.
I. The approval of belts meeting the specifications of the Society of Automotive Engineers, Inc., and the General Services Administration are indicated as follows:

SAE—Society of Automotive Engineers, Inc.
GSA—General Services Administration.

88693—62——4

Manufacturer	A Model	B Price	C Width	D Loop strength	E Percent elongation	F Bolt type	G Bolt diameter	H Washer diameter	I Approval
			Inches	*Pounds*			*Inches*	*Inches*	
American Safety Equipment Corp., 350 5th Ave., New York, N.Y. (The Hickok Seat Belt).	RT-1960	$12.95	2	5,770	25	"Eye"	3/8	0.068 by 4.9	SAE, GSA.
	C-1960	12.95	2	7,240	22	do	3/8	0.068 by 4.9	SAE, GSA.
	AS-1960	12.95	2	6,030	24	Plain	3/8	0.068 by 4.9	SAE, GSA.
Auto-Crat Manufacturing Co., 2425 San Fernando Rd., Los Angeles, Calif.	100	10.95	2	5,000	15	"Eye"	3/8	2½	SAE, GSA.
	200	11.95	2	5,000	20	do	3/8	2½	SAE, GSA.
	700	9.95	2	4,000	15	do	3/8	2½	SAE.
Beam's Manufacturing Co., 1327 N. Robinson, Oklahoma City, Okla.	100	12.95	2	6,000		Plain	3/8	2½ by 3	SAE, GSA.
	200	10.95	2	5,000+		do	3/8	2½ by 3	SAE, GSA.
	261	12.95	2	7,000+		do	3/8	3	SAE, GSA.
Cadillac Motor Car Division, 2860 Clark Ave., Detroit, Mich.	1961	13.00	1 13/16	5,000	25	do	3/8	2½	SAE, GSA.
Coronet Corp., 100 East St., Crystal Lake, Ill.	A-1	9.98	2			do	¼	1¼ by 2¾	SAE, GSA.
	M-1	10.45	2			do	¼	1¼ by 2¾	SAE, GSA.
Davis Aircraft Products Inc., 1190 Spoffard Ave., Bronx 59, N.Y.	FDC-2700F	11.00	2	5,000+	10-15	do	3/8	2½	SAE, GSA.
	FDC-4200F	7.30	2	5,000+	10-15	do	3/8	2½	SAE, GSA.
Ford Motor Co., The American Rd., Dearborn, Mich.	COAZ 6461200-A	12.04	2	5,000-6,000	11.6	"Eye"	3/8	2¼ by 2¼	SAE, GSA.
Franksville Specialty Co., Inc., Franksville, Wis.		11.95	2	3,500	13.5	"U"	5/16	2	
General Tube Co., P.O. Box 127 Sturgis, Mich.	WB-2025	12.50	2	5,000	25	Plain	3/8	2½	SAE, GSA.
The Greenfield Co., 4417-19 W. Rice St., Chicago, Ill.	700	9.95	2	5,000-6,000	11	do	3/8	3	SAE, GSA.
	707	10.95	2	5,000-6,000	11	"Eye"	3/8	3	SAE, GSA.
Harry Buckles Co., Inc., P.O. Box 325, Sikeston, Mo.	310	9.95	2	5,000		Plain	7/16	2⅞ by 2⅞	SAE, GSA.
Hinson Manufacturing Co., Waterloo, Iowa	5030	9.95	2	3,000	20	do	3/8	2½	SAE.
	5036	11.95	2	5,000	20	do	3/8	2½	SAE, GSA.
Irving Air Chute Co., Inc., 1315 Versailles Rd., Lexington, Ky.	55	9.95	2	3,000	25	do	3/8	2½	SAE.
	66	10.95	2	5,000	25	do	3/8	2½	SAE, GSA.
	77	10.95	2	5,000	25	do	3/8	2½	SAE, GSA.
Jeffrey-Allan Industries, Inc., 1139 So. Wabash Ave., Chicago, Ill.	JA-40, JA-45 JA-50, JA-55	9.95	2	4,000+	16	do	3/8	3 by 1½	SAE.
	JA-50 and 55 Special.	10.95	2	5,000+	20-23	do	3/8	3 by 1½	SAE, GSA.
		10.95	2	5,000+	23	do	3/8	3 by 1½	SAE, GSA.
Maximoff Research Co., 5916 Sepulveda Blvd., Van Nuys, Calif.	Mareco 15-1	7.95	2	3,500		do	5/16	2½	
	Mareco 15-1-DA	8.95	2	4,500		do	5/16	2½	
	Mareco 2500-A	9.50	2	5,500		do	5/16	2½	GSA.
Morgan Safety Belts, Buckeye Ct., Largo, Fla.		12.95	2	5,250	17.5	do	3/8	2½	SAE, GSA.
The Narrow Fabric Co., P.O. Box 742, Reading, Pa.	100A	12.95	1 13/16	5,000	25	"Eye"	3/8	2½	SAE, GSA.
Oldsmobile Division, GMC, Lansing, Mich.	WB2030	1 24.50	2	5,000+	25	do	7/16	3 by 3	SAE, GSA.
Ray Brown Automotive, 5656 Santa Monica Blvd., Los Angeles, Calif.	Imperial	10.95	2	5,800	21	Plain	3/8	2½	SAE, GSA.
	Saf-Tee	10.95	2	5,600	20	"U"	3/8	1¾	SAE, GSA.
	Mab	9.95	2	5,200	21	Plain	3/8	2½	SAE, GSA.
Rayco Manufacturing Co., E. 221 State Highway 4, Paramus, N.J.	JA-40	12.95	1 13/16	4,000+	18	do	3/8	3 by 1½	SAE, GSA.
	JA-40 XL	13.95	1 13/16	4,000+	18	do	3/8	3 by 1½	SAE, GSA.

	JA-50	14.95	$1\frac{15}{16}$	4,000+	18	do	$\frac{3}{8}$	3 by $1\frac{1}{2}$	SAE, GSA.
	JA-50 XL	15.95	$1\frac{15}{16}$	4,000+	18	do	$\frac{3}{8}$	3 by $1\frac{1}{2}$	SAE, GSA.
Rose Manufacturing Co., 2700 W. Barberry Pl., Denver, Colo.	850	12.00	2	12,000		do	$\frac{3}{8}$	$3\frac{1}{2}$ by 2	SAE, GSA.
	858-G	9.00	2	10,000		do	$\frac{5}{16}$	$3\frac{1}{2}$ by 2	SAE, GSA.
Sears Roebuck & Co., 925 S. Homan Ave., Chicago, Ill.	6564	[3] 4.98	2	5,000	16	do	$\frac{5}{16}$	$2\frac{1}{2}$	SAE.
	6431	[2] 7.49 / [2] 4.79	2	6,000	$22\frac{1}{2}$	do	$\frac{5}{16}$	$2\frac{1}{2}$	SAE, GSA.
Service Belt Co., Inc., 810 Broadway, New York, N.Y. (Diamond Safety Belts).	3092	8.95	2	4,000	11.7	do	$\frac{3}{8}$	3	SAE.
	3092G	8.95	2	5,000	11.9	do	$\frac{3}{8}$	3	SAE, GSA.
Tulareloft, Inc., 348 North L., Tulare, Calif.	50	5.95	2	4,000	Under 25	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE.
	100	9.95	2	4,000	do	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE.
	200	10.95	2	6,000	do	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.
	300	11.95	2	6,000	do	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.
	400	12.95	2	6,000	do	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.
	500	18.95	2	6,000	do	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.
	D-1	15.95	3	8,500	do	"Eye"	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.
Universal Equipment Corp., 292 South La Cienega, Beverly Hills, Calif.	MC-140	10.95	2	5,500	20	Plain	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.
	MC-140A	12.95	2	5,500	20	do	$\frac{3}{8}$	$2\frac{1}{2}$	SAE, GSA.

[1] Pair.
[2] Mail order.
[3] Retail.

X. RECENT MAGAZINE ARTICLES ON SEAT BELTS

"The Seat Belt: A Controversy" by J. O. Moore, The Traffic Institute of Northwestern University, Traffic Digest & Review, April 1956.
"Truth About Auto Seat Belts," Changing Times, October 1957.
"Seat Belts Hold in Actual Crashes," Automotive Crash Injury Research information release. Traffic Safety, June 1958.
"Three National Groups Launch Seat Belt Drive," Traffic Safety, February 1959, p. 21.
"Seat Belts Catch On" by Murray D. Segal, Traffic Safety, November 1959.
"Smart Drivers Use Seat Belts (fact sheet)," Traffic Safety, May 1959, pp. 18, 19.
"Enough Nonsense About Seat Belt Standards" by Murray D. Segal, Traffic Safety, May 1960, p. 14.
"Seat Belts Work," Traffic Safety, February 1960.
"Seat Belts On Camera" by Richard Willford, Traffic Safety, June 1960.
"Auto Seat Belts," Consumers Report, February 1960.
"Some Average Drivers Tell Why They Don't Wear Safety Belts" by John Naisbitt. Traffic Safety, May 1961.
"Do Seat Belts Need a Crusade?" Journal of American Insurance, May 1961.
"Installation and Use of Seat Belts," Traffic Safety, August 1961, pp. 22, 23.
"A Safety Belt May Save Your Life," by Tom Mahoney, Traffic Safety, March 1961.

EARL ALLGAIER.
NAOMI MARGOLIS.

SEPTEMBER 22, 1961.

Mr. ROGERS of Florida. May I ask you one question here? Are the standards of GSA and SAE the same?

Dr. MILLER. Not precisely; very close indeed, sir.

Mr. ROGERS of Florida. Thank you.

Dr. MILLER. We believe that it is in the public interest to establish minimum safety standards for seat belts. The educational campaign by the American Medical Association, the National Safety Council, and the U.S. Public Health Service, the efforts of the Advertising Council, the General Federation of Women's Clubs, the automobile manufacturing industry, other national groups, and the many local organizations such as chambers of commerce participating in seat belt promotion have lead to a spectacular increase in the installation and use of belts.

Legislation in Wisconsin, now in effect, and legislation in New York, Rhode Island, Virginia, and Mississippi, making mandatory the installation of seat belts in the front seat of passenger automobiles, will result in a substantial increase in the number of vehicles equipped with seat belts.

The individual purchaser or user of seat belts has neither the technical knowledge nor the equipment to test a seat belt in order to determine its safety. The indivdual purchaser of a seat belt should have the assurance that his seat belt meets certain minimum standards.

He can be protected only by the development of minimum performance standards and the establishment of a testing and inspection system which will insure that only seat belts meeting or exceeding prescribed safety standards are available for purchase. It would be a tragedy indeed if the lifesaving purposes of this device should be frustrated by the sale of inferior and ineffective belts.

We believe that it is quite proper that the authority for the establishment of seat belt safety standards should be delegated by the Congress to the Secretary of Commerce. We would recommend, however, that the standards to be prescribed by the Secretary should be adopted only after the Department of Commerce has consulted

with knowledgeable, professional personnel in the United States, including representatives of the Public Health Service, the General Services Administration, private industry, the Society of Automotive Engineers, the National Safety Council, and the American Medical Association.

All of these individuals and groups have a demonstrated expertise and a continuing concern over the efficiency and effectiveness of seat belts sold in interstate commerce. The American Medical Association stands ready to cooperate in every way with the Secretary of Commerce in this endeavor.

I would like to thank you again for the opportunity to present the views of the physicians of America on this important legislation. If the members of the committee have any questions, we would now be most pleased to attempt to answer.

Mr. ROGERS of Florida. Thank you very much, Dr. Miller.

Mr. SCHENCK. No questions except to thank Dr. Miller for the fine statement.

Mr. ROGERS of Florida. Doctor, we are very grateful to you for appearing here. This has been most helpful and I know the committee takes great satisfaction in seeing the fine cooperation that the American Medical Association is giving this subject because it is helpful in more ways than one, not only for helping us set necessary standards on which I am sure you will be asked to consult with the Department of Commerce as stated by the previous witness, but also the education program that the American Medical Association is conducting and the publications that you have shown here are certainly beginning to make the public aware of this whole problem.

We are very grateful for the help of the American Medical Association in stressing the importance of seat belts to the safety of the driving public.

Dr. MILLER. Thank you, Mr. Chairman. The American Medical Association is most pleased that the Congress is looking into this problem of safety on our highways.

Mr. ROGERS of Florida. Thank you very much, Dr. Miller.

The next witness will be Dr. A. L. Chapman who is Chief of the Division of Accident Prevention of the U.S. Public Health Service.

Dr. Chapman, the committee will be pleased to receive your statement.

STATEMENT OF DR. A. L. CHAPMAN, CHIEF, DIVISION OF ACCIDENT PREVENTION, U.S. PUBLIC HEALTH SERVICE

Dr. CHAPMAN. Mr. Chairman, I am very happy to be here this morning. I must say that we had no advance knowledge that we would be called to testify, so I will give you our background and recommendations ad seriatim.

Mr. ROGERS of Florida. Yes, that will be all right. I am sorry and I don't know how that happened. We will check into it because certainly you should have been notified of this.

You may also submit for the record any additional information that you desire.

Dr. CHAPMAN. Thank you very much.

As you know, the Public Health Service cooperated with the American Medical Association and the National Safety Council in promoting the widespread use of safety belts in automobiles. I think this campaign has obviously been successful and has resulted now in the inclusion of seat belts in the 1963 models of automobiles.

The day may come when this will be extended to include all five positions in the car. Now we are faced with the problem of determining whether the seat belts and their total installation is adequate and safe.

I believe that the seat belt manufacturers are making a very sincere effort to produce good quality belts at the lowest possible cost. However, there is always a need for policing of any product which deals with the safety of human beings.

Therefore, I feel justified in stating that the Public Health Service does in fact support any measure which will tend to insure the safety quality of the various types of equipment which are installed in automobiles, and this would include the installation of safety belts.

This will be particularly important as the sale of belts increases from its present growing level to the level established in some of the European countries where as many as 50 percent of the automobiles sold are equipped with seat belts or lap straps.

Other than to endorse the intent of this bill and assure you of the support and cooperation of the Public Health Service, Mr. Chairman, at this time I prefer to reserve any further comments for addition to the record.

Mr. ROGERS of Florida. Thank you very much, Dr. Chapman.

Any questions?

Mr. SCHENCK. No questions.

Mr. ROGERS of Florida. We appreciate your appearing and the cooperation in working together with Commerce, as I am sure you will be called upon to do.

Dr. CHAPMAN. Thank you very much.

Mr. ROGERS of Florida. Mr. Robert L. Davis, vice president, Davis Aircraft Products.

We would be glad to hear you now, Mr. Davis.

STATEMENT OF ROBERT L. DAVIS, VICE PRESIDENT, DAVIS AIRCRAFT PRODUCTS

Mr. DAVIS. Mr. Chairman and members of the committee, my name is Robert L. Davis and I am vice president of Davis Aircraft Products.

Personally and as a member of the American Seat Belt Council, I congratulate you and your committee for the continuing effort you are making to have motor vehicle use on our Nation's highways safer.

Mr. SCHENCK. If the gentleman will yield at that point, I think it might be well to put into the record at your convenience something descriptive about the American Seat Belt Council, as to who is included in that council and information as to its background competence to establish quality standards.

Mr. DAVIS. All right.

(The information requested may be found on p. 28.)

Mr. DAVIS. Also I applaud your desire and effort to have seat belts adequate in design and strength to prevent death or serious injury when motor vehicle accidents occur.

In my opinion, H.R. 134, the subject of today's hearing, is legislation needed in the public interest. Its purpose is to assure purchasers of seat belts sold or offered for sale in interstate commerce that the belts will conform to reasonable standards designed to make them adequate for the purpose for which they are intended. In this respect the purpose of the bill is similar to the major objective of the American Seat Belt Council. The council seeks to accomplish through voluntary cooperation by members of the industry what H.R. 134 is designed to accomplish by mandatory Federal regulation.

My experience in manufacturing and selling seat belts for motor vehicles convinces me that strict quality control during manufacture is essential if seat belts are to be adequate in an emergency. There is no margin of safety that permits inferiority or error in the manufacture, installation, or use of seat belts. Because experience teaches us this, a number of seat belt manufacturers created and maintain the American Seat Belt Council, the principal function of which is to lay down ground rules for quality control, to insist upon observance of quality standards by frequent sampling and testing by a retained independent laboratory, and to supervise use of its label so that purchasers of seat belts that bear it will know that the belts meet or surpass standards determined by the Society of Automotive Engineers to be adequate.

By test as well as experience, we know that seat belts bearing the label of approval by the American Seat Belt Council are adequate for their intended purpose. We know that these belts, when properly installed and used, will save lives and prevent serious injury when motor vehicle accidents occur.

Our major problem, however, is that not all manufacturers of seat belts presently are members of the council, and since they are not, they do not have the services of our independent testing laboratory to supervise quality control.

We believe that among nonmembers, there are some who adhere to adequate standards of quality, but there is no way either we or the public can be sure except through continuing quality control such as that provided by the council. There is no way the car owner can be sure other than to look for and buy seat belts bearing the seal of approval of the American Seat Belt Council.

If all seat belt manufacturers were members of the council, there would be little need of legislation as provided in H.R. 134 because quality control through the council would provide broader coverage and probably more intensive supervision than would be practical under this bill.

However, since the council is unable at this time to provide total, nationwide supervision of seat belt quality due to the failure of some manufacturers to participate as members, it seems clear to me that regulations of seat belts sold or offered for sale in interstate commerce would be in the public interest.

Whether seat belt standards should be determined by the Secretary of Commerce or by the Secretary of Health, Education, and Welfare is a policy question that the Congress will decide at the proper time. Some people seem to think that the public interest might be well served if such regulatory power were exercised by the latter because the U.S. Public Health Service and members of the medical

profession at large have shown intense interest in and have given strong support to nationwide use of seat belts on motor vehicles.

I thank you for the opportunity given me to tell you about the important work the American Seat Belt Council is doing to achieve objectives similar to those of H.R. 134.

Mr. ROGERS of Florida. Thank you very much, Mr. Davis.

Any questions, Mr. Schenck?

Mr. SCHENCK. No questions except that I hope you will supply that information.

Mr. DAVIS. Definitely.

Mr. ROGERS of Florida. Mr. Davis, if you will, do you think you could supply us a little information as Mr. Schenck has suggested on the council and its membership and how long it has been formed and exactly what it has accomplished for the record?

Mr. DAVIS. Very definitely.

Mr. ROGERS of Florida. Thank you. We appreciate your help.

(The information requested of Mr. Davis was supplied by Mr. Federline and is as follows:)

WASHINGTON, D.C., *August 24, 1962.*

Hon. KENNETH A. ROBERTS,
Chairman, Subcommittee on Health and Safety,
Committee on Interstate and Foreign Commerce,
House of Representatives,
Washington, D.C.

DEAR REPRESENTATIVE ROBERTS: During the recent hearing on H.R. 134, a bill to provide Federal standards for automobile seat belts, Mr. Robert L. Davis, who was testifying on behalf of the Davis Aircraft Products Co., a manufacturer of automobile seat belts and a member of the American Seat Belt Council, was requested to file with the subcommittee a statement of the purposes, activities, and membership of the council, which as safety counsel for the council, I am pleased to do at Mr. Davis' request.

The American Seat Belt Council was organized in July 1961 for the purpose of having manufacturers of seat belts maintain a high standard of quality for their product. This is accomplished in the following ways:

(1) Through voluntary agreement by council members to produce seat belts that will equal or surpass in quality the standards fixed by the Society of Automotive Engineers for seat belt performance;

(2) By engaging the services of a reputable, independent testing laboratory to test frequently seat belts made by members of the council to determine whether or not as a minimum they conform with SAE standards;

(3) By expelling from the council any member who fails or refuses to maintain seat belt quality at or above the standards fixed therefor by the Society of Automotive Engineers;

(4) By permitting members who maintain quality at or above SAE standards to attach to their seat belts the seal of approval of the American Seat Belt Council certifying continuous quality control by testing to SAE standards;

(5) By promoting public understanding of the importance of looking for the seal of approval of the American Seat Belt Council when purchasing seat belts.

Council membership includes manufacturers of components such as webbing and buckles as well as manufacturers and assemblers of seat belts.

The independent laboratory retained by the council for testing seat belts in accordance with SAE standards is the Robert W. Hunt Co., testing engineers, 810 South Clinton Street, Chicago, Ill. This laboratory not only tests seat belts when a manufacturer applies for membership in the council, but continues thereafter at frequent intervals to test products picked up at the factory or purchased in the open market. Factory samples are picked up by a representative of the testing laboratory at will and without notice to the manufacturer.

Members of the council are listed in appendix A. Nonmembers of the council are listed in appendix B.

The council is maintained by dues based on sale of seat belts and/or components.

To date, the council has not found it necessary to expel any member for failure or refusal to conform as a minimum to the SAE standard.

The council will cooperate in any way it can to help governmental agencies, Federal and State, obtain adequate seat belt requirements.

Members of the council are keenly aware of the need of quality control in order to assure seat belt performance.

Respectfully yours,

ANDREW P. FEDERLINE,
Safety Counsel for American Seat Belt Council.

APPENDIX A

AMERICAN SEAT BELT COUNCIL, DIVISION OF THE NARROW FABRICS INSTITUTE, INC., NEW ROCHELLE, N.Y., AUGUST 24, 1962

Active members:

Alofs Manufacturing Co., 345 32d Street SW., Grand Rapids, Mich.
American Cord & Webbing Co., 505 Eighth Avenue, New York, N.Y.
Arbeka Webbing Co., 1135 Roosevelt Avenue, Pawtucket, R.I.
Auto-Crat Manufacturing Co., 2425 San Fernando Road, Los Angeles, Calif.
Ray Brown Automotive, 910 North Orange Drive, Los Angeles, Calif.
Buffalo Weaving & Belting Co., 260 Chandler Street, Buffalo, N.Y.
Burlington Tape & Webbing Co., 303 Fifth Avenue, New York, N.Y.
Danville Manufacturing Co., 1014 Maple Street, Danville, Ill.
Davis Aircraft Products, Inc., Scudder and Woodbine Avenues, Northport, Long Island, N.Y.
Everlastik, Inc., 181 Spencer Avenue, Chelsea, Mass.
General Tube Co., 601 McKee Street, Sturgis, Mich.
The Greenfield Co., 2100 Estes Avenue, Elk Grove Village, Ill.
The Hinson Manufacturing Co., Waterloo, Iowa.
Irving Air Chute Co., 1315 Versailles Road, Lexington, Ky.
Jeffrey-Allan Industries, Inc., 1139 South Wabash Avenue, Chicago, Ill.
Lapstrap, Inc., Box 1691, Wichita, Kans.
R. J. McQuarrie Enterprises, 6029 Washington Boulevard, Culver City, Calif.
Mine Safety Appliances Co., 201 North Braddock Avenue, Pittsburgh, Pa.
Miller Equipment Co., 13th and New Streets, Franklin, Pa.
Murdock Webbing Co., Inc., 27 Foundry Street, Central Falls, R.I.
Narricot Corp., 450 Fourth Avenue, New York, N.Y.
The Narrow Fabric Co., Reading, Pa.
North & Judd Manufacturing Co., 500 East Main Street, New Britain, Conn.
Phoenix Trimming Co., 2000 North Racine Avenue, Chicago, Ill.
Products Research Co., Cummings & Sander Division, 2900 Denby Street, Los Angeles, Calif.
Rose Manufacturing Co., 2700 West Barberry Place, Denver, Colo.
Rupert Safety Belt Co., Post Office Box 146, Wheeling, Ill.
The Russell Manufacturing Co., Middletown, Conn.
Screw & Bolt Corp. of America, Farmers Bank Building, Pittsburgh, Pa.
Southern Weaving Co., Post Office Box 367, Greenville, S.C.
Star-Lite Industries, 1026 South Santa Fe Avenue, Los Angeles, Calif.
Superior Industries, 14721 Keswick Street, Van Nuys, Calif.
Tulareloft, Inc., 300 East San Joaquin, Tulare, Calif.

Affiliate (nonvoting) member: Allied Chemical Corp., National Aniline Division, 261 Madison Avenue, New York, N.Y.

Nonmembers of American Seat Belt Council:

American Safety Equipment Co., 261 Madison Avenue, New York, N.Y.
Auto Safe Corp., 633 East St. Clair Street, Indianapolis, Ind.
Baumheckel, W. M., Industries, 1325 Belleair Boulevard, Clearwater, Fla.
Beam's Manufacturing Co., 1327 North Robinson, Oklahoma City, Okla.
Harry Buckles Co., Sikeston, Mo.
Bullard, E. D. Co., 2680 Bridgeway, Sausalito, Calif.
C & W Manufacturing Co., 474 Broadway, New York, N.Y.
Carmac Co., 1622 South Magnolia Avenue, Monrovia, Calif.
Crawford Manufacturing Co., Inc., Third and Decatur Streets, Richmond, Va.

Crump, B. T. Co., Richmond, Va.
Flight Equipment & Engraving Corp., Post Office Box 48–38, Miami, Fla.
Freeport Electronics Co., 32 New York Avenue, Freeport, N.Y.
Halmar, Inc., Los Angeles, Calif.
Hastings Manufacturing Co., Hastings, Mich.
Jax Manufacturing Co., 480 Jackson Street, St. Paul, Minn.
Jervis Corp., Grandville, Mich.
Kraco Products, Inc., 2411 North Santa Fe Avenue, Compton, Calif.[1]
M & S Sales Co., 2615 Love Field Drive, Dallas, Tex.
Maximoff Research Co., 5916 Sepulveda Boulevard, Van Nuys, Calif.
McJohn Corp., 616 North Almont Drive, Los Angeles, Calif.
Marino, L., Inc., 8802 Foster Avenue, Brooklyn, N.Y.
Merchandisers & Manufacturers, Inc., 8465 Melrose Place, Los Angeles, Calif.[1]
Musser, Inc., Jackson Center, Ohio.
Nelmor Corp. (Canada) Ltd., 1480 Lakeshore Road, Toronto, Ontario, Canada.
Radiant Manufacturing Corp., 8220 North Austin, Morton Grove, Ill.
Ratsey & Lapthorn, Inc., Schofield Street, City Island, N.Y.
Roberke Manufacturing Corp., Norwalk, Conn.
Sampson Auto Seat Belt Co., Los Angeles, Calif.
Sal-Mil Co., 15 Jeffery Lane, Hicksville, Long Island, N.Y.
Security Parachute Co., 295 West 141st Avenue, San Leandro, Calif.
Service Belt Co., Inc., 810 Broadway, New York, N.Y.
Shore-Calnevar, Inc., 7701 East Compton Boulevard, Paramount, Calif.
Sparton Automotive, 50 West North Street, Jackson, Mich.
Stebco Manufacturing Co., 1401 West Jackson Boulevard, Chicago, Ill.
Sturges Manufacturing Co., Post Office Drawer 59, Utica, N.Y.
Universal Safe-T Equipment Co., 5912 Melrose Avenue, Los Angeles, Calif.
Yankee Metal Products Co., Norwalk, Conn.

Mr. ROGERS of Florida. There are two statements that the committee has been requested to put into the record, and without objection they will be made a part of the record at this point.

I notice that one is from Mr. Francis T. Byrne, field manager of the Reflective Products Division, Minnesota Mining & Manufacturing Co., which states, that his company has installed seat belts in 2,000 motor vehicles in 50 States.

I think the company is certainly to be commended for this, and if this could be picked up throughout the country, we could accomplish a great deal in this program.

(The statement referred to follows:)

STATEMENT OF FRANCIS T. BYRNE

Mr. Chairman, my name is Francis T. Byrne, field manager of the Reflective Products Division, Minnesota Mining & Manufacturing Co., 900 Bush Avenue, St. Paul, Minn.

H.R. 134, a bill to provide seat belts sold or shipped in interstate commerce for use in motor vehicles shall meet certain safety standards, is very important.

Our company has a fleet of approximately 2,000 motor vehicles in 50 States in which over 60 percent of the vehicles are now equipped with seat belts provided by our company's main office in St. Paul, Minn., at no charge to the man operating the vehicle. Our objective is to have every vehicle equipped with two seat belts, one for the driver and one for the front seat passenger. We are most anxious that these seat belts be of the highest safety standards and, therefore, we would strongly support H.R. 134.

[1] Application pending.

Mr. ROGERS of Florida. There is a letter from the Automobile Manufacturers Association addressed to the chairman of the subcommittee. If it is desirable, we will make it a part of the record at this point. And also the enclosure included. Without objection, it is so ordered.

(The letter and enclosure referred to follow:)

AUTOMOBILE MANUFACTURERS ASSOCIATION, INC.,
Detroit, Mich., August 16, 1962.

Subject: Public hearing H.R. 134, Friday, August 17, 1962.

Hon. KENNETH A. ROBERTS,
Chairman, Permanent Subcommittee on Health and Safety, Committee on Interstate and Foreign Commerce, House of Representatives, Congress of the United States, Washington, D.C.

DEAR MR. ROBERTS: The Automobile Manufacturers Association would like to take this opportunity to express agreement with the objectives of H.R. 134 which would prohibit the shipment in interstate commerce of seat belts which do not meet a standard to be established by the Secretary of Commerce.

We strongly recommend that your committee give careful consideration to the fact that a national standard for seat belts has been established by the Society of Automotive Engineers. A copy of this standard is attached.

This nationally recognized standard was developed by a committee of professionally qualified engineers and outstanding safety specialists. The membership list of this committee is also attached.

Any standard which might be established by the Secretary of Commerce at variance with SAF standard would create confusion and in our opinion would not serve the best public interest.

Accordingly, we recommend that in the event the objectives of H.R. 134 are favorably considered by your committee the bill be amended to direct that the standards to be prescribed by the Secretary of Commerce conform to the applicable standards developed by nationally recognized professional societies.

Sincerely,

KARL M. RICHARDS,
Manager, Field Services Department.

MOTOR VEHICLE SEAT BELT COMMITTEE

G. J. Huebner, Jr., sponsor: Chrysler Corp., Post Office Box 1118, Detroit, Mich.
Roy Haeusler, chairman: Chrysler Corp., Post Office Box 1118, Detroit, Mich
R. H. Fredericks, vice chairman: Ford Motor Co., 20000 Rotunda Drive, Post Office Box 2053, Dearborn, Mich.
R. O. Bennett: Insurance Institute for Highway Safety, 1710 H Street NW Washington, D.C.
H. E. Gandelot: Engineering Staff, GMC, GM Technical Center, Warren, Mich.
R. D. Hart: Aetna Casualty & Surety Co., Safety Engineering Department, 151 Farmington Avenue, Hartford, Conn.
A. L. Haynes: Ford Motor Co., Engineering Staff, Post Office Box 2053, Dearborn Mich.
P. O. Johnson: Fisher Body Division, GMC, 30001 Van Dyke Avenue, Warren, Mich.
D. C. Lhetka: National Safety Council, 425 North Michigan Avenue, Chicago, Ill.
L. H. Nagler: American Motors Corp., 14250 Plymouth Road, Detroit, Mich.
R. J. Neff: Phoenix Trimming Co., 2000 North Racine Avenue, Chicago, Ill.
C. H. Pulley: Irving Air Chute Co., Inc., Lexington, Ky. (C. E. Greene, alternate, 5-221, General Motors Building, Detroit, Mich.)
D. J. Schrum: Studebaker Corp., 635 South Main Street, South Bend, Ind.
D. M. Severy: Institute of Transportation & Traffic Engineering, University of California, Los Angeles, Calif.
J. P. Stapp, Col.: Advanced Studies Group, USAF Aerospace Medical Center, Box 2785, Brooks Air Force Base, Tex.
Boris Tourin (Irvin Michelson, alternate): Consumers Union of United States, Inc., Public Service Projects Department, 256 Washington Street, Mount Vernon, N.Y.
R. A. Wold (B. J. Campbell, alternate): Automotive Crash Injury Research, Cornell University, 316 East 61st Street, New York, N.Y.
D. R. Wolfslayer; Chrysler Corp., Post Office Box 1118, Detroit, Mich.

The attached SAE standards relating to—

1. Motor vehicle seat belt assemblies–SAE J4.
2. Motor vehicle seat belt installations–SAE J800.
3. Motor vehicle seat belt anchorage–SAE J787, are now being consolidated into one standard.

SAE HANDBOOK—SUPPLEMENT TR-219

ADVANCE ISSUE FOR 1962, MOTOR VEHICLE SEAT BELT ASSEMBLIES, SAE J4—SAE STANDARD

(Report of Motor Vehicle Seat Belt Committee approved November 1955 and last revised June 1961)

SAE standards and recommended practices are subject to frequent change to keep pace with experience and technical advances. Hence, the inclusion of the requirements specified in this SAE standard in State or Federal laws where flexibility of revision is lacking, is discouraged.

1. Scope

1.1 This standard applies to single occupancy, lap type seat belt assemblies intended for installation in motor vehicles. It specifies performance requirements and laboratories test procedures for such assemblies.[1]

2. Webbing

2.1 Width: Portions of the belt webbing which may come in contact with the occupant should be not less than 1⅞ inches wide under no load and not less than 1 13/16 inches wide when subjcted to the rated minimum test load specified in section 2.2.

2.2 Minimum strength: The rated minimum tensile strength of the webbing should be not less than 4,000 pounds when tested in accordance with section 2.5.

2.3 Elongation: Percent elongation of the webbing should not exceed 25 percent under 2,500 pounds tensile testload.

2.4 Resistance to abrasion: After the webbing is subjected to the abrasion test specified in section 2.6, the webbing shall retain 90 percent of the minimum tensile strength specified in section 2.2.

2.5 Tensile test: Three samples of the webbing should be tested to determine compliance with the width, minimum strength, and elongation requirements given in the preceding sections. The tensile tests should be made on samples which are at equilibrium wtih an atmosphere having a relative humidity of not more than 67 percent and a temperature of not more than 80° F. The samples should be tested in a suitable testing machine, using grips conforming to USAF Air Materiel Command drawings MIL-330, 330-1, 330-3, and 330-4. (Copies of these drawings may be obtained from the Society of Automotive Engineers, Inc., 485 Lexington Avenue, New York, N.Y.) The samples should be mounted in the machine when the grips are 6 to 10 inches apart. The machine heads should separate at a maximum rate of 4 inches per minute under no load. Before load is applied, the webbing width should be measured, and then remeasured while the elongation tensile testload of 2,500 pounds is applied. Before load is applied, the webbing should be suitably marked to facilitate measuring the elongation. Each test sample of the webbing should withstand a load at least equal to its rated minimum tensile strength for at least 3 seconds without failure.

2.6 Abrasion test: The webbing shall be tested for abrasion resistance on the device shown schematically in figure 1. The webbing A shall have one end attached to weight B. The webbing shall pass over the hexagonal bar C and shall be attached to the oscillating drum D. The drum shall oscillate so that the webbing is given a 13-inch traverse over the bar at the rate of 60±2 strokes per minute. Each stroke represents a 13-inch traverse in a single direction. Suitable guides shall be used to prevent lateral webbing movement parallel to the hexagonal bar axis. After 5,000 strokes the webbing shall be removed and

[1] Compliance with the requirements of this SAE standard does not provide assurance that, when the seat belt assembly is installed, the floor pan washers or other car structure reinforcing places supplied with the seat belt will be adequately strong to sustain the test load specified in sec. 3 1 for the belt assembly. Generally, a test of an installation in a car is necessary to determine the adequacy of the reinforcing plates. For recent models, data on tested anchorage installations can be obtained from the vehicle manufacturer.

the minimum tensile strength shall be determined as specified in section 2.5. New abrading edges of hexagonal bar C shall be used for each specimen tested. Weight B shall be 5.2 pounds±2 ounces.

2.7 Color and light fastness: The following requirements are listed in order to give reasonable assurance that the dye in the webbing will not harm clothing or that the color of the webbing will not substantially change.

2.7.1 Color fastness: For crock, both wet and dry, equal to or better than line 3 in the AAICC Chart for Measuring Transference of Color. (This requires the use of method 5650 of Federal standard CCC–T–191B).

2.7.2 Light fastness: Webbing should have a light fastness rating of fair to 40 hours when tested in accordance with method 5660 of Federal standard CCC–T–191B.

3. Belt assembly

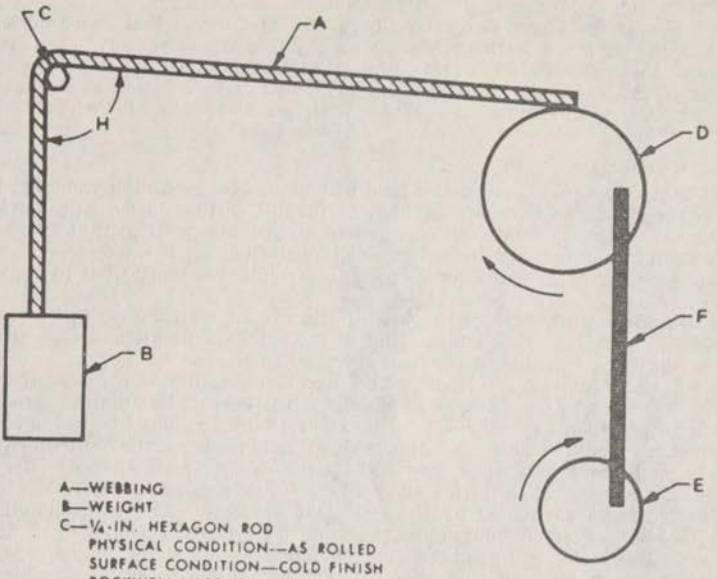
3.1 Rated minimum strength: The belt assembly, including webbing, buckle, and adjustment and attachment fittings, should withstand a static loopload of not less than 4,000 pounds when tested in accordance with section 3.4.

3.2 Maximum buckle release force: The belt buckle should release when a releasing force of not more than 45 pounds is applied, when tested in accordance with section 3.5.

3.3 Slippage: Slippage of the webbing in the adjusting means at or near the buckle, in the release mechanism, and at the attachment fittings, should not exceed a total of 1 inch under testload specified in section 3.1.

3.4 Rated minimum strength test: Three belt assemblies, selected at random, should be tested to determine compliance with the rated minimum strength requirement specified in section 3.1. Each belt assembly should be tested in a suitable testing machine or in an appropriate vehicle using the attachment bolts, fittings, and other hardware provided by the seat belt supplier as part of the assembly. The test installation should be made in accordance with the installation instructions furnished by the seat belt supplier. The load should be applied to the belt by a body block having the dimensions shown in figure 2. The body block should be constructed sufficiently stiff so as not to deform significantly under testload and the semicircular surface shall be padded with 1 inch of medium density sponge rubber, and covered with muslin fabric to simulate a person's body and clothing. For the test setup, either in the laboratory or in a vehicle, the distance from the top of the body block to the transverse reference line should be 19½ to 20½ inches as shown in figure 3 of the appendix, or 13½ to 14½ inches as specified in the seventh paragraph of the appendix. The intention is to have the attachment fittings so located and so spaced with respect to the body block as to simulate the conditions when the belt is installed in the vehicle.

Belt assemblies should be mounted for test so that they will be loaded as nearly as practical as they would be stressed when installed in a vehicle in accordance with the belt supplier's instructions. If the belt supplier's instructions describe more than one method of installation, the laboratory in installing the assembly for test should be guided by the method which in its judgment results in the most adverse angular and dimensional relationships authorized by the supplier. (See appendix for discussion of the critical angles and dimensions.) When testing in a vehicle, an angle of 45° will be assumed between the direction of load and horizontal reference. The test report should describe the test mounting of the belt assembly giving pertinent angles and dimensions. At least 10 inches of the free end of the webbing should extend beyond the adjusting means located at or near the buckle. In preparation for the test, care should be taken to lock the cam type buckle with only the static force of the spring. It must not be jammed down or allowed to snap down. If a metal-to-metal buckle is used it should be checked to determine that there is no danger of latching the two parts together in any manner resulting in reduced strength or holding ability; it should not be possible to obtain partial engagement. Before the load is applied, the webbing should be marked at the unloaded side of each piece of hardware in the belt assembly. After loading belt assembly and releasing load as described in section 3.5, total slippage measurement should be determined from markings and should not exceed amount specified in section 3.3. Load should be applied as to cause the body block to move at a maximum rate of 4 inches per minute under no load. Each sample tested should develop no less than the rated minimum strength specified in section 3.1. At this point, the test may continue for buckle release force as outlined in section 3.5.



A—WEBBING
B—WEIGHT
C—¼-IN. HEXAGON ROD
PHYSICAL CONDITION—AS ROLLED
SURFACE CONDITION—COLD FINISH
ROCKWELL HARDNESS—MINIMUM B 97, MAXIMUM B 101
D—DRUM 16-IN. DIA
E—CRANK
F—CRANK ARM
H—ANGLE FORMED BY WEBBING 85 ± 2 DEG

FIG. 1—ABRASION TEST

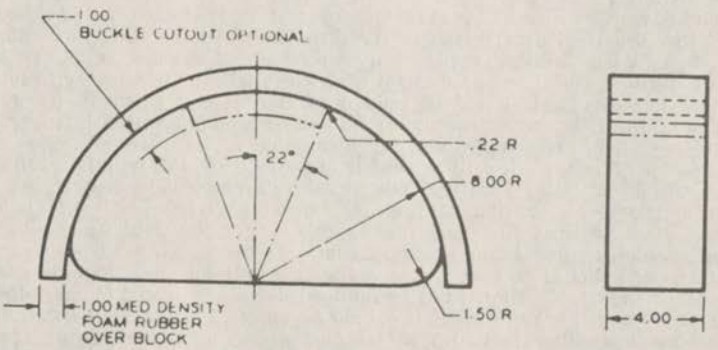


FIG. 2—BODY BLOCK

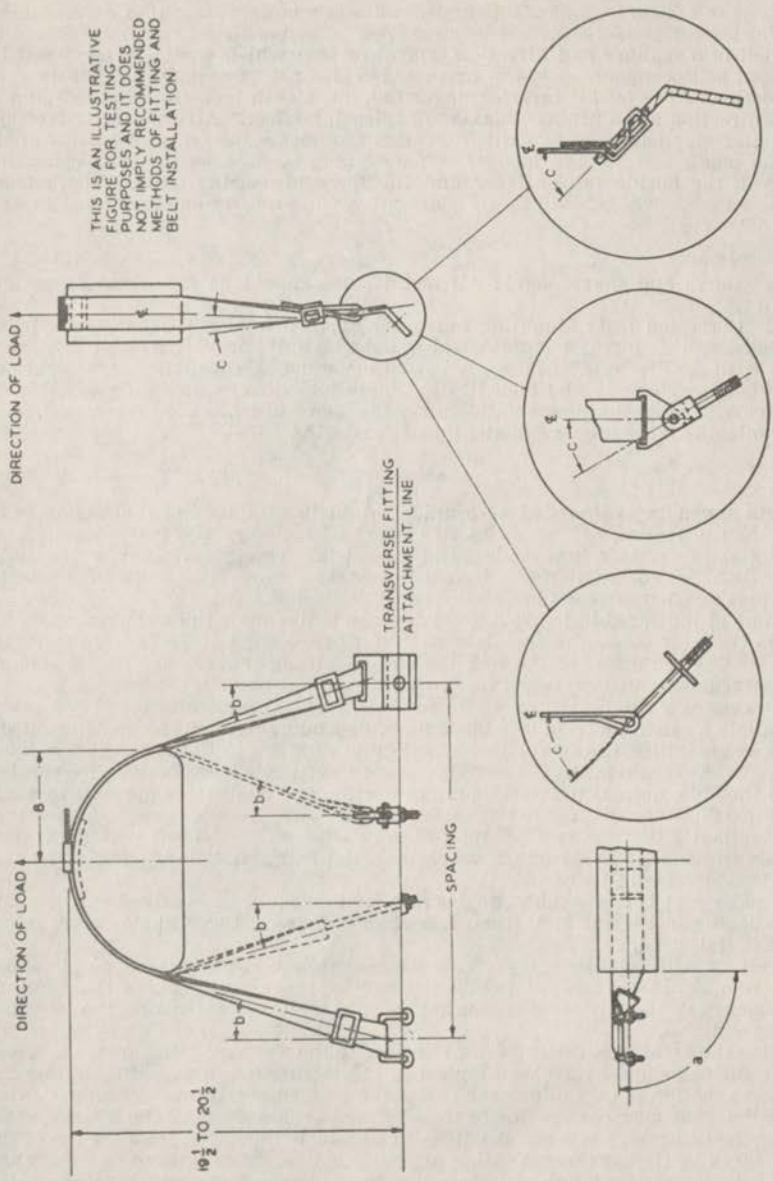


FIG. 3—TYPICAL TEST ARRANGEMENT

3.5 Maximum buckle release force test: Three belt assemblies should be tested to determine compliance with the maximum buckle release force requirement. The belt assemblies used in the rated minimum strength test may be used for this test. The load applied as recommended in section 3.4 should now be reduced to a loop load of 250 pounds, and while maintaining this reduced load, the buckle release force should be measured. The buckle release force should be applied in a manner and direction typical of that which would be employed by the seat belt occupant. For lever release buckles, the force may be applied on the centerline of the buckle lever or finger tab, one-eighth inch from its edge and in such direction as to produce maximum releasing effect. A three thirty-seconds-inch-diameter hole may be drilled through the buckle tab on lever at this application point, and a small loop of soft wire may be used as the connecting link between the buckle tab or lever and the force measuring scale. The release force, so measured, should be in conformity with the recommendations in section 3.2.

4. Metal parts

4.1 Burrs and sharp edges: All metal parts should be free from burrs and sharp edges.

4.2 Corrosion test: Mounting hardware exposed to the weather (floor bolts, washers, and so forth) should be subjected to a salt spray (fog) test in accordance with ASTM B–117–57T for a period of 50 hours, consisting of two periods of 24-hour exposure and 1-hour drying time each. There should be no evidence of excessive corrosion immediately after the above test has been completed, such as would affect the proper functioning of the device.

APPENDIX

This appendix is intended as a guide to aid in establishing the angles to be used in the testing of seat belts so that the laboratory test will stimulate as nearly as practical actual loading in the vehicle. The lateral spacing of attachment fittings and the angles a, b, and c (see fig. 3) are to be obtained from the seat belt instruction sheet or from the seat belt supplier.

Angle a, indicated in figure 3 or 90 degrees, is the angle the webbing twists between the body block and the attachment fittings. Angles b and c are the angles between the centerline of the webbing and a convenient reference line of each of the attachment fittings, taken in two views normal to each other. Angles a, b, and c represent angles which would result from vehicle installation. For example, angle a can vary from 0 to 90 degrees, depending on how the attachment fittings are installed in the vehicle. Angle b is obtained in the vehicle by viewing from the rear, normal to the webbing centerline; angle c is obtained by viewing from the side, normal to the webbing centerline and 90 degrees opposed to angle b. For belts intended for use with adjustable vehicle seats, these angles should be obtained with the seat in its full forward and full down positions. For fitting attachment to structure other than the floor, similar spacing and angle instructions should be used.

For any seat belt assembly, angles a, b, and c should be obtained in the nearest 5-degree increment and, when less than 5 degrees, these angles may be neglected, if desired.

For any seat belt assembly where more than one spacing is required for installation in different model vehicles, it may be necessary to check the different spacings with their corresponding angles a, b, and c, to determine the most adverse condition.

After the attachment fittings are alined with the webbing using angles a, b, and c, the fittings should then be attached to the testing machine, with suitable fixtures, to maintain this alinement under the no-load condition. During loading this alinement may change due to the stressing or distortion of the fittings.

For the laboratory test setup a 19½- to 20½-inch dimension from the top of the body block to the transverse fitting attachment line, figure 3, is to be used when seat belt attachments are mounted directly to the vehicle structure (namely: floor pan, wheelhouse, doors, and so forth).

If the seat belt is intended for attachment to the seat structure and if that structure were originally designed or reinforced to withstand the seat belt loads, a 13½- to 14½-inch dimension should then be used from the top of the body block to the transverse fitting attachment line.

NOTE.—SAE information report, "Motor Vehicle Seat Belt Installations" may be obtained by purchasing TR–177.

SAE HANDBOOK—SUPPLEMENT 177

INFORMATION REPORT, MOTOR VEHICLE SEAT BELT INSTALLATIONS, SAE J-800

SAE handbook supplements.—SAE handbook supplements are publications containing one or more SAE standards, recommended practices, or information reports. Their content is approved by SAE in the same way as that of the SAE handbook. SAE handbook supplements, previously referred to as SP's' (special publications) or TR's (technical reports), will retain their original number designation but the prefix HS will gradually replace the SP or TR prefix.

(Report of SAE Motor Vehicle Seat Belt Committee approved March 1960)

This SAE information report is intended to apply to installation of individual occupancy seat belts.

In the installation of seat belts, the manufacturers' instructions should be followed closely. The degree of protection provided for the driver or passenger will greatly depend on the proper installation.

Where the manufacturers' instructions are not clearly outlined, or where they are not applicable to the vehicle involved, the following recommendations are offered for guidance:

1. The seat belt should meet the requirements of the current SAE recommended practice, motor vehicles seat belt assemblies, SAE J-4.
2. Anchor to adequate structures such as body or floor pan, but not to the seats.
3. Locate points of attachment on floor pan or other structure as follows:

(*a*) If seat is adjustable, move it to rearmost position.

(*b*) Mark floor pan or structure so that belts slope to rear on way down to attachment points.

(*c*) When restraining occupant, belt must bear on hipbone structure and pull downward and rearward at about 45 degrees.

(*d*) Space attachment points laterally to have belt take U shape with nearly parallel sides when worn.

4. Drill holes, avoid damaging exhaust system, brake, and fuel lines; also do not locate near other holes which might weaken floor pan.
5. Install attaching brackets, U bolts or T bolts, using reinforcing plate furnished.
6. Install belt in a manner to minimize the likelihood of its pinching in the door. Extra care should be taken regarding the buckle.
7. Pass belts through or around seat to rear, avoiding rough edges in choosing the belt path.
8. Thread belts carefully through attachment brackets per manufacturers' instructions, allowing adjustment to provide a snug fit for all users. The importance of proper threading of the belt through the brackets cannot be stressed enough, and this part of the installation should be double checked to see that it follows the manufacturers' instructions.

SAE TECHNICAL BOARD RULES AND REGULATIONS

All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or SAE recommended practice, and no commitment to conform to or be guided by any technical report.

In formulating and approving technical reports, the technical board, its councils and committees will not investigate or consider patents which may apply

to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents.

(Published December 1961, Society of Automotive Engineers, New York, N.Y.)

SAE Handbook—Supplement 12

Motor Vehicle Seat Belt Anchorage, SAE J787—SAE Recommended Practice

(Report of body engineer committee and motor vehicle seat belt committee approved November 1961)

(SAE standards and recommended practices are subject to frequent change to keep pace with experience and technical advances. Hence, the inclusion of the requirements specified in this SAE recommended practice in State or Federal laws where flexibility of revision is lacking is not recommended.)

1. Scope

1.1 This SAE recommended practice applies to the anchorage or attachment of seat belts to the structure of motor vehicles. It specifies the type and location of anchorages for the seat belts when the anchorages are provided, the provisions for identifying the location of the attachment points for the seat belts when anchorages are not provided, and the strength requirements.

2. Definitions

2.1 Seat belt anchorage: A seat belt anchorage consists of a threaded hole in suitable structure to receive the seat belt attachment fitting.

2.2 Attachment point: An attachment point consists of a dimple or other suitable means to identify vehicle structure locations at which seat belt attachments may be made.

3. General

3.1 Anchorages or attachment points should be provided for seat belt installations in passenger cars for each occupant for which a seat is designed. It is recommended that anchorages be provided to accommodate individual seat belts for at least two occupants of the front seat in passenger cars.

3.2 A common anchorage or attachment point may be provided to receive one end of a center belt and one end of a outboard belt.

4. Seat belt anchorage provision

4.1 The specifications of the threaded hole should be $\frac{7}{16}$–20 UNF–2B.

5. Location of anchorages or attachment points

5.1 Location of the anchorages or attachment points in the fore and aft direction for the front seat belts (or seat belts for rear seats of similar type) should be determined with the seat in its rearmost limit of travel.

5.2 The outboard anchorages or attachment points for front seat belts for a multioccupant front seat, or both anchorages or attachment points for a single occupant front seat, may be located to permit the belt to pass around the outside of the seat.

5.3 Location of anchorages or attachment points for front or rear seat belts that will be installed in a manner so that the seat frame will not restrain a loaded seat belt (belt outside seat or through seat springs) should be such that a line from the anchorage or attachment point to the passengers' hip points will make an angle from the horizontal as near as practical to 45°, as shown in figures 1 and 2.

Note.—The tendency for cushion dislodgment when the seat belt is loaded should be considered.

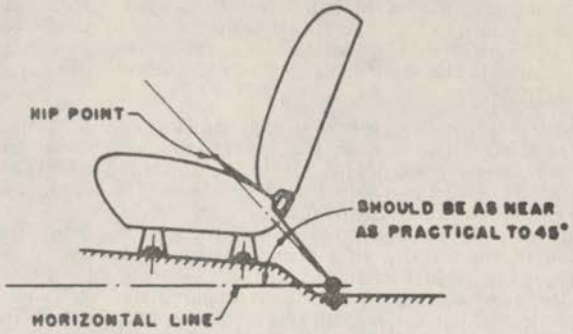


FIG. 1 - BELT OUTSIDE SEAT OR THROUGH SEAT SPRINGS

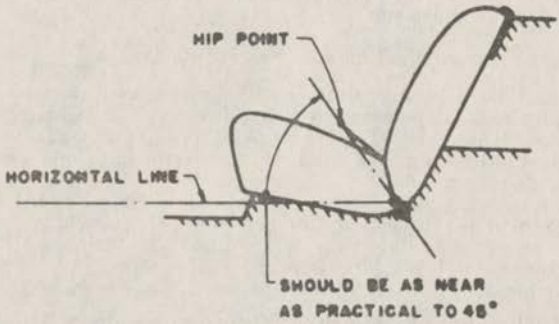


FIG. 2 - REAR SEAT BELT INSTALLATION

5.4 Location of anchorages or attachment points for seat belts that will be installed over the seat bottom frame rear bar should be rearward of a vertical line through the point where the seat belt will enter the seat, as shown in figure 3.

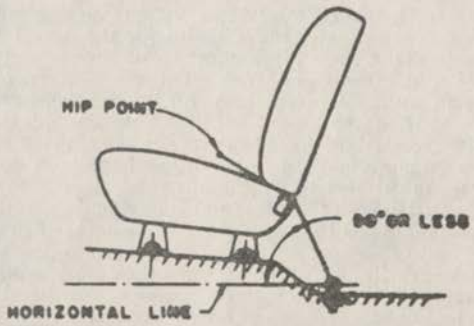


FIG. 3 - BELT OVER SEAT CROSS BAR

5.5 The anchorages or attachment points in the lateral direction for front and rear seats should be spaced so that the belt when in use essentially forms a U-shaped loop with nearly parallel sides. In no case should both ends of one belt be connected to the same anchorage or attachment fitting.

6. Strength requirements

6.1 The vehicle structure, the seat belt anchorages, and the attachment fittings shall be designed to sustain the loads that would result from a pull of 5,000 pounds per body block (defined in SAE standard, motor vehicle seat belt assemblies—SAE J4) when two body blocks at one seat are loaded simultaneously in the manner described in paragraph 6.2.

NOTE.—There may be substantial floor deformation resulting from this test. The correlation of the amount of deformation resulting from a static test to the amount resulting from dynamic conditions is being further studied.

6.2 Method of load testing front or rear anchorages: The load test may be conducted with or without the seat in place. The seat should be in place when the vehicle structure or seat frame is affected by the load on the belt. If the seat is in place, the connection from the body block to the anchorages or attachment fittings should be made in the same manner in which the seat belts would be installed, and the body block pulled at a 45° angle from the horizontal. Without the seat in place, the body block should be connected to the anchorages or attachments and pulled at this same 45° angle.

6.3 Common inboard anchorages or attachment fittings should be designed to sustain a pull of 5,000 pounds each.

SAE TECHNICAL BOARD RULES AND REGULATIONS

All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or SAE recommended practice, and no commitment to conform to or be guided by any technical report.

In formulating and approving technical reports, the technical board, its councils and committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against liability for infringement of patents.

(Published December 1961, Society of Automotive Engineers, New York, N.Y.)

Mr. ROGERS of Florida. Mr. Clerk, are there any more witnesses? Is Mr. Wakeland here?

If not, Mr. Wakeland's statement may be made a part of the record.

(The statement referred to follows:)

STATEMENT BY HENRY H. WAKELAND, AUTOMOTIVE CONSULTANT, NEW YORK, N.Y., IN SUPPORT OF H.R. 134

Mr. Chairman, I am Henry H. Wakeland, an automotive consultant. I am deeply interested in achieving safer automobiles for the American public. This statement is personal rather than representative of any organization, and prepared for presentation at my own expense. The views given are based on my early experience as an automotive engineer for one of the manufacturers, and on my studies since 1957 of the policy questions and technical issues of automobil safety. I have received advanced degrees in both mechanical engineering and political science from recognized universities, have been an active member of the appropriate technical society continuously for nearly 15 years and have published papers recently in both technical and policy fields.

Mr. Chairman, the public has the same right to be assured that an automobile safety belt will live up to its expected function as it has to know that drugs are safe and that fire escapes will not fall down when they must be used. Experience shows that good intentions of producers are not enough to insure this safety.

Two things must be done: (1) some agency so constituted as to be genuinely responsive to the public need must decide how much safety is required in "safe" safety belts, and (2) a method of enforcing the requirements must be set up. The questions are what kind of standard-setting agency is best and what kind of governmental agency, Federal or State or both, should enforce the standard.

FEDERAL AGENCY STANDARDS FAIREST AND MOST ADVANCED

Federal sponsorship and administration of the standard-setting process is potentially the fairest way to resolve the controversial decisions of how much safety a safety belt should have. Federal leadership in specifications is demonstrably in advance of State or technical society actions. Federal standard setting would not conflict with the growth or function of interstate compacts in safety equipment.

In the problem of finding fair standards for safety belts it is most significant that the belts reduce injuries rather than preventing all injuries. The probability of injury is related to the strength of the belt, the amount of elongation of the belt, the configuration of the belt, and the convenience of use of the belt. These are balanced against the costs, and it has been found that those who pay the cost most directly have a different view of the importance of a good belt than those who do not.

There are few data which can guide the selection of a standard exactly. For this reason, the compromise reached represents the points of view of those persons who are chosen to set the standard. Unavoidably, the administrative method of choosing the members of the group, the rules of consideration and argument of the issues, and the rules of voting will have a strong effect on the decision.

The mechanism of selecting members of a standard-setting group ought to assure not only professional knowledge of the subject but quantitative balance of all the interests and points of view, including those of consumers. Freedom from domination by any single point of view should be assured. Voting rules should not allow an effective veto by any interest group and should not encourage adoption of the lowest common denominator.

Standard-setting work has various costs, including that of staff assistance. This financing, and the possible continuation of financing, should be free of the possibility that it will be influenced by the decisions that are made. The process of decision and the reasoning employed ought to be open to public view.

In my view, those States which have adopted safety belt legislation have not yet evolved such a mechanism of standardizing safety belts which assures that the result must be primarily responsible to the public. At least one State has released its standard-setting responsibility in safety belts to a technical society, but without requiring any necessary administrative principles.[1] If the past pattern of policies urged upon States continues, States which decide to require safety belt installations will continue to be asked to release the responsibility for standard-setting.

The practical justification for a State vacating this decision role is simply that most States do not have the resources to study the problem.

It has been suggested that interstate compacts will eventually provide an organized approach to meet the inadequacies of the States' approach. The basic idea of such compacts is good. However, the vehicle equipment compact legislation still lacks a specific method of assuring an interest-balanced approach to standards.

The legislation does not have specific provisions which insure fairness in the self-developed standards under the compact nor is any evaluation of the interest structures behind outside standards required. Under the compact, the

---

[1] Some facets of the administration of a nongovernmental specification-writing agency, the Society of Automotive Engineers, are worthy of note. All the members of the Society's Motor Vehicle Safety Belt Committee could be correctly called professional men. They are advised by SAE rules (1962 SAE handbook) that they are to function as individuals, not as representatives of organizations by which they may be employed. Those organizations which employ the members, but which they do not represent, are listed beside each name in the committee roster in the handbook. Among 19 names so listed, eight are employed by automobile manufacturers, including the chairman, vice chairman, and sponsor. There are two names for each of the three largest corporations, and one name each from the two smaller corporations. Three members are employed by research organizations which have been recently dependent upon a combination of grants from automobile manufacturers and Government. Among the remaining eight names, two are associated with the safety belt industry, two with insurance, one with a consumer's organization, and one with a safety council. One official of the motor vehicle department of one State is listed. The very important point of view of the medical profession participates through one physician, the only member not listed by organization.

To adopt a new standard, the handbook explains, the committee must reach a three-fourths agreement and the change must be approved by a second three-fourths vote in a higher body, the Automotive Council of the SAE Technical Board. SAE Technical Committee operations are supported entirely by income from industry and rebudgeted each year, according to an SAE policy of Apr. 11, 1956, published in SAE Journal, November 1960, p. 100.

approval process relies on the assembled technical judgment of the motor vehicle administrators appointed in each political subdivision of the Nation. If the compact is ratified by all States, the vehicle equipment safety commission will have 50 commissioners. Such a body is not only of an unwieldy size, but its source of members does not insure that more than a few decisionmakers will have any background in the subjects to be treated.

Furthermore, any standards adopted, including those for safety belts, will not necessarily take care of the national problem even if the compact were fully ratified. The Council of State Governments lacks authority to require acceptance of the commission's standards except as the States may decide to act. When the commission makes its first technical error, the States will also discover that the commission cannot be held responsible for its decisions, either legally or politically. In the case of the Federal standard, clear channels of responsibility exist.

The vehicle equipment compact is not remotely a reason for delay in implementing H.R. 134. The leadership of Federal standards will always contribute to solution of such problems, and without causing any loss whatever to the States. Neither is duplication of any importance. The standard having the more complete requirement will govern. Duplication is a problem only where the goal of a standard is achieving interchangeablity.

I conclude that the Federal ability to create a balanced and effective decision process for standard-setting is substantially greater than that of any State or combination of States.

The leadership of Federal agencies has undoubtedly been the main force in development of improved safety belt specifications. The original CAA specification of 3,000-pound loop load for aircraft safety belts appears to have been the basis for the first SAE recommended practice (3,000 pounds) which followed it. The next important specification change was a scaling upward to a 5,000-pound specification in the Federal specification adopted by General Services Administration. The SAE recommendation has now also been raised, but only to 4,000 pounds.

It appears that one type of belt and buckle functions adequately to 4,000 pounds while other types are able to withstand 5,000 pounds. An SAE standard could have been adopted to define two classes of belts, a standard 4,000-pound type and a standard 5,000-pound type. This would have been completely in accord with accepted canons of ethics of the engineering profession. Had this been done, however, the basis of the law in States which transfer the resopnsibility for specifications to SAE would have been confused. Which statement of SAE would be legally in effect?

In this context, it can be seen that nonadoption of the possible 5,000-pound standard by the SAE committee positively insured that a State dependent on the SAE decision could not disallow the lower strength belts, whether they were required to be supplied by manufacturers as original equipment or sold separately.

A further result of the 4,000-pound decision is that SAE has no means of recognizing the ability of the higher strength belts and buckles. Catalog statements for those belts which do meet the 5,000-pound load now carry the phrase "meets Federal specification."

I conclude that Federal agencies are still exerting most of the leadership in writing those seat belt specifications which are most effective at protecting the user.

Several agencies within the Department of Commerce are capable of organizing a balanced standard-setting process. Specifically, an "organizing agency" function which assist in the formation of safety regulations is found in the National Bureau of Standards (U.S. Government Organization Manual, 1961–62, top of p. 311). This agency is probably already budgeted, and NBS personnel are fully capable of understanding the problems of the safety belt.

PROPOSED ADDITION TO H.R. 134

The following sentence is suggested to be added to H.R. 134 in line 5, page 1: "The method of determining such standards employed by the Secretary of Commerce shall systematically take into account the viewpoint of the knowledgeable professions and the definable interests, allowing neither disproportionate weight nor an effective veto to any profession or interest."

This provision not only tends to balance the process, but would allow the Secretary of Commerce to take the lead in obtaining the necessary viewpoints. There are differences in the amount of effort which the different interests employ in advancing their viewpoints.

FEDERAL ENFORCEMENT SATISFACTORY

Enforcement of public safety requirements can be done only by an agency of government—Federal, State, or municipal. Municipal enforcement has never been suggested. Federal enforcement in interstate commerce would probably apply to a majority of the belts which could be marketed economically. Federal enforcement would apply to these belts even where no State enforcement was in effect. I do not know of any State in which an active enforcement program is underway.

Without Federal standards and enforcement there will be no protection whatsoever for purchasers and users in many States. In those States which do have laws and nominal enforcement, a Federal law with higher requirements may preempt the State law, but that will be no burden to the State. Neither will it injure the manufacturers in their logical desire to avoid different standards in different States.

The Department of Commerce seems to have no specifically named enforcement agency at present which could add enforcement of safety belt standards to similar duties already being carried out. However, the model of such an enforcing agency exists in the Food and Drug Administration. The Food and Drug functions are effective, as in the thalidomide case, despite the added existence of State and city health departments which also work in the food service field. The standards and regulations have been arranged to complement each other rather than to conflict.

The technical method of sampling consumer products direct from stores or auto dealers is well understood and established with consumer testing agencies. I have personally seen load applying and measuring machines adequate for testing the belts at the National Bureau of Standards. Enforcement could also employ the method of reviewing reports of reputable commercial testing agencies. The amount of enforcement effort needed would decline considerably after seat belt manufacturers passed through an educational period.

H.R. 134 is a definite need if the public is to have any assurance that automobile safety belts will function as expected in an emergency.

The executive branch is charged with enforcing the laws of Congress. There is every reason to believe that the Secretary of Commerce has, or can obtain, all the means necessary to develop a standard and to enforce it.

Mr. ROGERS of Florida. This will conclude the hearings on this legislation.

We appreciate very much your help and interest.

There has been some material submitted to the committee to be included in the record. If there is no objection, it will be inserted at this point.

OFFICE OF THE SECRETARY OF DEFENSE,
Washington, D.C., August 9, 1962.

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Health and Safety, Committee on Interstate and Foreign Commerce, House of Representatives.

DEAR MR. CHAIRMAN: In response to your request of July 27, 1962, there are attached summary data on motor vehicle accidents reported by the Departments of the Army and Navy for calendar years 1959 through 1961. Similar data for the Department of the Air Force are available, but there are some differences between them and the February 8, 1962, testimony cited in your letter. As soon as these differences are reconciled, the Air Force data will be forwarded to you.

No particular significance should be attached to the differences in the accident and fatality rates of Government-owned vehicles and similar rates for privately owned vehicles. A comparison of the rates for these two general classes of vehicles is not valid because of the different bases used in their computation.

Sincerely,

C. R. RODERICK,
Brigadier General, U.S. Air Force,
Director, Office of Legislative Liaison.

Report on motor vehicle accidents

	Department of the Army			Department of the Navy		
	Calendar year			Calendar year		
	1959	1960	1961	1959	1960	1961
Part I, Government-owned motor vehicles:						
Total miles driven (thousands)	1,111,060	1,170,480	1,212,526	274,581	273,183	279,683
Number of accidents	11,690	13,318	11,317	3,154	3,146	2,562
Accident rates [1]	1.05	1.14	0.93	1.15	1.15	0.92
Number of fatalities	83	71	81	17	12	15
Fatality rates [2]	7.47	6.07	6.68	6.19	4.39	5.36
Costs (thousands of dollars)	$7,954.1	$8,741.7	$9,897.7	$1,823.0	$1,421.0	$1,601.0
(a) Fatal injuries	2,740.6	2,783.2	3,258.8	261.0	184.0	231.0
(b) Other injuries	1,661.2	1,555.5	1,561.2	819.0	548.0	694.0
(c) Property damage	3,552.3	4,403.0	5,077.7	743.0	689.0	676.0
Number of man-days lost	21,008	22,792	21,186	13,420	8,624	11,831
Part II, privately owned motor vehicles:						
Military strength (man-days)	341,921,655	347,401,933	357,902,800	293,268,375	289,630,200	297,502,375
Number of accidents	2,999	3,015	2,936	5,145	4,920	4,435
Accident rates [3]	0.88	0.87	0.82	1.75	1.70	1.49
Number of fatalities	415	429	364	502	492	458
Fatality rates [3]	0.12	0.12	0.10	0.17	0.17	0.15
Costs (thousands of dollars)	$20,071.2	$21,583.8	$19,327.6	$22,143.0	$21,360.0	$19,478.0
(a) Fatal injuries	14,102.0	16,816.8	14,680.2	7,736.0	7,584.0	7,060.0
(b) Other injuries	5,969.2	4,767.0	4,647.4	14,407.0	13,776.0	12,418.0
Number of man-days lost	74,148	69,916	62,612	235,642	216,991	211,550

[1] Accidents per 100,000 miles driven.
[2] Fatalities per 100,000,000 miles driven.
[3] Accidents or fatalities per 100,000 man-days.

OFFICE OF THE SECRETARY OF DEFENSE,
Washington, D.C., August 31, 1962.

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Health and Safety, Committee on Interstate and Foreign Commerce, House of Representatives.

DEAR MR. CHAIRMAN: In further response to your request of July 27, 1962, there are attached summary data on motor vehicle accidents reported by the Department of the Air Force for calendar years 1959 through 1961. The data provided by Col. John P. Staff in his February 8, 1962, testimony before the subcommittee are based on final clinical records. We are advised by the Air Force that the data presented herein are based on medical estimates made at the time the accident is reported. There are, therefore, some variances, particularly in the "days hospitalized" and "man-days lost" information.

If we can be of further assistance to you, please do not hesitate to call upon us.

Sincerely,

C. R. RODERICK,
Brigadier General, USAF,
Director, Office of Legislative Liaison.

DEPARTMENT OF THE AIR FORCE

Report on motor vehicle accidents

	Calendar year—		
	1959	1960	1961
Part I—Government-owned motor vehicles:			
Total miles driven (thousands)	499,148	512,612	546,042
Number of accidents	3,287	2,997	2,847
Accident rates [1]	0.66	0.58	0.52
Number of fatalities	13	13	9
Fatality rates [2]	2.60	2.54	1.65
Costs (thousands of dollars)	$1,398 0	$1,276.2	$1,134.0
(a) Fatal injuries	409.5	409.5	283.5
(b) Other injuries	146.1	111.7	114.2
(c) Property damage	842.4	755.0	736.3
Number of man-days lost	4,869	3,724	2,374
Part II—Privately owned motor vehicles:			
Military strength (man-days)	305,582,451	299,295,170	304,717,073
Number of accidents	3,403	2,960	2,856
Accident rates [3]	1.11	0.99	0.94
Number of fatalities	478	441	384
Fatality rates [3]	0.16	0.15	0.13
Costs (thousands of dollars)	$18,411.9	$16,849.3	$15,064.7
(a) Fatal injuries	15,057.0	13,891.5	12,096.0
(b) Other injuries	3,354.9	2,957.8	2,968.7
Number of man-days lost	82,681	66,643	62,024

[1] Accidents per 100,000 miles driven.
[2] Fatalities per 100,000,000 miles driven.
[3] Accidents or fatalities per 100,000 man-days.

THE AMERICAN PUBLIC HEALTH ASSOCIATION, INC.,
Washington, D.C., August 16, 1962.

HON. KENNETH A. ROBERTS,
Chairman, Health and Safety Subcommittee, House Committee on Interstate and Foreign Commerce, New House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: I wish, in behalf of the American Public Health Association, to apprise you and your committee of our support of H.R. 134, a bill to provide that seat belts sold in interstate commerce for use in motor vehicles shall meet certain standards.

You are familiar with APHA's concern over the past number of years in the prevention of accidential deaths and disability. This has applied to the many areas where accidents are a serious public health problem including, among other sites, the home, occupational surroundings and, of course, the automobile. In 1958 the governing council of APHA adopted a resolution which urged:

"Federal agencies, State, and territorial health officers and other interested groups of the several States and territories of the United States to encourage the equipping of all official State, county, city, and Federal automobiles with seat belts which meet acceptable standards."

In addition it was urged that every effort be made to encourage wider use of seat belts by the general public.

It is heartening to us and to everyone interested in automobile safety to witness the increasing acceptance of the need for and use of automobile seat belts. This acceptance is not as complete as it should be and efforts toward greater use of seat belts is a continuing concern and endeavor of the APHA. As public acceptance increases these is an increasing danger that unscrupulous commercial promoters may attempt to gain personal profit through the manufacture, promotion and/or sale of seat belts of an inferior quality. May I direct the attention of your committee to a portion of the resolution previously stated. Even at the early date of the adoption of this resolution (1958) there was recognition given by the APHA's governing council to the necessity for the use of seat belts which meet acceptable standards.

Because of this longstanding resolution and in cognizance of the desirability of standards for the manufacture of seat belts which will provide the safety desired in auto seat belts, the APHA supports the objectives of H.R. 134 and urges favorable consideration by your committee and the Congress.

Respectfully yours,

NOBLE J. SWEARINGEN,
Director, Washington Office.

AMERICAN DENTAL ASSOCIATION,
Washington, D.C., August 17, 1962.

Hon. KENNETH A. ROBERTS,
Chairman, Subcommittee on Health and Safety, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D.C.

DEAR MR. ROBERTS: On behalf of the 97,000 members of the American Dental Association, I respectfully submit this statement for inclusion in the printed record of the hearings on H.R. 134, a bill to provide that seat belts sold or shipped in interstate commerce for use in motor vehicles shall meet certain safety standards.

For many years the American Dental Association has been concerned with the problem of injuries and fatalities resulting from automobile accidents.

The association has cooperated with the National Safety Council and other interested organizations in promoting safety on the highways and in urging its members and their patients to install safety belts in their cars and take other actions to help reduce the terrible toll of injuries and deaths from highway accidents.

The dental profession is particularly concerned with the large number of injuries to the head and facial regions of the body resulting from automobile accidents. In an automotive crash injury research project of Cornell University[1] involving a study of 14,520 automobile accidents in which at least one occupant of the vehicle was injured, it was found that "children, adolescents and adults showed a similar pattern of injuries among body areas: In each of the three age groups, the head was the body area most often injured."

Head injuries were suffered by 77.4 percent of the children, 69.4 percent of the adolescents and 69.8 percent of the adults. For all the age groups, injuries to the head surpassed by large margins injuries to other areas of the body.

In 1957 it was estimated[2] that about 912,500 persons received head injuries annually in automobile accidents in the United States. Today the total doubtless has greatly surpassed the 1 million mark. Although facial fractures and soft tissue injuries are not immediately dangerous to life, they constitute an immediate problem for surgical care. Often the oral surgeon is called on to reset the fractured jaws and remove hopelessly damaged teeth. The general dental practitioner or the specialist are asked to replace lost teeth, repair broken dentures, treat the injured periodontium or restore occlusion.

It is clear that the dental profession has a responsibility to assist in every way possible the efforts to reduce the incidence of highway accidents and the severity of the injuries that result. In recognition of this responsibility, the American Dental Association's Council on Dental Health has adopted policy relating to highway safety and particularly to the use of seat belts. A copy of the pertinent resolution follows:

"*Resolved*, That the American Dental Association vigorously support the efforts of the National Safety Council to make the public aware of the effectiveness of automobile seat belts in saving life and reducing the incidence of injuries, particularly those resulting from blows to the face and head; and be it further

"*Resolved*, That constituent and component dental societies be urged to cooperate with other State and local organizations in promoting the safety measure in their communities; and be it further

"*Resolved*, That individual dentists be motivated to follow the practice themselves and to encourage their patients and fellow citizens to do so."

---

[1] Moore, John O., and Lilienfeld, Robert, "The Child in Injury-Producing Automobile Accidents: A Preliminary Report," November 1959. Unpublished.

[2] Editorial, "Holiday Highway Accidents Increase the Dentist's Responsibility," Journal of the American Dental Association, 55: 419, September 1957.

Experience and research have demonstrated that installation and use of properly constructed seat belts can contribute significantly to the reduction of automobile accident injuries. It is also obvious that imperfectly constructed or installed seat belts may cause more harm than good and measures should be adopted to assure that appropriate standards are observed in the manufacture and installation of such devices. Accordingly, it seems clear that the formulation and enforcement of such standards by proper authority has much to commend it.

Although the dental profession has no expertise in the field of specifications and standards for the design and construction of automobile seat belts, it is believed that the purpose sought to be achieved through enactment of your bill, H.R. 134, is laudatory and the American Dental Association therefore offers its wholehearted support.

The association also wishes to take this opportunity to commend you for your interest and support of many measures to improve the health and safety of the American people.

Sincerely yours,

HOWARD J. NIEDHAMER, D.D.S.,
Member, Council on Legislation.

DENVER, COLO., *August 16, 1962*

HON. KENNETH A. ROBERTS,
Chairman, Subcommittee on Health and Safety, House of Representatives, House Office Building, Washington, D.C.

DEAR MR. ROBERTS: As an active proponent of seat belts for automobiles since early 1953, I would like to add my support to H.R. 134, which seeks to establish a national standard of specifications for the automobile seat belt.

While it must be admitted that the poorest seat belt is better than none at all, it is tragic that so many substandard are at present offered for sale. The situation is chaotic in the extreme, and is not to be solved by a widely varying array of separate State standards.

It is now becoming realized that the automobile seat belt offers more protection than anything else that can be done immediately, and it therefore becomes most essential that only good belts be offered for sale.

The current standard offered by the motorcar industry is not realistic, and only came into being because of the aviation seat belt standard, established by the Federal authorities.

There is a real need for H.R. 134, and I offer my wholehearted support of this measure.

Yours very sincerely,

HORACE E. CAMPBELL,
Chairman, Automotive Safety Committee, Colorado Medical Society; formerly Vice Chairman, Committee on Medical Aspects of Automobile Injuries and Deaths, American Medical Association.

Mr. ROGERS of Florida. The committee is now adjourned.

(Whereupon, at 11 a.m., the hearing was concluded.)

○