PLAINTIFF'S EXHIBIT NSC-172

# Order Form 1970 Congress Transactions

| Quantity Ordered | Stock No. | Vol. No. | Title | 1-9 Copies | 10 or more |
|---|---|---|---|---|---|
| | 022.22-1 | 1 | General Sessions & Index to all Volumes | $ .95 | $ .75 |
| | 022.22-2 | 2 | Aerospace; Air Transport | .95 | .75 |
| | 022.22-3 | 3 | Automotive & Machine Shop; Power Press & Forging | .95 | .75 |
| | 022.22-4 | 4 | Cement, Quarry & Mineral Aggregates | .55 | .50 |
| | 022.22-5 | 5 | Chemical; Fertilizer; Research & Development | .95 | .75 |
| | 022.22-6 | 6 | Civic Leadership; Church, Women, Youth, Farm | .95 | .75 |
| | 022.22-7 | 7 | Coal Mining | .95 | .75 |
| | 022.22-8 | 8 | Construction; Public Employee | 1.25 | 1.10 |
| | 022.22-9 | 9 | Electronic & Electrical Equipment | .55 | .50 |
| | 022.22-10 | 10 | Food & Beverage; Meat & Leather Industries; Trades & Services | .95 | .75 |
| | 022.22-11 | 11 | Glass & Ceramics; Rubber & Plastics | .95 | .75 |
| | 022.22-12 | 12 | Industrial Subject Sessions; Associations | 1.25 | 1.10 |
| | 022.22-13 | 13 | Labor | .95 | .75 |
| | 022.22-14 | 14 | Marine | .95 | .75 |
| | 022.22-15 | 15 | Metals | .55 | .50 |
| | 022.22-16 | 16 | Mining | .95 | .75 |
| | 022.22-17 | 17 | Motor Transportation | .95 | .75 |
| | 022.22-18 | 18 | Occupational Health Nursing; Hospitals | .55 | .50 |
| | 022.22-19 | 19 | Petroleum | .95 | .75 |
| | 022.22-20 | 20 | Public Utilities | .95 | .75 |
| | 022.22-21 | 21 | Pulp & Paper; Printing & Publishing | .95 | .75 |
| | 022.22-22 | 22 | Railroad | .55 | .50 |
| | 022.22-23 | 23 | School & College | 1.25 | 1.10 |
| | 022.22-24 | 24 | Traffic; Driver Improvement | .95 | .75 |
| | 022.22-25 | 25 | Wood Products; & Textile | .95 | .75 |
| | 022.22-26 | 26 | Early Morning Sessions | .55 | .50 |
| | 022.22-27 | 27 | Public Safety | .95 | .75 |
| | 022.22-28 | 28 | Home Safety | .95 | .75 |
| | 022.11 | | COMPLETE SET OF 28 VOLUMES | | $14.50 |

**Automatic 20% discount to NSC members; 10% to U. S. Federal Government Agencies. Payment must accompany all orders of $5.00 or less.**

**SHIP TO:**

Organization_____

Address_____

City_____ State_____ Zip Code_____

to Attention of_____

**BILL TO:**

Organization_____

Address_____

City_____ State_____ Zip Code_____

to Attention of_____

Customer's Purchase Order Number_____

MAIL TO: **NATIONAL SAFETY COUNCIL**
**425 North Michigan Avenue • Chicago, Illinois 60611**

47102 PRINTED IN U.S.A. 022.22—17



COPYRIGHTED MATERIAL
LIBRARY

# 1970

## VOLUME 17

## NATIONAL SAFETY CONGRESS TRANSACTIONS

# MOTOR TRANSPORTATION

COMMERCIAL VEHICLE SECTION
SCHOOL TRANSPORTATION SECTION
TRANSIT SECTION

**NATIONAL SAFETY COUNCIL**
**425 North Michigan Avenue**
**Chicago, Illinois 60611**

# 58th NATIONAL SAFETY CONGRESS

## Papers Delivered in the

# MOTOR TRANSPORTATION SESSIONS


Report to the Section ..... *Dwight E. Ray* 4

Improving the Image of Transportation Through Safety ..... *William L. Fayle* 4

SCHOOL TRANSPORTATION SECTION

- Evacuation of Schools by Bus ..... *Cmdr. William R. Mooney* 8
- Stanley, The Talking Bus ..... *O. G. Parrish* 9
- The Golden Rule ..... *Ray Martinez* 10
- School Bus Body Standards ..... *James B. Summers* 11
- School Bus Chassis Standards ..... *G. A. McCall* 16
- School Bus Operations ..... *Morris W. Rannels* 19

TRANSIT SECTION

- Keynote Address ..... *Wilson C. Driggs* 25
- Security and Safety ..... *Robert J. McCullough* 28
- Retraining ..... *Glenn R. James* 30
- The Safety Seat Brake ..... *M. H. Wooten* 32
- Cooperative Attitudes Promote Safety ..... *Max L. Rise* 33

Officers of the Motor Transportation Conference, 1970-71 ..... 36

Future Dates of the National Safety Congress ..... 39

Other Volumes in the 1970 National Safety Congress Transactions..... *Back Cover*

# COMMERCIAL VEHICLE SESSIONS

## REPORT TO THE SECTION

By DWIGHT E. RAY
Vice President, Safety and Security, Pilot Freight Carriers, Inc., Winston-Salem, N. C.;
Chairman, Executive Committee, Commercial Vehicle Section,
National Safety Council, 1969-70

While I was preparing this report, I realized that most of us in the business world are interested in results rather than remarks, in what we have produced rather than how we have procrastinated, in how we can make a buck rather than how we can pass the buck. Therefore, I would like to answer two questions that go to the heart of our very existence as the commercial vehicle section. First, what is our mission? Second, what proof do we have that we are accomplishing that mission?

Simply stated, our mission is the prevention of accidents, because accidents are costly in terms of human suffering, loss of life, time, effort, money, and talent.

How successful have we in the motor transportation industry been in the prevention of accidents? Let's look at the records of the National Fleet Safety Contest from 1950 to 1970. I think you will be interested in the comparison of the accident experience of today's fleets with those that were on the road twenty years ago.

In 1970, there are 2,728 fleets participating compared with 2,007 fleets in 1950; 335,000 vehicles today and 387,000 yesterday. However, today's vehicles traveled almost seven billion miles compared to about three and one third billion miles for yesterday's vehicles. Today's accidents are 91,000 against 83,000. And now for the most encouraging item: today's accident frequency per million miles is 13.13 against 24.90 in 1950, which is almost 50 per cent decrease for the entire motor transportation industry, including the commercial vehicle, transit, and school transportation sections.

Using those same figures, I have narrowed them down to our commercial vehicle section, covering the common, private, and contract carrier fleets, both intercity and city operations: 273 fleets today compared to 661 yesterday; 26,468 vehicles against 26,701—almost no change; 1,400,000,000 miles traveled against 700,000,000 miles in 1950—twice the mileage; 11,818 accidents in 1970 compared to 16,391 in 1950—think of that, almost 5,000 less accidents per year! Current accident frequency is 15.36 against 38.95—more than a sixty per cent reduction!

The record speaks for itself—loud and clear. All of us in the motor transportation industry can take pride in our achievements and can look forward with confidence to great accomplishments in the years ahead.

---

# IMPROVING THE IMAGE OF TRANSPORTATION THROUGH SAFETY

By WILLIAM L. FAYLE
President, Transportation Div., Burlington Industries, Inc., Burlington, N. C.

It has been four years since Congress passed the National Highway and Traffic Safety Acts of 1966; three years since formation of the Department of Transportation in April of 1967. And in those years the accident prevention problem has become more complex than ever before.

Our nation has a greater mixture of drivers, vehicles, and highways and thus a greater exposure to accidents. Today, we have over 100 million licensed drivers, more than 100 million vehicles, and mileage traveled of more than one trillion miles per year.

We see ever increasing concern on the part of government and private citizens about the traffic accident problem, and with that concern has come involvement of more people and more organizations seeking solutions. As an example, the Department of Transportation, through the National Highway Safety Bureau, is spending millions to establish minimum safety programs for states and additional millions for vehicle safety standards such as seat belts, uniformity of instrument locations, brake performance criteria, and brake system standards.

More recently, there is the proposal for air bags to serve as a passive restraint to protect occupants of a vehicle in the event of an accident. Secretary of Transportation Volpe claims that the air bag will result in a 50 per cent reduction of traffic deaths within seven years after the requirement becomes effective.

DOT also expects that such things as breakaway steering columns and improved performance standards for tires will be highly effective in reducing the number of accidents.

As you well know, the Bureau of Motor Carrier Safety of DOT has also been active in proposing new rules or revisions of current regulations. Consideration is being given to establishing loading rules, revising hazardous materials driving rules and, just recently, an order setting forth new driver qualifications requirements was issued to become effective on January 1, 1971. The Office of Hazardous Materials of DOT is likewise active in the field of developing new regulations or revising current ones.

Evidence of the national concern for traffic safety and of the ever increasing complexity of the problem can be seen in many other things besides the involvement of the Department of Transportation. There are letters to editors of newspapers demanding immediate adoption of a wide variety of so-called solutions to the problem. Congressional committees dealing with legislation relating to highway operations are caught up in the search for solutions. And there are the activities of young people, some engaged in symbolic burials of automobiles, some involved in demonstrations against road construction. Others include the followers of Ralph Nader, searching the operations of government and industry in an effort to fix blame on someone or some organization for our traffic accident problem.

Many people and many organizations are attacking the problem of traffic safety from a multiplicity of directions. The problem itself is complex, and the involvement of so many concerned parties in a search for solutions adds greatly to the complexity. The fact that there are so many people involved in the field of safety makes it imperative that the truly dedicated safety expert come to the forefront to provide leadership to all of this activity. The task of rededication is the most vital matter facing us today—rededication as the key to success for the safety man and rededication by management for the success of its safety objectives.

Many years ago, "Satchel" Paige said, "Don't look back, 'cause something may be gaining on you." That's a cute expression, but I don't think it's appropriate in business. To the contrary, I think that every man in business, whether he's a safety director, general manager, or president of a company, needs to look back constantly for the purpose of rededicating himself to his job. There is a need to look back for the sake of comparison, to see if your accomplishments measure up to the initial goals you set for yourself when you entered your profession. There's a need to look back for the purpose of re-evaluating your goals in light of changing conditions in your profession and in yourself. And there is a need to look back to see if you are functioning with the same sense of responsibility and dedication you had when you first entered the safety field.

There is a story about the two wives comparing notes on their husbands. One gal said she had just read an article which stated that hunger and passion produce the same look on a man's face. The other gal groaned, looked at her husband and said, "My God—you mean all these years I could have just fed him!"

The reason for the story is to point out that we all have a variety of hungers. Hunger for food, the hunger of passion, and hunger for a sense of accomplishment. That last hunger—the need for accomplishment—means that we must have the satisfaction of having established a goal, and we also need the satisfaction of having reached it. This

is basic to our well being. When we don't establish goals, or when we lose track of our goals, we become frustrated with ourselves, our jobs, our employees, and our family. When we have goals we become dedicated, for we have an opportunity to satisfy our hunger for accomplishment.

Too often in the routine of our everyday worklife our goals are lost in the mists of time. We work only to earn a salary, or we work only to finish a day. Our work becomes empty and meaningless and we have no satisfaction because we have no goals. We have no dedication.

When this happens to a safety man—a man who should have his goals more clearly in mind than any other person, a man who should be dedicated to the saving of lives and property—he should quit or rededicate himself, because he is letting down all of those people who look to him as the protector of their lives and limbs and property.

You must ask yourself if you're letting your people down, if you are working with the same sense of dedication you began with. This is the time for your rededication. You've given a year of your life to safety, did you use the time wisely? Will the next year of your working life be well spent; will your accomplishments fill you with satisfaction? Was your employer's pay well earned by you last year? Will it be well earned next year? Can your drivers have faith that your dedication is working to protect their lives, or do they look upon you as a paper shuffler who doesn't have any real impact on safety?

These are questions you must ask yourself before you return to your job. And when you have the answers, they should be answers you can be proud of.

A popular tune we all know proclaims that "This is the dawning of the Age of Aquarius," and that may be so, musically speaking, but to me and to you this is the dawning of the Age of Safety, an age during which you, the safety experts, must provide dedicated safety leadership.

What about rededication of management to the cause of safety?

It's already begun in the trucking industry. I am chairman of the Safety Committee on Review and Evaluation for American Trucking Associations (SCORE). It's composed of top management people working for an improved safety record in the trucking industry. Our ultimate objective is to insure an effective safety program on all levels of operation: fleet, state industry, and national industry. A program that will save lives and limbs of our employees and of those with whom we share the highways, that will protect our fleets from the bankruptcy of accident costs and civil suits, that will keep your employer in compliance with laws and regulations and thus guard his operating rights and save him the expense of fines and court battles with regulatory authorities. In short, we're working for improvement of our program, although we feel it is outstanding right now. We're working for support of you, the safety man, so that you can be more effective in your work. We're working for greater safety and efficiency in fleet operations. There's a lot to be done before we reach our goal, or even get close.

Our SCORE work is patterned in three areas:

1. Analysis. We are analyzing to determine the extent of industry safety problems just as you in the fleets must analyze to determine the extent of your accident and regulatory problems. Our SCORE analysis activity leads to the second concern or area of activity:

2. Authority. We need to determine if our safety people have the authority to take action for control of our problems. If there is true management dedication to the cause of safety, such authority will most likely be granted; otherwise, a fleet's safety program may be strictly a paper program. But in some cases it is obvious that management has not delegated full authority to the fleet safety man for a reason; that is, the safety man has not shown dedication enough to show management worthwhile goals, or he has not been dedicated to the extent of being able to sell management on the value of his goals. We're looking at association safety activity as well as fleet safety activity. We're concerned with authority for our safety people to deal with enforcement and regulatory agencies and authority for them to deal with dispatchers and drivers. But let me emphasize—on the surface it may appear that management which has not granted full authority to a safety man is not dedicated to the cause of safety. But investigation may show an entirely different picture. It may be





that the safety man, lacking in dedication, has not done a management selling job.

3. Support. What happens once the safety program is in action? Does management show a continuing interest and concern for safety? Is there top management representation at safety meetings? Does management immediately suspend an operation which is questionable from the safety standpoint? These and other types of management support show management dedication to safety. SCORE is determined to find out the extent of management support problems and then take action to solve them.

As you can see, SCORE has a big job to do, and we're just getting started. We will not duplicate or supplant any activity of the fleet safety man or of our Councils of Safety Supervisors. Our job is to make you more effective by providing management support you need to carry out your responsibilities.

Here's what we've been doing in SCORE. We've analyzed your fleet safety programs and determined how they can be more effective. As a result of our safety program study, the ATA Council of Safety Supervisors has formed a safety program committee to incorporate our suggestions in developing a model program for fleets.

We've met with truck fleet insurance companies and we're now working with them to obtain accident data on a continuing basis from insurance records. Such data will be accumulated at ATA in a computer setup so the industry will know in depth the extent of its accident experience by type, by frequency, and by severity. We hope that some day you can look at an ATA accident data sheet and quickly spot major problem areas before they hit your fleet. For example, we hope that if tire problems are developing you will spot the trend and take preventive measures in your fleet, while at the same time industry representatives are taking action with tire manufacturers. I use tires as an example. It could be brakes, commodities being transported, highways, or any other factor of truck accident causation. The idea is to develop records that will allow us to spot problems quickly, before they become major in size.

We're also planning a driver survey to be held throughout the country. We will use truck stop safety meetings as the tool for reaching drivers. We want to determine their attitudes toward safety, management, laws, regulations, police, the general public, and toward their own job of driving. We want to relate their attitudes to their background of training and experience, to their age and type of operation, and to their accident and traffic records. If we can develop good, sound information about our drivers and their attitudes, we'll know better how to shape our safety programs.

The truck stop safety program format was developed by the North Carolina Council of Safety and Personnel Supervisors. Our ATA Council of Safety Supervisors now has a committee to adapt the truck stop program for use by SCORE in its driver survey work.

We've been involved in a number of other activities, including speeches before management groups in the industry to tell of SCORE and the need for management rededication to the cause of safety. We've held meeting with regulatory officials, e.g., in a day-long meeting with the Bureau of Motor Carrier Safety discussion centered around problem areas of truck safety and compliance with regulations. The central theme of our talk was about ways in which industry and government can work together to eliminate such problems. We'll be having more meetings in the future.

The trucking industry safety effort cannot succeed without a partnership of dedicated management and dedicated safety men. SCORE is the instrument of rededication by management. Its work is complex and the ultimate goals may never be achieved in our time. However, our immediate objective is to help the fleet safety man increase his efficiency, and we have already set the wheels turning in that direction.

You, the fleet safety specialist, have been outstanding in your work and your accomplishments. But it is time now for rededication by you, also, so that as partners in safety we can reach new goals in our fight to eliminate our nation's traffic losses.

# SCHOOL TRANSPORTATION SECTION

## EVACUATION OF SCHOOLS BY BUS

By Commander WILLIAM R. MOONEY
Chicago Police Department Task Force, Chicago, Ill.

The evacuation of schools by fleets or individual buses is a matter of which there is very little, if any, knowledge. There is nothing written that I have seen or in researching that I have been able to find relative to successfully carrying out this type of operation. Therefore, it is essential that if we are going to resolve, or even suggest methods to successfully carrying out this operation, we must look back into our past experiences in order to reach some logical conclusions.

First, let's analyze the problem. The problem requiring mass evacuation of schools by bus fleets is brought about, basically, by three sociological problems. These are student strife, teacher strife, and racial strife. Of these three, perhaps the most serious one we will confront is racial strife. Obviously, in dealing with student problems the students themselves are not very prone to commit acts of violence or attacks upon fellow students. Likewise with teachers; the teachers while on strike, even though serious, are not prone to commit an act of injury toward the children whom they have the responsibility of protecting. Therefore, we must conclude that the area in which we would have most of our problem is in racial strife.

What is our responsibility in this particular matter? Obviously, I, as a police officer, bear the responsibility of the protection of the individual. Likewise, you people in busing take on this responsibility by contractual obligation when you agree to haul and transport these children in a safe manner. Therefore, we can see that the problem with which we are actually faced here is not only the protection of equipment, but the protection of students; both fields in which you should be interested.

Now that we have identified our problem area, what can we do about it? We have people from across the width of our land. Some from urban communities and some from small towns. When you come from an area in which there is only a small amount of police protection, the question of protecting your equipment and protecting your students becomes of paramount importance because of the inability, usually, of the police to provide the protection needed. This problem is of one which requires a great deal of research. I therefore suggest that you endeavor through meetings with the local board of education and your local policing authority to establish some sort of means by which they will be able to call upon various other authorities to aid them in providing the protection needed for the evacuation of schools by bus fleets.

I further suggest that you set up meetings with your Chief of Police and take into consideration some of the following ideas:

1. In those communities where the number of police officers are limited, the chief has the ability in some states to call upon various surrounding areas to provide additional help. We have, in Illinois, the Village and City Act which gives adjacent municipalities the right of policing in those communities which they are directly adjacent and contingent to.

2. In other towns that are not contingent to other municipalities, they can set up an agreement with other police departments. Any municipality falling within the pact area will respond on request.

3. Keep in mind that at all times there is available the office of the sheriff or the state police, when need is great; they can be reached and requested to provide additional help.

4. One of the most important things to be kept in mind is the possibility of fire upon one of these buses during an evacuation. Therefore, it is of primary importance that prearrangements are made through the local fire department to arrange for proper coverage of fire equipment at the time the evacuation is taking place.





Another area which we cannot and must not overlook is the responsibility of the local board of education or the school authorities. All loading of buses must be done under the supervision of the teachers or those people who are in normal control of the children. This is particularly important in those areas in which strife is present, usually in front of the school areas. If there is strife in front of a school, it is important that the children be loaded from the rear of the school or, better, set up an area a block or two away and seal it off, permitting no vehicles within this area; the school children will then march to and board the bus in an area removed from the immediate danger of the school.

The arrangement with the police must be such that there is no question where the responsibility of complaint-signing lies. If there is damage to school property or crimes against it, it is the basic responsibility of the school authorities to see that the complaints are signed by them. They must designate an individual responsible for signing of complaints. For damage to your buses, you bear the responsibility to sign complaints; if there is a child criminally injured as a result of an attack, complaints must be signed by the child's parents, or an interested adult.

When you are holding meetings in the early stages of preparations for the possibility of this type of evacuation, it is important that the ground rules for the signing of complaints are laid out.

To my knowledge, we have never been faced with the actual evacuation of schools by a bus fleet. On occasions we have had to provide coverage in racially integrated areas in order to protect either the Negro or the Caucasian youngster, depending upon the type of area we were operating in. This protection has always been provided by the police department of our city. At times, we have had to place police officers on buses in order to protect and secure the bus itself. But this is a normal policing function, and I strongly suggest again, when you return to your various type of communities that you sit down with the people in authority and work out some plans.

---

## STANLEY, THE TALKING BUS

By O. G. PARRISH
Dir., Pupil Transportation, State Dept. of Education, Trenton, N. J.
Member, Executive Committee, School Transportation Section, N.S.C.

In this paper I will present a curriculum approach to school bus safety. I am going to attempt to show you how we came across the subject and what we did to place a solution before the Department of Education. Although I am speaking for the State of New Jersey, I feel certain many of the things I will be talking about may have application in your state. This project has been researched for almost two years, is field tested, and represents the talents of many people in pupil education and safety.

I would like at the outset to define the scope of the problem. Although we are a small state, we have a very complex traffic situation. We have almost bumper to bumper traffic in many parts of our state. In this traffic environment we transport approximately 600,000 children twice daily. In a year's time our school buses run 82,000,000 miles. Our pupil transportation budget is about $40 million.

Each year in New Jersey we do accident statistics. We have a mandatory requirement for reporting all accidents, and each one is evaluated. Every accident is categorized as to how and why it happened, could it have been prevented, and how we can use what we have learned in our driver training program to upgrade safety.

In the last thirty-three years we have not had a single pupil fatality inside the school bus. However, we continue to get flak from many individuals and agencies about unsafe school buses. Over the years, as we have observed newspaper reports and investigated accidents, we realize that pupils are being killed, but not on our school buses.

We took all our newspaper clippings of pupil pedestrian fatalities from January to May, 1969. We then went to the Division of Motor Vehicles and checked their files to be sure we had them all.

Checking all these carefully, we isolated the fatals connected with pupil transportation (those who lost their lives prior to their boarding the bus or after alighting). We discovered that in New Jersey we had killed, in one year, 14 or 15 pupils prior to the arrival of the bus at their stop. Certainly, we must do what we can to overcome or eliminate this deadly menace.

After gathering this information and isolating pertinent facts, we called together some committees and worked up a curriculum development. In order to stimulate the interest of those people whose endorsement and assistance we needed I took some pictures to present the problem. The pictures may look posed—they were not. I travel around in unmarked cars and try to evaluate accident control. In these pictures children were waiting for buses where visibility was obstructed. State of New Jersey School Boards are responsible for evaluating school bus stops. I do not think they are doing so satisfactorily. We are now barnstorming the state, talking to school boards and pointing out this responsibility that has evaded the minds of so many. Other pupils we found were waiting for buses on inclines where they could slip into the path of approaching vehicles, waiting in the middle of intersections, playing "chicken" by seeing who is nervy enough to be the last to leave the path of approaching cars, etc.

I am making a plea for school superintendents to realize that their day begins long before the children arrive at school. School administrative responsibility begins when the pupil arrives for boarding the bus. Loading areas should be carefully chosen for the best safety advantage.

Many states and school bus fleets require some instructions in these areas and in the children proceeding to a point in front of the bus where they are visible to the driver before crossing roadways. These often are briefly stated to the pupil by the driver, or the pupil is handed a printed page of instructions. This is not enough. This is not getting the job done. We need much more than a page of printed instructions. We need education. That is why New Jersey is going to curriculum development for pupil passenger safety education.

We have developed a three pronged approach to the problem of creating in the minds of pupil passengers an awareness of hazards they encounter. We have developed a curriculum approach to pupil passenger safety, with a pupil workbook, teacher's manual, and slides which we have animated with polarized light. The program is working in New Jersey. We no longer hear the statement, "The school bus is coming." Pupils are now saying, "Stanley is coming."

We have received many inquiries from throughout the country and some from abroad. We will gladly share the program information with any and all interested people in the hope that pupil passenger safety education will soon be a reality in the curriculum of schools throughout the country. (There followed workshops on the "Stanley" program.—Ed.)

## THE GOLDEN RULE

By RAY MARTINEZ
Dir. of Training, Driver Improvement Program
National Safety Council, Chicago, Ill.

The National Safety Council's Defensive Driving Course has been enthusiastically accepted by fleets and individuals throughout the country. Some inquires have been received from abroad and I have just returned from teaching a cadre of instructors to teach the course in Germany.

Records show that the course has been successful in the goal of reducing accident frequency. At Fort Hood, Texas, before DDC, Army records showed one soldier fatality every 12 days in a privately owned vehicle, and one G.I. injured severely in a privately owned vehicle every four days.





One year later, after the Defensive Driving Course, one soldier died every 36 days, and one was injured every nine and one half days, in privately owned vehicles.

Every time a pilot is killed in Viet Nam, the government loses $150,000 spent on his training, etc. If that same pilot was killed in an auto accident, it would cost the government the same $150,000. The application can be made to each school bus driver you have trained. If he loses his life in an accident, any accident, your expenses for his training are lost. Teach him to drive defensively and save his life, the cost of his training and the pupils he transports.

The DDC program teaches drivers how to avoid errors and how to avoid being trapped in accidents by the errors of others. The traffic scene and environment looks the same through the windshield of school buses as it does through the windshield of any other vehicle. Defensive Driving will be as successful in helping school bus drivers to avoid accidents as it will be to Army or any other group of drivers.. Some fleets are now giving the course to their drivers again, after three years, as a refresher.

The State of California has initiated a training program to train the instructors of school bus drivers. In their comprehensive training program, each school bus driver will receive the Defensive Driving Course as a part of his training.

This course is a package. You don't have to develop a lesson plan or outline. It is all there—the teachers manual, student workbook, visual aids (films, charts, etc.), and examples are all a part of the kit. A number of states have given the course to every school bus driver in the state. The results are in evidence where the course has been taught.

None of you are far from a qualified instructor. Most local safety councils, state police departments, and many business firms are registered as cooperating agencies. They will be happy to arrange with you for your drivers to have the course. Let us know at NSC if you need help with any of the arrangements.

## SCHOOL BUS BODY STANDARDS

By JAMES B. SUMMERS
Vice Pres., Sales, Superior Coach Corp., Lima, Ohio;
Counselor, School Transportation Section, N. S. C.

This year, representatives gathered from all of the 50 states to review the minimum standards for school buses and up-date them where deemed necessary. The people attending were all connected with the school bus transportation system throughout the United States, and each brought to the conference his experience in one phase or another of this huge complex transportation system. Some were well versed in overall supervision, some were well versed in operations, some in the mechanical intricacies of chassis, some in body maintenance, some in the legal area, but all with one ultimate goal of ever increasing safety. The representatives of the various chassis manufacturers and body manufacturers were also present, as were representatives of the Department of Transportation.

A moment ago, I used the word complex for school bus transportation. Equipment used in the plains of Kansas involving long distances varies with equipment for the crowded city of New York. School buses operating in the Rocky Mountains require different mechanical components than perhaps those operating in the flatlands of Florida. Because of geographical differences, population differences, distance, travel and traffic conditions, there must be variations as to power plants, seating, heating, and size. The one overriding objective, however, that does not change is safety. The real purpose of the conference, then, was to establish standards which would serve as a model for all of these different conditions.

One other word that must be included is "minimum." Minimum is defined as "The

least possible amount or degree." The result then becomes a pattern for the states to follow and adjust as they see necessary for their own particular requirements of operation. Obviously, even within the various states this will tend to vary.

Since the inception of national standards, and I should say national minimum standards, there was never a feeling that they should be considered maximums. The attempt was to establish guidelines for uniformity, and much has been done in relation to bodies and chassis with the great variety of laws governing the transportation of school children in the various states. This was the eighth National Conference on Minimum School Bus Standards, and the changes that have been wrought by these conferences since 1939 have been most beneficial.

In the last three decades, education in the United States has changed considerably. In 1940 there were some 223,000 schools; this is now down to approximately 120,000 schools. In direct reverse, the enrollment has increased from 28 million to 50 million. Present estimates indicate that of those 50 million school children, between 30 and 40 per cent are transported to and from school each day.

Safety researchers always use miles traveled as a yardstick or measurement for safety records. For me, the size of school bus transportation is much more dramatically shown if consideration is given to exposure as a passenger in a school bus. If one takes 18 million children to and from school daily in school buses and multiplies the resulting 36 million by the average 180 day school year, the result is over six billion passengers in school bus transportation each school year. This is without consideration being given to the many extra-curricular trips now being afforded as part of their overall education.

Over six billion passengers—it staggers the imagination even in this day of national debt. According to the statistical abstract of the U. S. for 1969, motor buses—in other words, city service buses—carried only 5.7 billion passengers in 1967, and this is in a continual downward trend. Incidentally, they also use these statistics on a full year of 365 days while schol buses, of course, are operating at only a portion of that. While school buses have increased in number to an estimated 240,000 vehicles on the road today, the number of automobiles, trucks, and buses registered is already over the 100 million mark, which represents over a 100 per cent increase in the last two decades. With this growth, the potential of accidents is also greater.

Since the overriding objective of school bus transportation is unequivocally safety, how then does the record stand? According to the best available statistics, and in the area in which body standards are applicable, the average number of fatalities per year inside the bus is below 20. Good job? Yes. Good enough? No! All of us who have been involved in school transportation would like to see it zero.

When I was a youngster in school, I faintly remember a story involving Greek mythology in which Hercules had a number of tasks to perform. One of these tasks was the elimination of something called "Hydra," where if one head was cut off, two other heads grew in its place. This is not meant to imply we are dealing with monsters, but the analogy of reproduction does seem to fit in school bus transportation. For many years the standards conferences were sponsored by the Office of Education and run by the National Education Association Safety Commission. About the time the Office of Education dropped this project, the Department of Transportation came into effect.

With the Department of Transportation there was also considerable increased activity by the Vehicle Equipment Safety Commission. The Rural Transportation Group became affiliated with AASA, the National Education Association Safety Commission was phased out, and now there is a newly formed State Directors of Transportation Group, Physicians for Automotive Safety, and an investigation group called the National Transportation Safety Board. If the situation seems somewhat confusing, you are entirely correct.

In 1968 the writer had the pleasure of addressing this congress on "Links of Cooperation in School Bus Safety." At that time, 15 different groups were actively involved in school bus safety. These statements are not meant to be derogatory. The transportation of children who represent the future of our country must be considered of





prime importance, and certainly deserves every effort by all involved to assure the maximization of safety.

Everyone should welcome help providing it is constructive and contributes to achieving the ultimate goal. Unfortunately for all of us, the trend in the U. S. is that the more horrible the news, rightly or wrongly, the more papers or magazines are sold. Three years ago the first instrumented school bus crash test was conducted by the I. T. T. E. division of UCLA. A SAE report was published at that time, with certain recommendations for improving the school bus vehicle. The more startling items were picked up by the news media, influencing such well meaning groups as the PTA to advocate the use of seat belts in school buses. A careful study of the report showed some conclusions exactly the opposite. Some of the other recommendations have been followed and explored in the same way as the safety researchers intended. As a result, buses being purchased now are improved over what they were. Constant improvement must be considered a way of life. If changes are not forthcoming, stagnation takes place. The changes in the school bus industry are not for the sake of change, since styling does not sell buses but, rather, for greater safety and less maintenance.

The school bus industry is not a big industry. The best yearly estimate of the school bus market is 23,000 full-sized buses. This is drastically different from nine million cars or over one million trucks, as is experienced in other areas of the automotive industry. The tendency is to over-engineer school bus bodies rather than to under-engineer. The combination of the smallness of the market and the recognition that the industry must comply with both national and state specifications precludes the large expenditures necessary for full scale crash tests. Complete crash tests, run in series to be sure of conclusions reached, can cost from $30,000 to $50,000 per test if facilities are available. School bus body manufacturers have generally used the only reasonable alternative—actual accidents. These have been investigated for years and have contributed to the continual improvement in bus bodies.

Recently another report was published on school bus safety. This came from the National Transportation Safety Board, an autonomous board created as part of the Traffic and Safety Act of 1966. Unfortunately, this report brought such headlines as "U. S. PROBE REVEALS YOUR CHILD'S SCHOOL BUS IS A DEATH TRAP." Eighteen million youngsters ride in school buses twice daily, and fatalities are less than 20 inside the bus for a year's time, yet the bus is a death trap? Something just doesn't make sense.

In analyzing the report it must be assumed the investigating group was sincere in its efforts. They observed certain items in the accidents they looked at, and felt strongly enough to report accordingly. Some of the points raised have merit and are already being checked by body manufacturers.

A critic is defined as a "Judge of the qualities of anything." Constructive means "to build up," and is the opposite of destructive. All progressive manufacturers are open to constructive criticism and welcome it.

The basic question raised in the report has to do with fastening the metal skins, both interior and exterior, to the frame. The question of interior lining panels has merit. There have been many discussions on this area from previous accidents. Unfortunately, no year was given to the buses involved at both Decatur and Huntsville, nor any estimate of the impact force involved. Changes have already been made by virtually all body manufacturers eliminating sheet metal screws as fasteners and utilizing rivets instead. The interior lining panels have already been changed by some manufacturers to lap forward with a bead on the lapped edge to reduce the possibility of a cutting edge occurring. At least one manufacturer of school bus bodies is checking the strength of installation through various tests. Incidentally, the new minimum standards do call for the forward lapping and beading indicated above.

The shearing action of some of the exterior panels in the four accidents investigated also raised some questions in the minds of the NTSB. Here again, it would have been most helpful if some estimate of impact force had been stated and the age of the vehicle noted. The design characteristics of school bus bodies are not intended to withstand an impact equivalent to a speeding

train without some disintegration. To design any vehicle to do this would be impractical. The area of exterior panels has not been involved as a point of weakness in previous accident investigations made over the years. If anything, the opposite has been true, particularly with the frame structure behind the panels. Here again, this is a constructive item and is being investigated by the body manufacturers.

Had the report raised these questions on interior and exterior panels and recommended additional investigation and study only, the publishing of distorted news stories and editorials might have been avoided. Countless parents across the United States would have slept better, and thousands of people involved in school bus transportation over these many years with safety of the children as their continuing goal would have been relieved of some unnecessary and, it would appear, unwarranted criticism.

School buses have unfortunately been hit by cars, vans, trucks, and even tractor trailers; have run into trees, bridge abutments, and even buildings; and have been rolled, cartwheeled, and even blown by tornadoes, with a safety record of .05 fatalities inside the bus per 100 million passenger miles. This is an excellent record, yet it could not have been achieved without a continuing goal of greater safety. To the best of our knowledge no one has stopped trying to make it even better. It does not seem to deserve the statement: "In general these panels act to keep out the weather or hold insulation in place, but do not develop a sufficiently high proportion of available strength to be regarded as more than covering material."

It seems somewhat unfair to indicate all local school boards would not purchase important school bus design changes. If this were true, we would not be where we are today. Changes have taken place in vision, structure, door size, seating, heating, driver controls, defrosting, bumpers, die form panels, zinc steel, and lighting, just to name a few. These changes came about primarily because of competition, that's true, but not necessarily the low dollar. Most of these changes were purchased at a local level, proved successful, and then incorporated in state and national specifications. The exception to this might be in some states where the low bid by specification must be accepted, and even here meetings are regularly scheduled to up-date the specifications. While there are local boards who look only at the dollar bid and feel they cannot take time to listen to the presentation of the bus body salesman to determine what best fits their operation, what is new in buses, and what service has been offered or is being offered, this attitude is not in the majority. Unfortunately, however, sometimes dollar savings do make better headlines than a higher price that will save money over the life of the vehicle.

The report indicates some lack of knowledge regarding the manufacturers of school bus bodies as well. There are six major suppliers of school bus bodies in existence today, rather than ten. The largest producer has an investment of well over $1½ million in engineering and tooling, without consideration of plant, equipment, and facilities. The capacity or production rate of one of the individual school bus body assembly lines is in excess of 50 units per day. While not as sophisticated as a car or truck line in Detroit, they still represent considerable investments and utilize sound production techniques. This industry can hardly be called a relatively easy and inexpensive one to enter. There have been no new manufacturers for the past 30 years, and three have discontinued operation during that time.

That the report is of concern to us is certainly indicated by the attention given here to the latest minimum standards. The SBMI has asked for the detailed data supporting the report and will review this with the aim of making whatever changes are validated by this study. The thrust of the NSTB report is sound—greater safety. A few statements in it, however, have certainly resulted in some adverse publicity with the conscientious group involved in all phases of school bus transportation.

At the Conference on National Minimum Standards for school buses, there were a number of significant changes. Not all of the actions were unanimous and there are still some strong differences of opinion. This is always true. Perhaps many of those attending felt somewhat unsure of what role the Department of Transportation was going to play in the future. Had any of these people reviewed the law that created this Department, they would have discovered that the Department of Transportation is primarily involved with performance standards, and until these are developed and finalized for the complete school bus program, the minimum standards for school buses serves an important purpose to establish guidelines for all states.

A good part of the so-called N.E.A. standards are what is described as design standards. This in some ways has been a necessary evil. Design standards where age of material, dimension, or exact location is specified are considered by engineers to be restrictive and are the easiest to establish. Performance standards, however, are nonrestrictive, indicating only the degree to which a piece, portion, or item must perform, and are considerably more difficult to define, requiring test compliance. The N.E.A. standards as minimums specially considering the excellence of the safety record of school buses have served the purpose remarkably well in spite of this deficiency in today's rapidly changing technical world.

In 1958 Congress created by law the vehicle Equipment Safety Commission. Until the Traffic and Safety Act of 1966 initiated the beginning of the Department of Transportation, the Vehicle Equipment Safety Commission was primarily involved with establishing what is known as the Vehicle Equipment Safety Compact, to which most states belong. Apparently most of their work involved state police and motor vehicle registrars and dealt with the automobile and truck areas. They have been working on a set of minimum school bus standards for about two years. This has progressed to a point where a public hearing will be held. After this hearing final adoption will be enacted.

This is important to all involved in school transportation. It is not completely clear as to which set of specifications in the state would hold precedence if the state, by belonging to the Vehicle Equipment Safety Compact, would automatically approve and abide by these new standards once adopted. If they coincide with National Education Association's standards to a degree, fine. If different, it will cause considerable confusion on the part of the manufacturer, the inspection authority, the education department and, certainly, the local board doing the purchasing.

*Changing Times* is the name of a fine magazine and the name also seems to fit the present position of school bus transportation. Change in itself is not new to this area, but the recent accelerated pace set by all of the new groups involved does become somewhat disconcerting. Change for the sake of change is not needed. The goal of continually improving the safe transportation of our young people is clear cut and recognizable. The means and methods of striving towards this goal are not as easily seen at this point of time. The old cliche, "Too many cooks spoil the broth," keeps coming to mind, and we cannot afford to have this happen to school bus transportation. Strong, effective leadership is needed. Careful, intelligent analysis of each requirement, each step, is a must. Active experienced counsel will help. The majority of you have years of experience and accumulated knowledge in school bus transportation. Your participation and wisdom is needed.

We are now faced with what can be called, "The challenge of change." Are you ready to meet that challenge?

# SCHOOL BUS CHASSIS STANDARDS

By G. A. McCALL
Dir., School Transportation, Nebraska State Dept. of Education, Lincoln, Neb.

The purpose of the Chassis Study Committee of the National Conference on School Transportation was threefold: First, to review the 1964 minimum standards and make recommendations. Second, to consider all suggestions for improvement. Third, to submit the final report for the consideration of the respective state representatives.

The main text for the following comments has been taken directly from the materials as they were approved by the conference participants. The first item that was brought up for discussion was the use of the word "minimum" when referring to the standards for school buses. The reference use of the word "minimum" was discussed at length not only by the committee but on the floor of the conference. However, after much discussion it was the opinion of the conference participants that the word "minimum" be left in the standards. Therefore, they are still called the "Minimum Standards for School Buses."

The definitions approved by the conference for school bus vehicles are as follows:

1. Conventional type body-on-chassis vehicles having a seating capacity of 24 or more pupils.

2. Conventional type body-on-chassis vehicles which are less than 96 inches in width and which have a seating capacity of 16 up to (and including) 23 pupils.

3. Transit and metropolitan types of vehicles having a seating capacity of 24 or more pupils.

4. Converted small vehicles (including station wagons, suburbans, and van type vehicles) having a seating capacity up to and including 16 pupils.

Therefore, we have basically four different vehicle divisions or classifications. The regular or common conventional body-on-chassis vehicle having a capacity of 24 or more; the conventional body-on-chassis vehicle less than 96 inches in width having a seating capacity of 16 and up to 23; transit or metropolitan vehicles of 24 or more capacity and any converted station wagon or van type vehicle.

It is my understanding that the minimum standards for school buses being discussed should be put into effect and enforced by states beginning with those new school bus models which appear after January 1, 1972. Since we have discussed certain definitions and the use of the word "minimum," at this point I will simply go item by item through the text of the new standards and indicate those areas or equipment items which were re-worded or changed.

The air cleaner section, which in the past has simply indicated an oil bath or dry element type was re-worded and the phrase "or equivalent" was added to allow for more recently developed types to be used.

The front axle standard previously had permitted a plus 10 per cent overload factor; however, this was eliminated.

Considerable discussion was held on the floor of the conference about raising the battery requirements, but the specification remains 70 ampere-hours at 12 volt, measured at a 20-hour rate. This also applies to the small vehicle.

Basically, the statement that "four-wheel brakes, adequate at all times to control bus when fully loaded, shall be provided in accordance with Federal Motor Vehicle Safety Standards," adequately covers the brake section. However, there is one insertion that may be of interest. The addition states that "lines supplying power to air or vacuum system reservoirs shall be safeguarded through proper design and bracing to protect from excessive heat and vibration."

The front bumper shall be furnished by chassis manufacturer as part of the chassis and shall meet Federal Motor Vehicle Safety Standards.

The certification procedure was slightly changed. Chassis manufacturers will, upon request, certify to state departments of education that their product meets minimum standards on items unless covered by certification issued under requirements of National Traffic and Motor Vehicle Safety Act. Therefore, I believe that one can assume all items and equipment covered by the act would not need to be certified to each individual state, thereby avoiding unnecessary duplication. This procedure would appear not to interfere with any state wishing to request certification of any equipment or item not covered by the previously mentioned act.

The conference participants briefly discussed increasing vehicle clutch size; however, the final decision indicates no change. All chassis of 48 through 60 pupil capacity having mechanical type transmission shall be equipped with clutch of 12-inch minimum diameter. Chassis of 66 and greater pupil capacity having mechanical type transmission shall be equipped with clutch of 13-inch minimum diameter or clutch of equivalent performance.

The school bus chassis color remains the same as adopted at previous conferences, which indicates that the chassis, including wheels and front bumper, shall be black; hood, cowl, and fenders shall be National School Bus Chrome.

The exhaust system received quite a bit of discussion both within the committee and from the conference floor. The adequacy of tail pipe brackets or supports received many comments; however, there was not a consensus of opinion on how to rectify the problem within the scope of the present exhaust system specifications. The possibility of having the tail pipe outlet in a different location was presented. Conference participants indicated that certain vehicles have tried to place the tail pipe outlet in front of the rear wheels or at the extreme rear corners of the bus. Perhaps a complete re-design of the exhaust system or at least more research and experimentation should be undertaken in this particular area.

The fuel tank specifications were changed significantly. The tank shall conform to section 393.65, subsections (f) through (g) and (j) of Motor Carrier Safety Regulations, with reference to: material and method of construction; fitting design(s) and locations; fill-pipe design, air and safety vents; pressure relief; and drop tests, rupture, spillage restrictions and safety vent. Therefore, the conference participants simply indicated that a "safety tank" should be a minimum standard for school bus fuel tanks. Furthermore, the following exceptions should be of considerable importance.

1. For small vehicles, the fuel tank shall be manufacturer's standard, mounted, filled, and vented outside of body.

2. For small school bus of body-on-chassis type with manufacturer's rated seating capacity of 16 to 23 passengers inclusive, fuel tank may, due to space limitations, be mounted on left chassis rail and have capacity of less than 30 gallons.

3. On vehicles of less than 54-pupil capacity constructed for transporting handicapped children, fuel tank, meeting requirements of large vehicles, may be mounted on left chassis rail or behind rear wheels with fill pipe on right side of body.

Generator or alternator with rectifier shall have maximum output of at least 62 amperes (in accordance with Society of Automotive Engineers rating) with minimum charging of 20 amperes at manufacturers recommended engine idle speed (12-volt system). Originally this specification indicated a maximum output of at least 60 amperes with a minimum charging rate of 15 amperes. The exception for small vehicles indicates that the generator or alternator shall have a maximum output of at least 50 amperes with a 12 volt system. Originally, the maximum output was specified at 40 amperes.

The instrument panel section indicates that a voltmeter with graduated scale shall be supplied as a minimum standard item. Originally, the voltmeter with graduated scale was an optional item. It perhaps should be noted that the voltmeter will not be a requirement for small vehicles.

The passenger load formula for computing GVW (gross vehicle weight) is the sum of average chassis weight, plus average body weight, plus 150 pounds for driver's weight, plus total seated pupil weight (based on 120 pounds per pupil). Originally a 115 pounds per pupil figure was used to compute GVW. Perhaps this indicates that school bus drivers are holding their own but children have gained a few pounds the last several years. Of course, the additional weight or load factor would mean somewhat greater engine needs. Consideration is being given a table of recommended engine sizes for a given load. However, the table recommendations will still be minimum specifications and for the most part will not significantly

change the vehicle power needs for most states.

The chassis committee recommended that power steering be a minimum specification for all school bus chassis; however, the conference participants vetoed the committee recommendation. In reference to this particular action, perhaps a few dollars received priority over every other consideration. I would hope that before the next conference convenes the school transportation people would have the initiative to do some performance comparisons and vehicle experimentation within their fleets in order to better justify decisions such as the one regarding steering gear.

The Tire and Rim Associations current standards shall be the guidelines for total weight imposed on any tire. A previous 10 per cent overload factor was eliminated from the tire and rim specifications.

The transmission specification section experienced slight difficulties with word usage or verbal sematics. The committee proposed that "automatic transmissions be recommended"; however, the conference participants felt the word "permissible" should replace the word "recommended." On vehicles having automatic transmissions the chassis shall be equipped with a parking brake which shall secure the vehicle under all conditions.

The preceding comments cover most of the significant changes presented by the NEA Chassis Committee and approved by the NEA National Conference. However, there are several small vehicle items that are covered in the body section only. The definition of a small vehicle referred to previously indicates that it is a converted vehicle including station wagons, suburbans, and van type vehicles having a seating capacity of up to and including 16 pupils.

The bus body specifications indicate that small vehicles are expected from all construction standards. Therefore, the construction standards or specifications common to the conventional school bus body, which would be the structure necessary to pass certain prescribed tests, would not apply to small vehicles. This particular exception should be of major significance to all of you concerning small vehicles.

The small vehicle has special door standards or specifications as follows:

1. Service door shall be located to right of driver and shall be manually controlled from driver's seat by over-center control for bus-type conveyance.

2. Emergency door shall be located in center of rear end of bus and shall be equipped with fastening device for opening from inside and outside body, which may be quickly released but is designed to offer protection against accidental release. Metal guard shall be placed over door control on inside. Control from driver's seat shall not be permitted. Provision for opening from outside shall consist of device designed to prevent hitching-to, but to permit opening when necessary.

Door shall open either vertically or horizontally. When vertical-type door is used, there shall be unobstructed egress at least 12 by 36 inches. Emergency door shall be marked "emergency door" on inside. There shall be no steps leading to emergency door. No seat or other object shall be placed in bus which restricts passageway to emergency door to less than 12 inches.

The floor covering on small vehicles indicates that "floor in underseat area, including tops of wheel housings, driver's compartment, and toeboard, shall be covered with fire-resistant rubber floor covering or equivalent having minimum over-all thickness which shall not be less than .125" over ribs of floor and not less than 5/16" between ribs of floor, meeting SAE Standard J-200."

The inside height of 72 inches or more required for regular school buses does not apply to small vehicles.

The metal treatment standard does not apply to small vehicles not specifically manufactured as school buses.

There would be additional small vehicle exceptions in the body section, although the remaining items would be primarily those common to the multi-purpose vehicle assembly line product.

I believe there has been enough historical evidence in the 1960's to clearly indicate that the "good ole calm days" of the 1940's and 1950's are gone. Perhaps the daily strains and tensions of today are merely a preview of the action for the 1970's.

The transporting of nearly 20 million school children daily with a fleet of 200 thousand school buses is an awesome responsibility. This demand by the business-educational complex poses some interesting questions. Can one person be expected to physically operate a large vehicle in high speed complex traffic situations and at the same time be responsible for dozens of passengers who are students of our present drug culture?

Secondly, future equipment needs must be a serious consideration. The past four years in Nebraska we have reviewed school bus accidents, small school transportation vehicle accidents (7-11 capacity), and also automobile, truck, motorcycle, and railroad crossing accidents. For the most part I think the consensus of opinion simply indicates that when a school bus has been involved in an accident with a car or a truck the passengers in the bus have been protected quite adequately from serious injury and death.

A tragic school bus and 50 mph train, side impact accident several years ago only re-affirmed what we already suspected, that the train was quite unfair competition. In this particular accident there were only four fatalities, with seven others receiving minor injuries. This type of survival percentage is certainly far better than many recent train-passenger car and train-light truck accidents.

Our accident experience with the small vehicle (7-11 capacity) is virtually no different from the common passenger car and light truck accidents that are described daily in newspapers across the country. The accident summaries indicate that at common highway speeds the vehicle container is not adequate to resist the penetration forces that we have in numerous accident situations today. Recently in Nebraska a reinforced van type vehicle with six school children aboard was side impacted at less than 45 mph. The second vehicle completely penetrated the small school transportation vehicle passenger compartment, opened the vehicle, and caused six fatalities. Perhaps the best school bus assembled this morning on the production line should be the "minimum standard"?

Each state, including its respective school districts, has the financial means to afford whatever it has the economic capabilities to do. Likewise, our present technological resources have the ability to produce the quality of school transportation vehicle demanded. Hopefully, the 1970's will be a commitment to quality.





## SCHOOL BUS OPERATIONS

By MORRIS W. RANNELS
Coordinator of Safety Education and Transportation
State Dept. of Education, Baltimore, Md.; Vice Chmn., Transit Section, N.S.C.

At the last National Conference on Minimum Standards for School Buses a committee on school bus operations was appointed. The purpose of the committee was to recommend standards for school bus operations and for application by those who are associated with this vital educational function. I would like to discuss the seven areas included in the report.

A successful pupil transportation operation depends upon a high quality of performance by all those who are associated with the program in any way. This includes administrators, supervisors, school bus drivers, student passengers, and maintenance and service personnel. The sixth and seventh categories of the report deal with procedures and evaluation of the pupil transportation operations.

The introduction to the report states, in part: "As school transportation expands its operations and as the driving environment becomes ever more complex, the challenge to school administrators is to establish and maintain increasingly high standards of performance for all elements of the school transportation system."

*Role of the State Administrator*

The first item to be considered is the role of the administrator at the state level. The report lists eleven tasks or functions as be-

longing to the chief state school officer, who is usually your state superintendent of schools. I am going to mention just seven of them here:

1. Appoint the state Supervisor of Transportation.

2. Provide him with a staff and other resources necessary to do the job.

3. Support the development of a handbook for the use of local transportation supervisors and local administrators.

4. Encourage institutions of higher learning throughout the state to provide both undergraduate and graduate level courses in pupil transportation.

5. Support the development of a manual for school bus drivers definitive enough to serve as a textbook preservice and inservice instruction.

6. Support the development of a handbook or manual for maintenance personnel employed in a facility operated by the local school system.

7. Develop and implement a clear and concise pupil transportation policy.

I really believe that those of us dealing in pupil transportation should demand that the state make available this kind of direction. This will certainly bring us more and more into focus with the job to be done.

Now let us look at the administrator at the local level. I am not talking about transportation people, but about the superintendent and also his administrative staff. Certainly the principals are included in local administration. The report lists eight tasks or functions at the local level. Because many of them are obvious and pretty well taken care of now, I am going to mention just a few. First, the administrator should become more involved in the pupil transportation operations within his jurisdiction. Involvement should include participation in training programs for transportation supervisors, school bus drivers, and maintenance and service personnel. He should be involved in actual observation of school bus routes, drivers, and loading and unloading zones. This would best be accomplished by riding buses. He should participate in the investigation of accidents and other transportation malfunctions. He should also participate in the evaluation of pupil transportation operations.

Most of you are aware of the project that the Maryland State Department of Education did in conjunction with the U. S. Office of Education several years ago. An attempt was made to determine the kinds of changes needed in specifications and operational procedures by a study of accident data collected at the local level. Of 216 accidents studied, only one indicated data collected by the active participation of the local administrator. In this case, the principal of the school which had children involved in the accident actually went out to investigate. He knew where the children were seated, knew their height and weight; all these details are important in order to produce a safer bus. He became involved.

Other tasks for the local administrator should be to encourage classroom teachers to become interested in transportation operations. He should provide resource materials and encourage teachers (particularly in the elementary grades) to include some instruction in passenger safety in the curriculum. He should further provide for close and continuous supervision of the loading and unloading zones on or near the school plant and should take part in the conducting of emergency drills.

*Pupil Transportation Supervisor*

The second area to be given consideration in the report is the function of the pupil transportation supervisor. We dealt a little with job descriptions and talked first about the state transportation supervisor who acts in a special staff capacity to the chief state school officer. He utilizes the staff of the state Department of Education to help manage the state pupil transportation system including planning and budgeting for operations and improvements. He utilizes instructional personnel in the department to transmit curricula activities back into the local school system. He pushes to see that the three previously mentioned manuals (one for the supervisor, one for the driver, and one for maintenance personnel) are developed and published.

The state supervisor of transportation should plan and direct inservice training programs for the school bus drivers, assist local transportation supervisors in planning workshops for passenger safety and guide them in the evaluation of the state and local transportation operations. Where necessary, he should help to redesign and redirect these operations.





The report turns attention to the local pupil transportation supervisor. In contrast to his state counterpart, he should be primarily concerned with assisting the local administrators in implementing state pupil transportation policies. Here it throws the onus on the state to establish policies, and the local transportation supervisor should see that his administrator is complying with them.

Some of the duties of the local transportation supervisor include such items as school site selection and planning. I don't know how many transportation people actually participate in this kind of activity. I do know, however, when this does occur there is a considerable improvement in the kind of movement we have in the vicinity of the schools—a reduction in lost motion that results from mislocation of a school. If the transportation supervisor is doing his job, he knows where the children live. By following building trends, he can determine pupil impact and needs for transportation to new schools.

He is also responsible for recruiting, selecting, instructing, and supervising drivers and other local transportation personnel. He should guide the development and implementation of instructional programs for school administrators, teachers, and students. (If these standards are to be carried out you must have administrators, teachers, contractors, and other personnel pulled into the picture.) Another function of paramount importance is that the local supervisor effectively investigate school bus accidents, road failures, and other problems associated with the pupil transportation operations.

What should be the qualifications for these supervisors? Any individual functioning as a supervisor in this vital area should have a thorough understanding of the educational process and the role of pupil transportation in this process. Previous experience as a teacher or school administrator is desired. The ability to manage people and resources to achieve a needed objective is a must. In dealing with drivers, students, and school officials one of the most helpful characteristics is the ability to relate to the human aspect of those people with whom you come into contact. Despite the nature and extent of his experiential background, the pupil transportation supervisor should receive formal instruction in pupil transportation management. This training should include classwork as well as field experience.

*School Bus Drivers*

Generally, the job description for the driver will vary to some extent from state to state and occasionally within a single state. However, there are certain duties that all school bus drivers are required to perform, such as establishing and maintaining rapport with the passengers. One of the comments that I frequently make to new drivers is that more of them will leave their positions because of inability to respond to passengers than because of their inability to handle the equipment. The driver should be a person who can meet an emergency based on standing operating procedures. He, or she, should be able to communicate effectively with the school staff.

Some of the procedures frequently used when selecting school bus drivers include such things as the checking of the applicant's driving record. This area is expanding considerably with the widespread use of data retrieval equipment. A check of the National Driver Register and the files of the state's motor vehicle department is to be considered essential in employing school bus drivers. The purpose of the National Driver Register is to provide a central driving record identification facility containing the names of all drivers whose licenses have been denied, suspended, or revoked, other than those whose licenses have been withdrawn for less than six months for a non-moving violation. The registry was established by the Congress of the United States to assist each state in locating the records that are available on these drivers. A check with the state motor vehicle department will reveal any involvement in highway accidents or moving violations in which the applicant has been involved, not necessarily only those resulting in suspension or withdrawal of his license.

A check to determine if the applicant has a record of criminal offense can be made by obtaining fingerprints and forwarding them to the state police. I don't think anyone can justify placing a driver in a bus with children until these clearances have been made.

Before employing a driver he should be tested for his driving knowledge, and performance tests should be administered even though they may vary from state to state. As a minimum, the road performance test should be conducted over a predetermined course for a period of at least twenty minutes, and the examiner should be satisfied that the applicant can perform the various maneuvers required of the driver of a school bus. What about the instructional program for drivers? The preservice program should consist of both classroom instruction and road instruction in the type of vehicle which the applicant will operate.

Each state should develop and make available to each school bus driver a handbook or manual. Some of the contents of the manual might include suggestions for controlling pupils, with special attention to the young, the emotionally disturbed, the handicapped, and special disciplinary problem cases. Other items to be emphasized in the manual might be how to handle the vehicle under specific emergency situations, how to relate to the public and other highway users, and how driver performance is to be evaluated. This manual should be definitive enough so that it can be used as a text in preservice and inservice instruction. Local school systems should supplement the state produced manuals with information concerning local policies and practices, but these supplements should not conflict with those required at the state level.

School bus drivers should be evaluated at regular intervals. This can be done by administering written tests, by observing the driver in a road performance check, by riding with him to see how he performs on the job, by trailing the bus frequently, by reviewing reports of complaints, by commendation of passengers, teachers, school officials, and others. I suggest that each driver have a folder on file, and that when something in any of these areas is brought to your attention, an action report be inserted in the folder.

*Student Passengers*

The fourth consideration of the report concerns the student passenger. A program of instruction for the student passenger should be developed cooperatively by school administrators, pupil transportation supervisors, curricula specialists, teachers, parents, and students. Parent-Teacher Associations and organizations such as the National Safety Council can provide information on suggested content for this instructional program. The information presented and the way in which it is presented will vary according to the grade level of the pupils involved. Following are some examples of content which should be inserted.

1. Safe pedestrian practices on the way to and from school bus stops, including the desirability of wearing something light in color or, preferably, an item of reflective quality during those seasons when it is dark walking to and from the bus.

2. How and where to wait for the bus to stop. What to do if the bus does not arrive.

3. When and how to use the emergency exit. (Specific instructions should be given at least twice a year.)

4. What to do in the event of an accident, road failure, or other mishap.

What about student management? Student management has as its objective the achieving of desirable behavior on the part of all students using the school bus. The school bus has been referred to as a classroom on wheels, an extension of the regular classroom. The school day begins when the pupil enters the bus and the school day ends as he leaves the bus. I believe that this was placed in the report because responsibility is many times questioned, particularly by principals. There are quite clear-cut decisions made by courts and, in some cases, state laws that the board of education is responsible for the safety of the child during the time that he is a passenger on the bus. The prime responsibility for the pupil's conduct rests with the administrator of the school in which he is enrolled.

The school bus driver is responsible for the health, safety, and welfare of each passenger while the bus is in transit, meaning that he is responsible to the administrator of the school which the child attends. Thus the driver has the same type of responsibility as the classroom teacher, and since the driver is liable for negligence, he should be permitted to recommend those actions which will result in improved safety for himself, the vehicle, the passengers, and other highway users. It is important that these concepts be communicated effectively





to school administrators, to parents, and to student passengers. School systems should promulgate, communicate, and enforce procedures to be followed by the students when riding on the bus.

*Maintenance and Service Personnel*

The staffing of fleet operation garages varies widely. However, a staffing pattern frequently used is one full-time mechanic for every ten buses. This man must be capable of all necessary repairs, including major overhauls. For each additional ten buses, one assistant mechanic capable of assisting with repair work should be hired. He could take full responsibility for lubrication, tire repairs, washing the vehicles, and like tasks. In a garage with a staff of two or more, the assignment of mechanics and helpers will normally be a function of the head mechanic or the local pupil transportation supervisor.

What kind of an instructional program should be provided for these personnel? The school system should develop and make available the required maintenance and service publications for the equipment being serviced. The school system should arrange for preservice and inservice training at regular intervals. They should encourage and even require maintenance personnel to attend training programs sponsored by the state or perhaps by manufacturers of the specific equipment which the mechanics are maintaining.

Material in these training programs should include such things as servicing procedures for the equipment, preventive maintenance, records for each piece of equipment, and forecasting and ordering supplies, parts, and other needed items.

*Procedures and Operations Standards*

What should be considered under procedures? Under this category of the committee report appears the word "policy." The report states, "Both the state department of education and the local school systems should have a clear-cut, concise, unambiguous policy concerning who is eligible for transportation on school buses owned or contracted for by the state or the local school systems, and the conditions under which these students will be transported."

Some of the subjects which should be treated in this policy document include procurement of equipment and supplies, maintenance and inspection, and the period over which the equipment will be depreciated. Procedures should be specific on driver recruitment, selection, instruction, placement and supervision; also specific on contractor recruitment, instruction, payment, and supervision. The policy procedure should include effective principles of routing, establishing school bus stops, and schedules. Pupil transportation supervisors are encouraged to utilize the services of the state and local police and the traffic engineering departments of state and local road agencies when planning school bus routes. Each school should have a loading and unloading area with all other traffic prohibited.

In addition to being the heart of an effective maintenance program, inspection is one of the greatest safety factors in pupil transportation. Definite policies and procedures should be set forth regarding inspection, making sure that it is not passed over in a superficial manner, as often happens.

Under procedures, record keeping is essential. We need records on accidents, personnel records, maintenance records, and cost records. Emergency procedures must certainly be included. Each local unit should have a pre-emergency plan carefully developed by the combined efforts of the pupil transportation supervisor, school administrators, teachers, drivers, and students. Some contingencies which should be planned for are, obviously, accidents, road failures, and inclement weather conditions. Others might include civil defense drills and strikes by drivers, contractors, and others. Procedures would necessarily include communications. The school system must insure that information concerning the transportation system and services can be rapidly disseminated to everyone concerned. Some methods which might be used are conferences, circulars, telephones, radio, and even television.

*Evaluation*

The last item in the report deals with the evaluation of the transportation operations. This will really tell whether or not you are accomplishing the goals you have established. Without a system of evaluation, you will never know. Several criteria can be applied to obtain some estimates of the operations' effectiveness, relating to such factors as safety, efficiency, and economy.

Safety criteria could also include frequency and severity of property damaging accidents, injuries to bus passengers and other highway users. Frequency and nature of complaints from parents, passengers, and others would be considered here. The frequency and nature of road failures and other emergency situations involving buses should indicate something.

If you are going to look for efficiency, check for the frequency with which trips were completed on schedule, the numbers of vehicles used to transport a given number of students, the numbers and lengths of the routes, and the amount of time the students have to wait at school before classes actually begin—all tell you something about efficiency.

In the appendices of the report there will be specific guides which can be adapted to specific situations. Some of these are school bus utilization, driver application, after-action reports on school bus driver observation, check lists for personnel interviews, evaluation forms for school bus driveways, a driving record sample, and others.

The committee report should be used by people who are legally or in any way responsible for pupil transportation as minimum recommendations for getting the job safely and efficiently done.



# TRANSIT SECTION

## KEYNOTE ADDRESS

By WILSON C. DRIGGS
General Manager, Dallas Transit System, Dallas, Texas

Those of us who have spent most of our adult lives in transit know of the vital part which this industry plays in the building of great cities. We know of the important service which we render. We know what the passenger considers important—safety, comfort, convenience, speed, and courtesy. Which is the second most important consideration? There may be some disagreement here. Mrs. Jones says convenience; Mrs. Smith says comfort; Miss Brown says courtesy; Mr. Businessman says speed; but they all agree on the first spot—safety!

When the City of Dallas decided to purchase its then privately-owned transit system in the fall of 1963, I was employed to help with the negotiations of acquisition, and was then invited to manage the property after the purchase. The entire system had deteriorated so drastically in the previous four years that the people of Dallas were almost up in arms.

The fleet had an average life of 14 years and was composed of nine different makes and models of gasoline buses, diesel buses, and electric trolley coaches. The unit average exceeded 500,000 miles per vehicle; annual service miles had been from 15 million miles to 12 million. Street supervision had been practically eliminated, and employee morale was at an all-time low. The safety program had been completely eliminated. Every mark-up of runs contained job elimination, and patronage was decreasing by 5 per cent annually. The transit system in Dallas was all but dead. Certainly a revival was in order—and time was running out!

We took off our coats, rolled up our sleeves and went to work. Within a few months we had cleaned up the existing fleet mechanically and otherwise; we had acquired 85 new 51-passenger, GMC air-conditioned buses; we put line supervisors back on the street—some in radio cars—and we had improved employee morale quite substantially.

But one day, some nine months after the city takeover, we were suddenly made aware that we had not been paying enough attention to the safety aspect of our operation. As a result, our accident rate had risen to an all time high and our insurance premium rate had soared proportionately. Indeed, our insurance company, the Transit Casualty Company, was so disturbed by our record that they then assigned special envoys to call upon us and, in effect, to warn us that we would either have to improve our safety record very substantially or pay the price.

Basic training for new operators had been confined to two weeks of classroom and on the job training, and the probationary period for new bus operators was limited to a short 90 days. No program of retraining was in operation for accident-prone operators and habitual violators of traffic regulations.

What had been done in 1964 and in previous years was to pursue a knuckle rapping type of safety program in which operators guilty of chargeable accidents were not made fully aware of the importance of safety. This, of course, meant that many operators involved in chargeable accidents didn't give them a second thought, because they felt that management didn't care either. As a result, talking safety to these operators was rather unproductive, to put it mildly. However, their attitude changed when our attitude changed.

The year 1964 was the turning point in safety philosophy at DTS. When the records were before us, we realized that drastic action was required. We immediately called a meeting of all concerned personnel and instructed them to create and put into practice as soon as possible a modern and effective safety program.

Specifically, it was decided that a new safety section should be created, and that it be headed by a full time safety director.

It was also indicated that this safety group should include a number of safety supervisors, all of whom would be veterans who had proved themselves as operators and as supervisors, and who were capable of spreading the word of safety to individuals and to groups of our operators. It was further emphasized that this was not to be either a knuckle rapping or a wrist slapping type of program, but that it was to be a program designed to make everybody conscious of safety, from the general manager down to the office boy. We had the proper people to administer this program.

Our safety director, who had been with the system for 45 years, had risen through the ranks from street car operator to safety supervisor and had a vast experience in the safety field. Also, we had broadened the responsibility of our veteran training superintendent and instructed him to place far greater emphasis on safety in employing all new operators. He was also instructed to expand the operators training period from two weeks to a full month and to extend the probationary period for operators from the previous 90 days to a full year. This permitted much closer obesrvation of new operators and more personalized attention to them. As you well know, the accident rate among first-year operators is substantially higher than among any other segment of operators and, accordingly, they need more help in these formative months.

Today, under our new safety program, our training superintendent maintains a separate record of each operator during his 12-month probationary period. These records embody all observations of the operators made by our instructors, safety supervisors, line supervisors, and the training superintendent. Our training superintendent and our safety director analyze these records at regular intervals, and we are convinced that through these analyses they are often able to correct operators' attitudes and driving deficiencies before they become involved in accidents.

In our new comprehensive program, safety supervisors make it a point to board buses at random to observe operators in action, both veteran and new recruits, and to call to their attention any unsafe driving habits they observe or any other deficiency which might contribute to accidents. Moreover, there is constant day to day communication between the safety director and the safety coordinator, who represents top management. The safety director and safety supervisors are frequently visited by the safety coordinator to discuss various facets of the safety program, and the safety coordinator frequently mingles with operators in their relaxed recreational hours and inculcates the safety message in oblique fashion.

One piece of dramatic, tangible evidence that our more stringent safety program is being carried out conscientiously by supervisory personnel, is apparent each year at our safety awards banquet. In years past, when supervisors ignored violations of traffic regulations, and even reported drivers blameless of chargeable accidents, we were awarding many, many more National Safety Council Safe Driver Awards than we have been awarding for the past five years. We believe that this award should mean something, and that a man should earn it, if he is to receive it!

It is our opinion that management should never underestimate the potency of properly written and placed publicity. Our public relation staff publicizes every aspect of our safety efforts. It also makes it a practice of sending copies of all our press releases to the editorial departments of both Dallas dailies as well as to the city editors and special assignments reporters. The opening paragraph of a recent editorial which appeared in the *Dallas Morning News* reads: "'They're safer,' remarked the prosperous young businessman as he rode a Dallas bus. 'That's the main reason I ride the bus.' Dallas city buses travel 12.5 to 13 million miles each year. But there has not been one bus rider killed in accidents since Dallas Transit Company was acquired by the city in 1964." That still holds true. Dallas Transit still has not been involved in any accident in which a bus rider was killed.

We do not hide our light under a bushel. In 1966, when we received a safety citation from the American Transit Association, we publicized it to the hilt. In our estimation, what is printed about the system and what is broadcast and what is telecast has a beneficial effect upon our employees no less than upon the public. In other words, we are not merely interested in getting our name in the paper. We believe that stories such as the one about the safety citation





and about our accident record have the effect of instilling safety consciousness in the minds of those operators who read it. We take this a step further: When the safety coordinator brought back the citation from Washington D. C., we in turn, had it presented to our safest operator of the year by our safety director. We publicized it in our employee magazine, *DandiLines*, and we made it clear that the citation was being presented in behalf of more than 500 DTS bus operators who had made the honor possible.

There is another excellent example of the stricter fashion in which our supervisors are now functioning with respect to safety. About a month after this year's awards banquet, our safest operator of the year was involved in two accidents within a short period of time, and the safety director found both accidents to be the operator's fault. Then, despite the fact that the operator had had a flawless driving record for 22 years, the safety director charged him with the accidents.

It should be pointed out here that we gain considerable additional public exposure of the System's safety consciousness each year by publicizing our safety awards banquet. This event serves a dual purpose; it provides us with the opportunity of recognizing and rewarding the safest drivers of the preceding year, and over the years past; and it is an annual meeting through which we are able to bring together under one roof the entire DTS family—from messengers to the chairman of the board. Following a barbeque dinner and professional entertainment, our National Safety Council Safe Driver Awards and DTS safety awards are presented to operators by system officials and staff members. The high point of the event is the presentation of our now traditional "Easy Chair Award"—a big, comfortable arm chair—which is awarded to the operator who has driven the greatest number of miles during the preceding year without an accident. This presentation is always cloaked in mystery, even from the press. The winners name is not divulged until the last minute.

Each year our public relations department devises an ingenius way of revealing the easy chair award winner. For example, one year the mystery winner was picked up by four of his brawny colleagues, placed in a Sudan chair and paraded around the banquet hall. He eventually landed in his well-deserved easy chair where the chairman of the board lighted his cigar, while I placed a pair of carpet slippers on his feet.

At last year's banquet, to honor the moon landing, we paraded the easy chair winner in a mock up of an Apollo nose cone. Needless to say, there is method in our madness in creating these theatrical means of introducing the easy chair winner. The press delights in it and we receive liberal coverage both in newspapers and television, thereby extending the value of the idea both in consumption by the public and by our operators. The instigation and perpetuation of such exploitation is certainly a responsibility of management.

In addition to completely revamping and beefing up our entire safety program and adopting a safety philosophy with more teeth in it, we were blessed with a number of material improvements which we believe have contributed to the continuing reduction in accidents.

First of all, we now have a fleet of 440 late model diesel motor coaches. Once our operators had become thoroughly familiar with these vehicles, the modern buses tended to reduce accidents. There is no denying that it is foolhardy to expect a high degree of safety if operators are asked to drive dangerously deteriorated rolling stock.

Our system-wide two-way radio installation has permitted instant warnings to operators to detour around such road hazards as icy streets, downed power lines, and flash floods. Scores of other emergencies have arisen in which accidents have been prevented through the use of this instant communications apparatus.

Currently we are preparing to utilize the two-way radio system as our operators' "conscience." We are recording a series of brief taped safety warnings and messages which will be broadcast direct to operators each day; and also special emergency messages for use on certain days. To give you some idea of what we have in mind, one "conscience" message will be: "Are you driving your bus as though all of your passengers are members of your family?" Other messages, to be broadcast during foul weather, will warn of the perils of rainy, icy, sleety, and snowy weather and other emergency conditions.

We also have had a series of psychological, somewhat institutional aids to our new safety effort. Within the past year we have completed a number of major capital improvements, including a totally new and modern transportation headquarters. The new quarters contrast quite dramatically with the former 70-year-old transportation building. The handsome new building has extensive recreational and lounging facilities for operators. It is fully air conditioned, cheerfully light, and the decor in general is conducive to an upbeat state of mind. In addition, the recreation room is equipped with color television, full-sized pool tables, domino tables, a snack area, and a closed circuit TV system which permits station foremen to locate operators quickly for various purposes.

We are also of the opinion that the installation of the latest thing in automatic bus washing facilities has enhanced our operators' morale by providing them with spotless vehicles in which to work. After all, no decent person can possibly work at peak efficiency in a bus cluttered with yesterday's discarded debris.

I don't have to tell you that certain aspects of our innovative program, in particular our new policy of suspending operators who are guilty of chargeable accidents, has been something less than popular with a few of our operators who contend that suspension of an operator does not make him a better, safer operator, but instead makes him angry. However, the results of our program disprove this theory. Prior to the institution of our new philosophy, we had nearly nine traffic accidents in every 100,000 miles operated. Thus far this year, we have experienced a little more than six accidents for each 100,000 miles operated, an improvement of over 30 per cent.

It is also interesting to note that our revised safety program has had a salutary effect upon the number of passenger accidents. In 1964, prior to the inauguration of the new program, we experienced nearly 10 passenger accidents for each million passengers carried. Through July of this year the figures stand at 7.83 passenger accidents per one million passengers carried, a 21.7 per cent reduction!

Finally, let me give you the figures that really tell the true story—the story of whether or not management has truly fulfilled its responsibility in the area of transit safety. Have we or have we not prevented as much as possible the needless waste of precious dollars which, as far as I can gather, no transit facility in the nation can afford to throw away?

Before I give you the figures however, I want to emphasize that although we have made some gratifying strides, we do not by any means consider our safety achievements as even remotely approaching perfection. In the final analysis, how well we have done thus far is a relative question.

In 1964, our casualty insurance premium amounted to 6.2 per cent of our gross revenues. Last year it had dropped to 3.44 per cent. During the present calendar year, the system's increasingly effective safety program has reduced accident costs to a point where the premium may be as low as 2.69 per cent, but will not exceed 3.05 per cent of the gross revenues. And this is money—hard cash.

On $10 million revenue, 6.2 per cent is $620,000. On this same revenue, three per cent is $300,000. A whopping savings of $320,000—wasted dollars—thrown away dollars—criminal dollars. Lastly, but most importantly, these dollars represent a lot of human suffering, pain, and agony.

Safety is everybody's business—starting with the manager!

# SECURITY AND SAFETY

By ROBERT J. McCULLOUGH
Pres., McCullough Security Co., River Forest, Ill.

Every bus company has it's list of rules concerning safe operation by the drivers. All these rules are explained in detail to the men before they go to work. In addition, they are later fully instructed on the road by experienced drivers, safety meetings are also held by safety directors to remind the men as to safe operation. In other words, they are fully informed as to the way the company expects them to operate, but in many instances they seem to forget, or they ignore all previous instructions when they are on their own.

The only real way top management has of knowing how the men are operating on the street is by undercover inspections. We all know if a supervisor is instructed to ride with a man he will be most careful to follow all the rules and will do a good job—or if a supervisor is following him in an automobile to observe his operation it is not very long before he is observed through the rear view mirror or is tipped off by another driver.

Some of the violations we report are:

1. Crossing intersections on the yellow light; e.g., when the signal turns to yellow before the coach reaches the intersection, giving the operator time to stop. If the coach starts through on a yellow, in most instances the signal is red before he reaches the center of the intersection.

2. Failing to come to a complete stop for boulevard stops and railroad crossings—sometimes drivers will cross railroad tracks at 15 to 20 miles per hour.

3. Opening doors of coach before coach has come to a full stop, or driving away from a stop with the doors still open, sometimes with passengers still standing on the top step.

4. Failing to pull into a clear curb to permit passengers to board or alight.

5. Driving over the speed limit or in a dangerous manner, such as cutting in and out of traffic.

6. Having a transistor radio playing.

Let us discuss some of these violations—first, failure to come to a full stop at railroad crossings. I'll wager in a great many instances when the operator is brought into the office by his superior and faced with the report, he will say he has not seen a train on this line since he has had the run. This statement may very well be correct, but even though he has not seen a train since being on the run it does not mean there will never be one—you can only be sure if part of the track has been picked up. As an illustration, when I was in Los Angeles we had a freight line that ran between Los Angeles and Santa Monica, known as the Santa Monica Air Line, and it had not been in use for approximately a year until one night the circus train arrived in town. The dispatcher routed the train on the Air Line. There were three crossing accidents on that particular movement (three different crossings). In each instance, according to witnesses, the train whistle was blowing and the crossing wig-wag signal working, but these three automobile drivers still ran into the side of the train. It turned out each driver crossed these crossings twice every night to and from work and had been doing so for several months. They also could have said they had never seen a train on this track, and they would have been correct.

It is surprising how much we are creatures of habit; not only bus drivers, but we ourselves as automobile drivers. We get into bad habits and unconsciously repeat them. I remember we reported an old time driver on one of National City Lines properties for opening the door of the coach some distance before pulling into the curb. We had checked him on numerous previous occasions over the years and he had always come in clear, but on this visit we observed him three different times violating this rule. When he was brought in and confronted with the reports by the superintendent of transportation he said he was positive the reports were incorrect, as he had never to his knowledge committed this violation, He was instructed to watch this feature. The next day this driver returned to the superintendent's office and said now he was sure the reports were correct, as he had caught himself doing this very thing.

In connection with the transistor radio on the coach, we report this, even though the radio is not playing at the time the inspector is on the coach, for the reason the operator no doubt intends to play it when his particular program is on the air. I maintain the driver will not be giving his full attention to his driving if he is listening to the radio. This is especially true if he is listening to an exciting football or baseball game on a Saturday or Sunday afternoon. If the ball is on the two yard line on fourth down with the score tied, or if the bases are loaded in the bottom of the ninth in a close game, you know he is not giving his full attention to his driving.

It is surprising that some bus companies consider it unnecessary to have checks made if on two previous occasions no drivers had

been observed mishandling fares. I maintain the safety feature is equally important. If, by reporting, accident prone men can be brought in and straightened out, there will have to be an improvement in the accident record of the company. Let us be realistic; one or two serious accidents will cost more than if several men were stealing fares.

Of course, putting a stop to operator's stealing is very important indeed—it certainly was to one bus company we checked a few months ago. This was a 55 bus property. We caught nine men stealing; one of the men stole 58 fares on one trip. When this particular individual was brought into the office and confronted with the charge, he at once admitted it and said, "My wife and I are tired of this town; we don't like anything about it. We discussed moving several months ago and decided to stay here until I was caught. The manager later informed me their revenue increased at once $300 a day. That is over $100,000 a year.

There is no doubt reports made by undercover inspectors are of no use unless the manager takes advantage of them. In my opinion, every man checked that has violations reported against him should be called into the office and the particulars discussed with him. The report then should be placed in his personal file and be reviewed from time to time; when future checks are made, it should be noted if he had improved in his operation. In endeavoring to improve the accident record of your respective properties it may be beneficial to check the drivers' personal files as to undercover reports.

My inspectors are instructed that if at any time while riding buses they should be involved in an accident, they should obtain all information available; if an automobile is involved, obtain the license number, make, and description of the car and make a report. Of course, they will not give their correct name and address on the witness card, but the local manager will have that information, as they will in the meantime have phoned in.

There are other ways a bus company can lose money in addition to accidents and stealing. One day a bus company called and requested a check as soon as possible—the man said he had an operator who was stealing $20 a day. When questioned as to the reason he suspected losing this amount, he said whenever this particular driver took his day off the extra man who took out the run always turned in approximately $20 a day more than the regular man. When we checked the driver, he was not taking a dime but he was chasing away the business. One of my young women inspectors boarded the coach and handed the driver a $1.00 bill (this property did not have the exact fare). The driver said, "J—C—, don't you God damned women have anything else than one dollar bills?" The inspector reported that at several stops there would be women passengers waiting for the bus and when the driver opened the door and they would observe who was driving, they would return to the curb and would not ride with him. There was a 20 minute headway on this line and you can bet many of the waiting passengers were picked up by automobile drivers.





# RETRAINING

By GLENN R. JAMES
Training Dept., Bi-State Transit System, St. Louis, Mo.

Since retraining can be one of the touchiest subjects in the transportation business, let's examine the definition of retraining as we see it: Isn't it re-instructing? Placing emphasis on specific weaknesses? Interviewing—counseling? Operation of vehicle under observation of a staff instructor? Determining operator's attitude toward defensive driving? Listening to operator's version of his problem?

Yet three basic questions seem to arise when retraining is mentioned:

1. Who should be sent back for retraining?

2. When should you send them?

3. Is retraining to be used as a disciplinary measure?

Division or station personnel may be reluctant to send back for retraining a man who has been cooperative and hard working in the past—they may feel his pride will suffer, or that it could have a bad psychological effect on him, and as a result he could become more difficult to handle. However, by the same token, they may send the troublesome man back without giving it a second thought.

If we use the American Transit Association's "Case Interview Plan," which was developed in keeping with proven principles of sound employer-employee relations, then we are assured of uniform treatment to all employees in all divisions or departments. This plan provides supervisory people with a tool, or technique, which should help them considerably in their efforts to build greater confidence between employees and management.

Your training department and supervisory people, however, need a yard stick in order to answer the three basic questions:

1. Who should be sent back for retraining? We believe if an employee has had two preventable or questionable type accidents within a twelve month period, and you have used the case interview plan, you have had instructors ride with him, but you still feel that retraining will keep him from having accident number three, then it is up to you to convince the man that it is to his advantage to let an instructor take him through a retraining course.

Here, with the use of diagrams, graphs, and charts, the operator and instructor can analyze the accidents in the classroom. Then with an empty bus over the streets at his division, the Instructor can observe if the man has formed any poor driving habits. Then we prefer to put the man into regular passenger service on the line he was involved on, so that the instructor can observe any additional habits when in service that did not show up with the empty bus.

2. When to send the man for retraining? To determine this depends on the facts that enter the picture during the interview. If this interview is handled properly, there is usually a clue to what caused the accident. The factors to look for are: How serious was the accident? What is the past record of this operator? What attitude traits have become pronounced lately? Is there a health question? Is there a family problem? Are money matters involved? Was there a lack of judgment used at the time of the accident? Did the operator learn anything from the accident? Will retraining help? Or is it a deeper problem?

If an operator has health, family, or money problems, he will continue to have them during the retraining sessions. To get through to him will not be easy. There will be time when the operator should be routed to the personnel director, the medical department, or to the legal department.

3. Is retraining to be used as a disciplinary measure? If you maintain an impartial manner, letting the man know that you are interested in helping him to retain a good record, the word retrainining will not conjure up the thought of discipline or punishment. When an operator has had an accident, hasn't he already punished himself, in at least three or four ways? (1) He may be disgusted with himself the minute he becomes involved in an accident; perhaps he is beginning to analyze what he should have done to avoid the accident. (2) Whether he gets paid or not to make out the report, he feels that it is taking time that he could be using for other things. Maybe he had a heavy date, now he will have some explaining to do. (3) He knows that very shortly he must face his superior; this in itself is rarely a happy venture to the average operator. (4) He knows that eventually the legal department will want a deposition, and that he could even end up going to court.

These things are all going through his mind—it is a form of punishing himself. We don't feel this is the opportune moment to add to an already complex situation. We do feel, however, that it is the time for a heart to heart talk, sort of a meeting of minds, a time to discuss an agreement for retraining. Discipline in the sense of reprimand is out of place at this time.

To summarize, if you have a sincere desire to salvage a man, you will accomplish this through retraining. If you create a desire on the part of the employee to improve, arrive at a mutual understanding as to what you and the employee must do to bring about improvement. Let the employee know the seriousness of the situation, and last, but most important, follow up on his progress for a time after the retraining period.

# THE SAFETY SEAT BRAKE

By M. H. WOOTEN
Safety Director, Metro Dade County Transit Authority, Miami, Fla.

During the late 1950's, The Miami Transit Company experienced accidents where the bus operator fell or was knocked from the driver's seat. Management realized a need for some type of automatic braking device to prevent a bus from running uncontrolled and possibly causing severe damage or injury. They visualized something similar to the "dead man" control as used on railed vehicles.

The problem was turned over to the Maintenance Department. Mechanic Bill Kamen came up with original idea for the safety seat, and along with Mechanic C. R. Harrell the idea was developed into a successful automatic braking device. The early device was a simple micro switch located underneath the drivers seat, tied into the existing brake interlock system. When the operator was in the seat, the seat was depressed and the switch closed. When he left the seat the switch was opened, activating the brake interlock and stopping the coach automatically if the coach was in motion.

The safety seat was thoroughly tested, approved, and installed on our newer coaches which had the brake interlock system. As our older coaches were converted to the interlock system, the safety seat was installed on them. We watched the safety seat closely and kept records which revealed two main drawbacks. The switch, being exposed, could be tampered with and rendered ineffective, and maintenance problems arose as a result of wear and tear, resulting in road call costs becoming prohibitive both from use and abuse. We therefore started looking for a more suitable braking device. John Fontaine, of Fort Lauderdale, Florida, improved the original device by using multiple contact points instead of the micro switch, and by enclosing the contacts into a package to be embedded within the driver's seat cushion. Two wires from the contacts are extended down through a hole bored in the wooden bottom of the seat and connected to an aircraft type cinch plug. One wire is connected to the brake interlock and the other to the run control switch. The brake is still activated as before. When the driver is in the seat, the contact points are closed. When he leaves the seat, the contacts are opened, activating the rear brakes. The air pressure is regulated at 35 pounds per square inch, enough to bring the coach to a smooth gradual stop but not enough to lock the wheels and skid or sudden enough to throw the passengers around.

The new device eliminated tampering and proved workable. After thorough testing in the latter part of 1965, we started installation of the new safety seat in March 1966. To this date, we have had no misuse or malfunction of the safety seat and it has proven maintenance free.

Over the years we have had several instances where the safety seat has paid off. We have a case where the operator suffered a heart attack and fell from the seat, and the coach was stopped without incident. We have had two assaults on operators who were caused to be removed from the seat, and again without an accident. We had an operator knocked from his seat by impact from a right angle collision, and with thirty passengers on board, the bus stopped just short of the wall of an apartment building. We recently had a collision between buses on the garage lot. One driver, a mechanic, was knocked from his seat and the bus, out of control, stopped just prior to striking other parked buses. These are some of the reasons why we feel the safety seat has been successful.

While the original purpose of the safety seat was the intent to bring the bus to a stop if the operator is incapacitated and falls from the seat, and to mitigate further injury or damage if he is knocked from the seat by collision impact, it would be remiss not to point out that many times it has been effective while the coach is stopped. As an example, the operator is trained to set the handbrake before he leaves the seat, but one human frailty is to forget. If he does so on our coaches, he still has positive brakes to hold the coach. Just today I observed a bus stopped in a zone and the operator, without thinking, leaned over and practically left the seat to help a passenger on crutches. Had he done so, no problem, because the coach would not have moved. We feel that there have been many instances where this device has helped to override human failure. We feel further that any item that we can add to give total safety is worthwhile.

We are primarily impressed with the fact that this is a safety device which requires the operator to do nothing other than his normal activity and further, as a device which he cannot avoid using. It is apparent that the operator leaves his seat many times voluntarily and occasionally involuntarily, therefore, the device is in fact used many times each day the coach is in service. As stated earlier, at its inception our purpose was to develop a "dead man" safety device; however, the value of the equipment in normal operation is now of primary importance. One of the most expensive accidents which this property has suffered, resulted when an operator left his seat to change the destination sign while stopped in line of traffic, without setting his hand-brake. This coach had the old styled seat which had been jammed by a folded piece of newspaper; the coach started forward and struck the vehicle in front of it before the operator could return to his seat.

The expenditure for this device is nominal compared to the possible tremendous liability if we were to have a runaway bus in a downtown section in a high density pedestrian area or on one of the many bridges or causeways we have in Miami.

It should be remembered that the safety seat is workable only on buses with the brake interlock system. If your equipment does not have this system, the interlock pack is available with the safety seat.

The safety seat as described here has been patented and is now being manufactured for sale by the American Associated Companies of Atlanta, Georgia.





# COOPERATIVE ATTITUDES PROMOTE SAFETY

By MAX L. RISE
General Supt., Transportation, Southern California Rapid Transit District, Los Angeles, Calif.

The Southern California Rapid Transit District has had the pleasure of working with the United Transportation Union, AFL-CIO, which is the sole bargaining agency for our 2,600 operators. For many years the present United Transportation Union was known as the Brotherhood of Railroad Trainmen. This union became interested in safety mainly because some railroads believed that loss of life and limb was a price that must be paid for operating a railroad. The union had a different idea. They believed that if good, safe practices were instituted and carried out, life and limb could be spared.

I asked the general chairman of the United Transportation Union to give me some background on the founding of the Union, particularly as it relates to safety. Following are his comments:

"The Brotherhood of Railroad Trainmen was founded in 1883 in Oneida, New York, and its founding was primarily for the purpose of creating through legislation both state and federal, better and stronger safety laws, rules and regulations.

"Records in the archives of the union reveal that the railroad job was one of the most dangerous employment one could have. Following is a quote from a document in the library of our union: . . . working conditions were criminally dangerous, with almost one-third of the nation's brakemen killed or maimed each year, and 70 per cent of all train crews could expect to be crippled within five working years.'

"It is reported that at one time, the way a person revealed or demonstrated his experience as a worker on a railroad when he would make application to another railroad

was to show the loss of a finger, thumb or leg.

"Going through old magazines and papers of our union, three of the most prominent advertisers were: (1) manufacturers of artificial limbs; (2) the learning of a new trade; i.e., clock and watch repairing, which was taught after the loss of limbs; and (3) tombstones.

"So, as you can see, out of sheer necessity an organization had to be born to take an interest in safety. Our union, the United Transportation Union, formerly Brotherhood of Railroad Trainmen, along with the other three unions that merged (Brotherhood of Locomotive Firemen and Enginemen, Order of Railway Conductors and Brakemen, and Switchmen's Union of North America) were founded to devise safety rules and regulations to be practiced among the employees. At the same time, a legislative department was established for the purpose of trying to get safety laws passed nationally, state, and locally.

"One of the other purposes of the union was to build a benevolent fund where each payday the worker would contribute a few cents from his paycheck; this money would be used to give the worker a decent burial because, at that time, the jobs of rail men were so dangerous that none of the insurance companies in the United States would insure them. A few years later, the Brotherhood became involved in negotiating for wages, working conditions, and other benefits."

Approximately ten years ago the union requested management that they be allowed to assume a more active participation in our safety program. Prior to this time, the loss prevention department of our insurance carrier, Transit Casualty, spearheaded most of our safety activities. Under the leadership of the then general superintendent of transportation, we experienced a constant reduction in traffic and passenger accidents for a six-year period. After giving the union's request much thought, we decided to give it a try. This would also give us a three party safety program steering committee; namely, management, union, and insurance carrier. When it came time to formulate a new safety program for the next year, the union participated in our discussions, they laid their cards on the table and expressed themselves openly. In addition to giving us some new ideas, they also agreed to furnish safety trophies for the first, second, and thrid place winners of our new safety contest. In addition to purchasing the trophies, they also agreed to defray the cost of the engraving. They also stated they would be most happy to have a representative present at our celebration sessions for the first, second, and third place contest winners.

At one of our celebrations, a Union officer made the following remarks to a group of operators: "Our union may differ with management when it comes to negotiations, or the interpretation of our union contract, but when it comes to the preservation of life and limb, there can be no differences."

At another of our celebrations another union representative made the following remarks: "Since becoming a union officer I have come to the conclusion that approximately 85 per cent of the grievances that I am called upon to handle are either the result of a preventable accident or discourtesy to passengers."

A poor driver with a poor attitude generally has more than his share of accidents. Yes, I could go on and on reiterating statements that have been made by the union officers at our monthly celebrations. We recently had a situation in which the District felt it necessary to remove a driver from service due to the fact that his safety record did not meet our standards. A formal hearing was called for between the District and the union. During the hearing, the union representative asked to check over the driver's personnel record. He then made the following remarks: "I will have to agree with the company that your accident record does not meet company standards, and I am prepared to request of management that they allow you to return to driving for a 90-day probationary period. Before starting your 90-day probationary period, it will be necessary for you to attend the refresher courses put on by representatives of the loss prevention department of Transit Casualty, and the instruction department of the Rapid Transit District. One more preventable accident during your 90-day probationary period will be grounds for immediate dismissal."





A few years back our local division of the United Transportation Union was recognized by the National Safety Council for outstanding coverage of safety in their monthly publication.

Effective October 1, 1969, our District put into effect an exact fare plan. The union was most helpful in assisting the District to implement the exact fare plan on the basis that they feared for the lives and limbs of their members and our District drivers. In other words, they used safety to help accomplish their purpose. As the old saying goes, one picture is worth 10,000 words.

It is not my purpose to give the impression here that we have the union buffaloed. This is far from true, as we have had several arbitration cases with the union during the past year. We believe the type of individuals that drivers elect to represent them today are generally a higher caliber type of person. The officers of our local union attend seminars and certain programs in order to better qualify them for their duties. Because of the fine job the general chairman of our local division has done, he has been elected to Vice President in the Bus Division of the United Transportation Union.

In many instances the union has been helpful in offering certain suggestions which the company has been able to incorporate in new bus equipment purchased. Joint participation of management and labor in accident investigations has been helpful in formulating certain safety practices necessary to avoid a repetition of certain types of accidents. Under our union contract, the District is required to pay extra board operators for eight hours of work on a daily basis even though the District may assign certain drivers to a couple of trippers which might only cover a four or five hour period of work. In such cases, the District Instruction Department and our insurance carrier take advantage of the opportunity to conduct a number of refresher courses for operators. Not only have the union officers in certain instances encouraged the operators to attend, but the officers themselves invariably will attend these sessions. Recently one of the union officers mentioned the fine job the District and insurance carrier were doing in conducting their refresher course programs. His only complaint was that so far we were only working with extra board operators, and he felt there were a number of regular operators, some who had been with the District for a number of years, should also be able to take advantage of the refresher courses, thus giving them an opportunity to improve their safety record. He also stated that insofar as the extra board drivers were being paid for attendance in the classes on the basis of their eight hour guarantee, he felt the regular drivers should be paid for attending our refresher sessions. At the present time the District is considering this request, due to the fact that we are paying certain extra board operators penalty time in the form of their daily guarantee. Instead of paying extra operators penalty time, we could assign the extra operator to an hour or two portion of the regular man's work assignment so that the regular operator would have an opportunity to attend our refresher course sessions.

It has been a pleasure for us to work with our local union for the past ten years in our joint safety program, and we are looking forward to their continued support in the future.

## *MEMBERS OF THE*

# MOTOR TRANSPORTATION CONFERENCE

## NATIONAL SAFETY COUNCIL 1970-71

*Vice President for Motor Transportation* — WILLIAM L. FAYLE

*Chairman* — STANLEY A. OSSMAN

*First Vice Chairman* — BERTRAM L. WHEAT

*Second Vice Chairman* — ORVILLE G. PARRISH

*Chairman, Commercial Vehicle Section* — JACK W. RING

*Chairman, Transit Section* — FRANK A. JOHNSON

*Chairman, School Transportation Section* — MORRIS W. RANNELS

*Board of Directors Representing the Motor Transportation Conference* — HOWARD M. BAKER, KENNETH N. BEADLE, CARROLL W. BOYCE, CLAYTON D. CALKINS, JOHN B. CARNAHAN, WILLIAM L. FAYLE, ALBERT L. HAUCK, C. BILL LEMON, STANLEY A. OSSMAN, ORVILLE G. PARRISH, LORNE F. PURVES, KARL SCHULZE, DORWIN L. WILLIAMSON

*Immediate Past Chairman* — CARROLL W. BOYCE

*Honorary Life Members* — EDWARD J. BUHNER, PAUL H. COBURN, ERNEST G. COX, COLIN DORELL, JACK HIGHTOWER (Deceased), HAROLD HOSEA, WILLARD G. MACINTOSH, ARTHUR J. NAQUIN

*Manager, Motor Transportation Department* — ALFRED C. FINCH

*Staff Secretary* — JOHN J. FLAHERTY

*Members of the Motor Transportation Conference* — HOWARD M. BAKER, Director, Security Department, Montreal Urban Community Transit Commission, Montreal, Quebec, Can.; KENNETH N. BEADLE, Vice President, Safety, Pacific Intermountain Express, Oakland, Calif.; ROBERT G. BEGEMAN, Vice President, Engineering Services, Transport Insurance Company, Dallas, Tex.; FRED M. BISHOFF, Safety Director, United States Post Office Department, Washington, D.C.; GEORGE E. BLUEL, Superintendent of Safety, Burlington Truck Lines, Inc., Galesburg, Ill.; WILLIAM P. BOWLING, Director, Safety and Claims, Continental Trailways, Washington, D. C.; CARROLL W. BOYCE, Director, Motor Truck Manufacturers Division, Automobile Manufacturers Association, Inc., Washington, D. C.; HAROLD BRANDALEONE, M.D., F.A.C.P., New York, N. Y.; CLAYTON D. CALKINS, Manager, Safety and Personnel, Pacific Motor Trucking Company, San Francisco, Calif.; SYLVESTER A. CARIA, President, Twin City Lines, Inc., Minneapolis, Minn.; JOHN B. CARNAHAN, Vice President, Armour and Company, Chicago, Ill.; THOMAS M. CHENEY, President, North American Professional Driver Education Asociation, Los Angeles, Calif.; WILLIAM E. COTNER, General Manager, National Truck Leasing System, Chicago, Ill.; JOSEPH J. COTTRELL, President, Cottrell Bus Service, Inc., Buffalo, N. Y.; ROBERT E. CREWS, General Manager, Whitfield Bus Lines, Inc., Las Cruces, N. M.; JOHN A. DEPEW, Safety Consultant to Motor Transportation Industry, Rock Island, Ill.; CAMPBELL G. DEWEY, Loss Control Specialist, American Mutual Insurance Alliance, Chicago, Ill.; ROBERT P. DONLEY, President, Weldon, Inc., Columbus, Ohio; JOE D. DOUGLAS, Manager, Safety and Training, Central Motor Lines, Inc., Charlotte, N. C.; EDWARD J. EMOND, Director of Automotive Safety and Regulatory Relations, Armour and Company, Chicago, Ill.; WILLIAM L. FAYLE, President, Transportation Division, Burlington Industries, Inc., Burlington, N. C.; DOUGLAS M. FERGUSSON, Director of Safety Services, Nationwide Insurance Companies, Columbus, Ohio; WILLIAM R. FISTE, Chief, Regulations Division, Bureau of Motor Carrier Safety, Washington, D. C.; HARRY D. FLETCHER, Head, Institute of Public Safety, The Pennsylvania State University, University Park, Pa.; WILLIAM M. FOLEY, Director of Safety, Consolidated Freightways, Chicago, Ill.; ROBERT J. FORMAN, Vice President, Safety and Personnel, Greyhound Lines, Inc., Chicago, Ill.; C. DEANE FORTUNE, Director of Safety and Security, Transportation Division, Burlington Industries, Inc., Burlington, N. C.; WILLIAM L. FRIGON, Ashville, N. C.; RICHARD V. GALLAGHER, Executive Director, International Taxicab Association, Lake Forest, Ill.; WILLIAM A. GARTLAND, Manager, Engineering Services, Borg and Beck Division Borg-Warner Corporation, Detroit, Mich.; ROBERT E. GOCKE, Vice President, Industrial Relations and Personnel, The Greyhound Corporation, Chicago, Ill.; RICHARD GORMAN, Supervisor, Loss Control, Allstate Insurance Company, Northbrook, Ill.; ROBERT I. GRIEGO, Safety Director, New Mexico State Highway Department, Santa Fe, N. M.; DAVID O. HARROLD, Staff Engineer, International Harvester Company, Fort Wayne, Ind.; ALBERT L. HAUCK, Vice President, Marketing and Public Relations, Transportation Underwriters, Division of Baldwin and Lyons, Inc., Indianapolis, Ind.; WILLIAM P. HEADLEY, Assistant Safety Manager, Columbus Gas of Ohio, Inc., Columbus, Ohio; BEN F. HEINZ, Director, Safety Engineering Services, Transport Indemnity Company, Los Angeles, Calif.; WILLIAM R. HOLLEY, Safety Director, National Accounts Department, Farmers Insurance Group, Los Angeles, Calif.; GLENN R. JAMES, Chief Instructor, Bi-State Transit System, St. Louis, Mo.; WILLIAM E. JOHNS, Director of Safety, American Trucking Associations, Inc., Washington, D. C.; FRANK A. JOHNSON, Superintendent of Training, Accident Studies and Employment, Chicago Transit Authority, Chicago, Ill.; JOSEPH M. KAPLAN, Executive Vice President, Greater Los Angeles Chapter, National Safety Council, Los Angeles, Calif.; ALFRED E. KENDRICK, JR., Manager, Safety and Training, South Carolina Electric and Gas Company, Columbia, S. C.; FINLEY S. LAKE, Director of Safety, Interstate Motor Freight System, Grand Rapids, Mich.; C. BILL LEMON, Director, School Transportation and Coordinator of Administrative Services, Santa Fe, N. M.; JAMES D. LITTRELL, Director of Transportation, Dallas County Schools, Dallas, Tex.; BILL G. LOSHBOUGH, Supervisor, School Bus Safety and Driver Education, Santa Fe, N. M.; J. WYLIE LUMPKIN, Manager, Safety Services, REA Express, New York, N. Y.; GERALD A. MCCALL, Director of Field Services, Nebraska State Department of Education, Lincoln, Neb.; JOHN J. MCCORMACK, Special Representative, Transportation Underwriters, Indianapolis, Ind.; CHARLES C. MILLER, Secretary RMA, Chairman RMA Tire Division, Rubber Manufacturers Association, Washington, D. C.; THOMAS F. MOORE, Safety Director,Carolina Freight Carriers Corporation, Cherryville, N. C.; WILLIAM J. MORGAN, Director of Safety, Cincinnati Transit, Inc., Cincinnati, Ohio; RUSSELL L. MORRIS, Director of Transportation, John Labatt Limited, London, Ontario, Can.; FREDERICK H. MUELLER, Director of Research, National Association of Motor Bus Owners, Washington, D. C.; GEORGE C. NIELD, Assistant for Technology, Motor Vehicle Programs, National Highway Safety Bureau, Washington, D. C.; RUSSELL R. NOBLE, Chief Engineer, Truck Safety, Chrysler Corporation, Dodge Truck Operations, Detroit, Mich.; VINCENT L. O'DONNELL, Managing Director, Private Carrier Conference, Inc., American Trucking Association, Washington, D. C.; JOHN J. O'REILLY, Safety Supervisor, Port Authority, Trans Hudson Corporation, New York, N. Y.; STANLEY A. OSSMAN, Vice President, Safety, Greyhound Lines, West, San Francisco, Calif.; ORVILLE G. PARRISH, Director of Pupil Transportation, New Jersey State Department of Education, Trenton, N. J.; HAROLD L. PELLEGRINO, Assistant Director of Safety, Kansas Highway Commission, Topeka, Kan.; ALBERT L. PHILLIPS, Manager, Employee Safety, American Gas Association, Inc., New York, N. Y.; JOHN L. PICKENS, Secretary, Hartford Insurance Group, Hartford, Conn.; FRANCIS E. PIPER, Major, Illinois State Police, Springfield, Ill.; LORNE F. PURVES, Superintendent of Transportation and Safety, Toronto Star Limited, Toronto, Ontario, Can.; MORRIS W. RANNELS, State Coordinator of Safety Education and Transporta-

tion, Maryland State Department of Education, Baltimore, Md.; DWIGHT E. RAY, Vice President, Insurance, Safety and Security, Pilot Freight Carriers, Inc., Winston-Salem, N. C.: EDWARD M. REILLY, JR., Manager, Loss Prevention Department, Beneficial Insurance Group, St. Louis, Mo.: JACK W. RING, Manager, Safety Division, Land O'Lakes, Inc., Minneapolis, Minn.; MAX L. RISE, General Superintendent of Transportation, Southern California Rapid Transit District, Los Angeles, Calif.; ROBERT H. RIVARD, Director of Safety, Briggs Transportation Company, St. Paul, Minn.; RICHARD W. RUDISILL, Safety Supervisor, Southeastern Pennsylvania Transportation Authority, Philadelphia, Pa.; WARREN E. RUMSFIELD, President, North Shore Driving School, Chicago, Ill.; ROBERT H. RUSH, Director of Transportation Services, Board of Public Instruction, Volusia County, Deland, Fla.: THOMAS W. RUST, Director of Safety, Yellow Freight System, Inc., Kansas City, Mo.; HERBERT J. SCHEUER, Assistant to Executive Vice President, American Transit Association, Washington, D. C.; KARL SCHULZE, Chief, Vehicle Support Division, National Highway Safety Bureau, Washington, D. C.; THURMAN D. SHERARD, Highway Engineer, Western Highway Institute, San Francisco, Calif.; EDWARD J. SLINGERLAND, Safety Director, Seattle Transit System, Seattle, Wash.; HAROLD L. SMITH, President, Harold L. Smith Driver Improvement Institute, Inc., San Diego, Calif.; T. W. SMITH, Manager of Safety and Personnel, Southern Pacific Transport Company, Dallas, Tex.; DAVID H. SOULE, Safety Management Specialist National Highway Safety Bureau, Washington, D .C.; KENNETH A. STONEX, Executive Engineer, Automotive Safety Engineering, General Motors Engineering Staff, Warren, Mich.; J. WISTAR STOWE, President and General Manager, Lynchburg Transit Company, Lynchburg, Va.; DAVID L. STROEHMANN, Vice President, Stroehmann Brothers Company, Williamsport, Pa.; JAMES B. SUMMERS, Vice President, Sales, Superior Coach Corporation, Lima, Ohio; FRANK J. SWEENEY, JR., Assistant Vice President, Associated Transport, Inc., New York, N. Y.; G. WRAY THOMAS Assistant General Manager for Operations, Southeastern Pennsylvania Transportation Authority, Philadelphia, Pa.; ROY W. WALTER, State Director, School Transportation and Driver Education, West Virginia Department of Education, Charleston, W. Va.; BERTRAM L. WHEAT, Vice President, Loss Prevention, Eastern Express, Inc., Terre Haute, Ind.: JOHN C. WHITE, Managing Director, Private Truck Council of America, Washington, D. C.; THOMAS H. WILKENSON, Army Director of Safety, Office Deputy Chief of Staff for Personnel, Department of the Army, Washington, D. C.; DORWIN L. WILLIAMSON, Superintendent of Training and Safety, Cleveland Transit System, Cleveland, Ohio; DANIEL G. WISOTZNEY, Consultant, Colorado Department of Education, Denver, Colo.; GORDON D. WIXOM. Director, Pupil Transportation, Office of Superintendent of Public Instruction, Springfield, Ill.; WILLIS H. WOOD, San Bernardino, Calif.: MENFORD H. WOOTEN, Safety Director, Metro Dade County Transit Authority, Miami, Fla.; CHARLES C. WREN, General Manager, Illinois School Bus Company, Inc. and Cook County School Bus Company, Crestwood, Ill.: PHILIP W. YOUNG, Vice President, Safety, Personnel and Claims, Dealers Transit, Inc., Chicago, Ill.

*Honorary Life Members*— EDWARD J. BUHNER, Louisville, Ky.; PAUL H. COBURN, Director of Personnel, Pilot Freight Carriers, Inc., Winston-Salem, N. C.; ERNEST G. COX, Arlington, Va.; COLIN DOBELL, Gibson, B.C., Can.; HAROLD R. HOSEA, Chevy Chase, Md.; WILLARD G. MACINTOSH Stuart, Fla.; ARTHUR J. NAQUIN, Safety Consultant, New Orleans, La.




PLAN
NOW TO
ATTEND
THE

1971
1972
1973
1974

**NATIONAL SAFETY CONGRESS**
**OCTOBER 25-28, 1971 / CONRAD HILTON HOTEL, CHICAGO**

The Congress is always a big week, a worthwhile week for the 13,000 safety people who attend.

At the '71 Congress you can meet other safety people, with the same problems and responsibilities as yourself. You can exchange views and ideas on accident prevention, health, hygiene, and fire prevention . . . on safety in industry, traffic, school, at home and on the farm.

You can see the largest of all safety equipment exhibits at the Congress . . . an opportunity for you to make well-informed buying decisions for your company.

This four-day educational program, planned and presented by the National Safety Council, can be your most thought-provoking, most worthwhile safety experience in 1971.

Make plans early to attend the 1971 Congress and bring the other people in your organization who have safety responsibilities.

| FUTURE CONGRESS DATES | |
|---|---|
| 1971 | October 25-28 |
| 1972 | Oct. 30 - Nov. 2 |
| 1973 | Oct. 29 - Nov. 1 |
| 1974 | Sept. 30 - Oct. 3 |

NATIONAL SAFETY COUNCIL
425 NORTH MICHIGAN AVENUE • CHICAGO, ILLINOIS 60611

**National Safety Council**

A Membership Organization Dedicated to Protecting Life and Promoting Health

March 21, 2001

Baron & Budd, P.C.
The Centrum
3102 Oak Lawn Avenue, Ste. 1100
Dallas, TX 75219-4281

To Whom It May Concern:

The attached records are kept and maintained in the regular course of business of the National Safety Council, and it is the regular course of business of the National Safety Council to keep and maintain the attached records.

The attached photocopied material is an authentic reproduction of an original file copy of :

NATIONAL SAFETY COUNCIL CONGRESS TRANSACTIONS 1970, VOLUMES 1-5, 7-23, 25, 27,28.
National Safety Council, Chicago, IL.

Respectfully,

Robert J. Marecek

Robert J. Marecek
Manager, Library

Marilyn P. Pettersen

"OFFICIAL SEAL"
MARILYN P. PETTERSEN
Notary Public, State of Illinois
My Commission Expires 10/26/03

1121 Spring Lake Drive • Itasca, IL 60143-3201 • (630) 285-1121 • FAX (630) 285-1315 http://www.nsc.org

AIR BAG SAFETY CAMPAIGN AIR BAG SAFETY: BUCKLE EVERYONE! CHILDREN IN BACK!