

news

NHTSA



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September 1975

What Price Safety?

Buying a new car or recently bought one? Ever stop to think just what all the Motor Vehicle Safety Standards cost?

To put an exact cost on the standards is impossible, as the cost varies from car to car and model year to model year. But, estimates by the Bureau of Labor Statistics and the National Highway Traffic Safety Administration indicate that the safety standards for the 1975 current model year add an average of about \$241 to each car.

By the 1977 model year it is estimated that the standards will increase the average cost per vehicle about \$271. However, this figure could fluctuate either up or down before that time.

Charles Westphal, of the engineering systems staff, Motor Vehicle Programs, said these estimates represented costs to meet a particular standard based on a design

at the time the standard was implemented. As the standards become incorporated in the car's design and production and design efficiencies realized, the cost will decrease. Inflation, on the other hand, will have the opposite effect.

There are also the indirect costs, such as the increased fuel consumption resulting from the added weight of the new standards. Currently, the extra load is estimated to be about 268 pounds. Of that, the bumper improvement Standard, No. 215, makes up about 54% and the side door strength requirements, Standard No. 214, makes up about 18%, or a total of about 189 pounds for the two standards.

However, studies by NHTSA indicate that, with the use of lightweight, high strength steels, plastics, aluminum, and other materials, the weight could be reduced by as much as 120 pounds. It must be noted that weight, like cost, can
(See Price of Safety on page 2.)



What are these NHTSA people doing in this setup? See page 3 for details

From the Desk of...

Recent press and television coverage on the subject of catalytic converters has raised numerous questions regarding the potential fire safety hazards of this emissions control device. The information which led to these questions and discussions included reports from the U.S. Forest Service that some vehicles equipped with catalytic converters had been the cause of fires when they came in contact with dry vegetation. In addition, the U.S. Army and Air Force have prohibited converter-equipped vehicles from operating in hazardous or explosive areas. As a result of these reports, the NHTSA obtained information concerning converter safety problems by means of inquiries to the manufacturers, vehicle test programs, and review of consumer input. We have determined that some incidents of heat damage due to converters have occurred in various makes of vehicles.

Many 1975 model year automobiles have been equipped with catalytic converters. These devices reduce emissions by accelerating the combustion of pollutants, hydrocarbons, and carbon monoxide



The Associate Administrator for Motor Vehicle Programs

leaving the engine. To accomplish this, they are designed to get hot, with surface temperatures of some types approaching 1,000°F under conditions of high engine loading. However, it should be noted that this is not unusual. Past testing has shown that exhaust surface temperatures of older cars can also get as hot at similar engine loading conditions. Thus, catalytic converter surface temperatures do not present a new type of problem as long as the engine is running properly.

If there is a partial ignition system failure, such as one or more misfiring spark plugs or defective ignition wires, the converter surface temperature may get extremely hot, because of the abnormal amount of unburned fuel delivered to it by the nonfiring cylinders. This may lead to charring or burning of undercoating that may have been inadvertently sprayed on the converter or exhaust system, or ignition of dry vegetation if the vehicle is operated off the road. However, to date there has been no evidence of a heating problem if the engine is running properly.

The NHTSA is currently monitoring the safety aspects of catalytic converters and is including all such information in Docket Number 75-13.

A. H. Carter

Price of Safety (from page 1).

vary from year to year and car to car as the designs change.

What does all this weight cost you in terms of fuel? On the average, each pound of vehicle weight, increase or decrease, will change the vehicle's fuel consumption by .83 gallons per 100,000 miles driven or 83 ten millionths of a gallon for each mile driven. Or to look at it another way, for each 100,000 miles you drive, the additional safety features on your 1975 car will mean a high of about 222 gallons more in fuel for implemented designs or a low of approximately 123 gallons when lightweight materials are utilized.

Compare this to a luxury item, such as air conditioning. For a medium-sized car, this option costs the buyer about \$420. In addition, the air conditioning will increase his gasoline consumption by 10% or 600 gallons per 100,000 miles.

Economic reasonableness implications were considered before setting Motor Vehicle Safety Standards. Popular comfort options such as air conditioning or AM-FM stereo radios may cost far more than the safety features that will save lives and prevent injuries.

When seen from this point of view, perhaps the American automobile buyer is getting one of the best bargains of his life.

Transactional Analysis

Recently 29 NHTSA employees attended a 3-day training session in Transactional Analysis (TA), a new way of looking at oneself and a method which provides options and skills for improving communication with others. The course was sponsored by our Office of Personnel Management.

In the simplest of terms, TA points out that each person has three different ego states - Parent, Adult and Child (PAC). Which of these ego states a person is in at any particular moment is indicated not only by his choice of words and tone of voice, but also by such non-verbal clues as body action and movement.

The Parent ego state, the taught concept of life, could be in the form of either Nurturing or Critical Parent. The Child ego state, the felt concept of life, could surface as either the Natural Child (fun-loving, excited) or the Adaptive Child (obedient, rebellious, feelings of inferiority). The Adult is the thought ego state--analytical, probing, weighing all facts and information to reach a decision.

An emotionally well-balanced person is not all "Adult," as some may think, but rather one who acts and reacts in any of the three ego states, or sometimes a combination thereof, according to the



Can you tell what "ego state" these Transactional Analysis participants are in at the moment? They are the 29 persons who attended the recent 3-day course, along with their two instructors

situation. TA becomes a valuable tool in communication and getting along with others when one becomes aware of what is happening and is able to use the proper form, or ego state if you must, of response. A skilled TA practitioner can experience and project the feeling indicated by Dr. Thomas Harris' book, "I'm OK--You're OK."

The six people in the picture on the cover (left to right) Alex Campbell, Doug Syverson, Laurline Clark, Jack Burke, Linda Sink and Ray Moody pose in the ego state that each is reflecting at the moment.

The other 23 course participants were:

Hanley Norment, Civil Rights;
Irvin Chor, PACS;
Catherine Larsen, Susan Hopson, and Mary Jane Noll, Exec. Sec.;
Betty Ann West, Kevin Cavey, William Smith, Billy Peterson, Jere Medlin, Nancy Martus, MVP;
Joan Edwards, Elbert Peters and Zephia L. Gouldson, TSP;
Ezio Cerelli, Diane Lombardo, Yung-Kuang Wu

and Paul Solomon, R&D;
Jerri Pennington, P&E;
Dawn Gordy and Terri O'Donnell, AD;
Damian Adamo, Reg. III;
Merf Evans, Reg. IV.
Course Instructors were Gary and Karen Allen, a husband-wife team from Concern Group Inc.

Another session is being planned for late winter or early spring.

Employee Service Center

Have you heard? The DOT Employee Recreation Association (DOT/ERA) has added another plan for the benefit of its members--a Life Insurance Plan. The plan features an individual policy for you and/or your spouse that you may keep until Age 70, no matter where you work in the future, as long as premiums are paid.

The DOT/ERA Dental Plan has been in effect for several months. For further details on both plans, you can call Neil Ross, President, DOT/ERA, 426-0117. Membership in the Association is \$2.50 per year.

**FOR
WOMEN
ONLY**

Ah, a quiet evening at home. To come home from a hard day at the office and to relax is the American dream. However, that dream is insidiously infringed upon by the demands of noise, and we seem blithely unaware of our fate. The home is no longer a silent refuge. Noise is a nuisance, an annoyance, and a serious health hazard.

In general, we tend to underestimate the physiological effects, perhaps being more aware of the psychological ones. The ear is a delicate device. Sound is transmitted through the eardrum and the middle ear to the inner ear where the cochlea, a small snail-shaped structure, sends impulses to the brain. Within the cochlea are microscopic hair cells that vibrate in response to sound waves. It is the energy in impulses created by the movement of these tiny hair cells that go to the brain and are interpreted as sound. The hair cells are more easily damaged than we can imagine. The cochlea and its components are irreplaceable.

Sound is commonly measured by decibels (dB). Normal conversation may be held with a background sound-level from 0 to 50 dB. Contributions to hearing impairment begin at about 70 dB. Refrigerators, air conditioners, and clothes dryers (which the EPA calls "quiet major appliances") produce sound levels up to 60 dB, fol-

lowed by a host of noisier appliances:

Group 2: up to 70 dB: clothes washers, food mixers, dishwashers, vacuum cleaners, electric knives.

Group 3: 70 to 80 dB: sewing machines, food blenders, electric shavers, food grinders.

Group 4: 80 dB or more: electric yard tools and shop tools.

In order to converse over sound levels more than 80 dB, it is necessary to shout two feet from the listener's ear.

EPA points out that most appliances and tools are not in constant use, which reduces their damaging effect. However, the results of their use can range from "disturbing the neighbors in a multifamily dwelling" to "hearing damage."

Under the "Noise Control Act of 1972," EPA is directed "to set noise-emission standards" and to require "the labeling of domestic or imported consumer products as to their noise-generating characteristics or their effectiveness in reducing noise." At present, EPA is in the strategy and planning phase of labeling some products. A preliminary study will be done this year on household products, followed by more intensive action in FY '77, according to a spokesman for the Agency.

In the meantime, EPA suggests a precautionary inspection by the purchaser before buying. Below are some purchasing guidelines:

Compare the noise output of different makes of an appliance before mak-



ing your selection.

Stay away from major noise sources such as airport flight paths, heavy truck routes, high-speed freeways. When buying a home, check the area zoning master plan for projected changes. (In some places, you can't get FHA loans for housing in noisy locations.)

Look for wall-to-wall carpeting, especially in the apartment above you and in the corridors.

Find out about the wall construction (staggered-stud interior walls are among the quietest). Can you hear a portable radio at normal volume in the adjoining apartment?

Check the electrical outlet boxes. If back-to-back, they will act as noise transmitters.

Ask about the door construction. Solid or core-filled doors with gaskets or weatherstripping are quieter.

Make sure sleeping areas are well away from rooms with noise-making equipment.

Check the heating and air conditioning ducts. Inside insulation makes them quieter.

In a future article, modifications to equipment already in use will be discussed.

Inflatable Belt Development

by
Thomas Glenn,
physical
scientist,
Research and
Development



Protecting occupants of compact and subcompact cars during frontal collisions creates a difficult problem. The smaller, shorter cars have less "crush distance." Consequently, the occupant is subjected to a higher deceleration pulse during a frontal crash than would be experienced in a car with a longer front end. Two recently completed NHTSA test programs have successfully demonstrated that inflatable belt restraint systems can provide acceptable crash protection of the occupants of subcompact cars during the high deceleration pulse which is characteristic of subcompact cars.

In one test program (conducted at Southwest Research Institute in San Antonio, Texas, under Contract No. DOT-HS-4-00933) 12 human volunteer subjects were exposed to simulated frontal crash conditions of increasing severity. The volunteers were restrained by an inflatable lap and shoulder belt restraint system developed by the Allied Chemical Corporation for the right front passenger of a typical subcompact

car (in this case, a 1972 Pinto). In keeping with HEW regulations covering "subjects at risk," extreme care was exercised throughout the test program to insure the rights and welfare of the human volunteers by minimizing as much as possible the risks of injury. Sled tests were conducted in 2-1/2 mph "stepped severity" increments which simulated barrier crashes from 10 mph to 32.5 mph. In the final tests of this program, three volunteer subjects of various anthropometric sizes and weights completed successful, injury-free sled runs which simulated a barrier crash at 32.5 mph. The associated peak deceleration levels of 19.6 g were well below injury level.

In the second NHTSA program, a restraint system with an inflatable shoulder belt and conventional lap belt developed by Minicars, Inc., was crash tested in a structurally modified Pinto subcompact automobile. In this test, conducted at Dynamic Science, Inc., in Phoenix, Arizona, the right-hand dummy was protected by the air belt while the driver dummy was protected by an advanced air bag. The modified Pinto was subjected to a head-on crash test with a full-size 1974 Ford LTD at a closing speed of 80 mph. The dummies in the Pinto sustained acceptable head and chest accelerations and Severity Index values that were well within the criteria limits established under FMVSS No. 208. The dummies in

the larger vehicle were restrained by conventional lap and shoulder belts. The dummy in the front seat passenger position of the LTD sustained head acceleration levels that were above the acceptable tolerance levels of FMVSS No. 208 despite the fact that the crash severity of the occupant compartment in the larger car was well below the severity level sustained by the occupant compartment of the subcompact car (30 g vs. 56 g).

These initial programs demonstrated that it is possible to provide the small car occupant the



Human volunteer undergoing dynamic sled test of Allied Chemical's "Inflataband" at Southwest Research Institute in San Antonio, Texas

same level of accident protection as is currently afforded the occupant of a large car. However, improvements in both structure and restraint systems are required.

With the increasing shift of the automotive producers and the buying public toward smaller, more economical cars with greater fuel economy, the Office of Vehicle Safety Research intends to pursue further the problem of protecting the occupants of these smaller cars.

War on Auto Theft

Maybe it happened to you.

You parked your car, went in to shop, and, when you returned, found only an empty space where your car had been. You were the victim of an auto theft.

But you are not alone. In 1974 about 960,000 automobiles valued at nearly \$1.5 billion were stolen. And "whodunit" is still a mystery in 84% of these cases. According to the FBI, about 40% of cars stolen are stripped for parts and many others are exported or re-registered through schemes that make detection next to impossible.

Perhaps you have been luckier. This has never happened to you. But, as an American citizen, you are still paying for these crimes. Tax money must cover the staggering cost of investigating, prosecuting, adjudicating, correcting and rehabilitating car thieves.

And there is more. All too often innocent motorists--possibly people you know--have been killed or injured as a direct result of an auto theft. About 54% of auto thefts are committed by juveniles, persons under the age of 18. In addition to being thrill-seekers, these young persons are often inexperienced drivers and their fast, action-packed getaways many times end up in brutal crashes in which they, themselves,

and other innocent persons are injured or killed.

It's a serious problem and to help solve it an Interagency Committee on Auto Theft Prevention has been formed. The Committee is headed by Secretary William T. Coleman and Attorney General Edward H. Levi and includes representatives from the Departments of State, Commerce and Treasury and the Office of Management and Budget.

This Committee aims to cut auto thefts by 50% within 5 years. To do this, involvement and active participation by both private industry and local governments in the campaign is necessary. Among the ways in which the Committee members believe they can help bring about this reduction are the toughening of laws and registration procedures along with widespread use of inexpensive technological devices to improve door and ignition locks.

You, too, can help in this campaign by making a practice of the following habits:

Always lock your car when you leave, even for a few minutes.

Never leave the keys in the ignition.

Try to camouflage packages (especially expensive items) so that they are not readily visible to the would-be thief.

Close all windows when you leave your car.

Avoid parking in isolated, out-of-the-way places.

If you have car trouble and are stuck on the road,

make arrangements to have your car towed as soon as possible. Never leave it overnight.

If you have any suggestions on ways to combat this problem, contact Glenn Carmichael, special projects officer, 426-1590 or John Carson, MVP, 426-2715.

Thanks, Summer Aides

We are approaching the end of another summer and it is time to reflect on the benefits that we have gained from our summer employment program.

The summer aides provide support in areas absolutely essential to a smooth running organization. They also enable flexibility for scheduling summer vacations of our permanent staffs. In many cases they have been able to accomplish those tasks that we have a tendency to postpone until "tomorrow."

These bright young minds bring a fresh enthusiasm to the work of this Agency; thus, stimulating our thinking and attitudes. In some instances, new insights can be gained by the questions they ask and discussions that result. Further we would like to think they have learned something about how their Government functions and will make use of this experience in the pursuit of their respective careers.

We thank all of these summer employees for their contributions and wish them every success in their future endeavors.

Personnel

Welcome Aboard!

George Shute, Engineering Tech. (Supvy), MVP, 8-11.

Garland Crossland, Mobile Indust. Equip. Operator, MVP, 8-14.

Bruce Hammerton, Mobile Indust. Equip. Operator, MVP, 8-14.

Ann Ducca, Math/Stat, R&D, 8-17.

David Zisser, Attorney Advisor, AD, 8-17.

Congrats on Promotion!

John Ridgley, Safety Def. Engr., MVP, 8-17.

Job Openings

For complete details, see the official vacancy announcement.

Program Analysis Officer, GS-345-14, TSP. Opens: 8/25, Closes: 9/15. NHTSA 76-10.

Calendar of Events

September

22-24 The Brussels Working Party (GTB), an advisory body to Working Party 29 of the Economic Commission for Europe, specializing in lighting and reflectorization, meets in London, Eng.

24-26 The Sub-Committee on Identification of Vehicles of the International Standards Organization (ISO) will meet in Rome, Italy, to continue work toward standardizing VIN on an international basis.

Who's Who in NHTSA

He was selected Outstanding Area Governor for 1974-75.

David H. Soule, Pupil Transportation Specialist, was awarded this honor for his job as Governor of Area 5, Eastern Division, District 36 of Toastmasters International (TI). Dave received the award in May of this year at the District spring conference at which time he was also elected Lieutenant Governor of the Eastern Division. District 36, with 125 clubs, is the largest District in the World. Three of the 125 clubs are located in DOT. Dave joined TI in November 1966.

TI is a group of over 3,000 clubs throughout the world. Their aim is to improve the speaking, communications and leadership skills of the members.

In August of this year, Dave was responsible for presenting a model Toastmasters program at the 4-day International Convention of the Toastmasters held at the Shoreham-Americana Hotel in Washington, D. C.

Born and raised in Ann Arbor, Michigan, Dave attended the University of Michigan. After his studies were interrupted by World War II, he returned to Western Michigan University, where he earned his undergraduate degree. His Master of Science degree was earned at Iowa State University,



Dave Soule, Toastmaster's International Outstanding Area Governor for 1974-75

with his thesis in highway safety.

Dave has had experience in all areas of pupil transportation, from driving a school bus, to being a mechanic and acting as a fleet supervisor. While on the staff of both Eastern and Western Michigan Universities, he was coordinator of the Michigan School Bus Driver Education Program, director of University Conferences and assistant director of Field Services.

Dave played a large role in the development and issuance of Highway Safety Program Standard 17, Pupil Transportation Safety. He has been working for DOT since October 1967. An avid organic gardener, Dave enjoys growing dahlias, roses and vegetables.

graffiti

"Too many people who have passed their driving test think they can pass anything."

Anonymous

Award Winner

Mr. Glenn V. Carmichael, special projects officer, was recipient of the 1975 Citation for Distinguished Service, an award given annually by the National Committee on Uniform Traffic Laws and Ordinances.



Glenn Carmichael, special projects officer

The award was presented to Glenn Carmichael "In Recognition of distinguished service and outstanding contributions throughout the years to the cause of advancing uniform motor vehicle laws in the states, and for his many and valued services unselfishly given this Committee."

The 1975 award is the 16th year in which this award has been given and the first time it has ever been given to an NHTSA person. Glenn is a member of the Executive Committee of this organization, which was formed in 1947 to help bring about a reasonable degree of uniformity among state vehicle codes. The uniform code, which is established by this Committee, has been

widely accepted as a model by the states in establishing their own laws and ordinances.

Active in highway safety for 36 years, Glenn has held positions with the Oklahoma Department of Safety, the Oklahoma Safety Council and the National Safety Council. He was also a staff member of the Traffic Institute of Northwestern University and, immediately before coming to the National Highway Safety Bureau in May 1967, was Executive Director of the American Association of Motor Vehicle Manufacturers.

In his current assignment as special projects officer, Glenn is responsible to the Administrator for liaison in connection with periodic motor vehicle inspection, motor vehicle registration, motorcycle safety, traffic safety education, driver licensing, codes and laws, traffic courts, traffic records, emergency medical services, pedestrian bicycle safety, police traffic services, and coordination with state and national traffic safety organizations.

Tennis, Anyone?

From 7:45 a.m. to 4:15 p.m. plus, you will find the five of them seriously dedicated to their work. Outside, however, they take other matters seriously - such as tennis. All five - Ezio Cerrelli and Marvin Stephens, R & D,

Jerry Holiber and George Brandt, TSP, and John Womack, OCC - are active members of the DOT tennis team and whizzes on the court.

All are enthusiastic supporters of this program. Jerry is NHTSA's representative on the DOT Tennis Council. Marv serves as Secretary-Treasurer. Ezio is manager of the DOT Team. John is Captain of the NHTSA team. And George is NHTSA's representative to the Tournament Committee.

Other NHTSA tennis enthusiasts are: Tom Herzog, Akira Kondo, Steve Wood, Bruce Buckheit, Sam Daniel, Bruce Boldger, and Bill Scott.

This month the DOT tennis team is winding up activities for its fifth consecutive year with the DOT Tournament. Year-long activities included: Instruction for Beginners and Advanced Beginners; Recreational Tennis for Advanced Beginners and Low Intermediates; Intermediate Competition; Team Tryouts; Selection of the DOT Tennis Team and, the grand finale of the season, the DOT Tournament.

Even though the 6th season will not begin until April 1976, it's not too early to start planning for it now. If interested in joining in the tennis activities, contact Marv Stephens or Ezio Cerrelli.

And, by the way, where are all the women tennis players? Ezio, Marv, Jerry, John and George are looking for you.