Docket No. NHTSA-00-8001
U.S. DOT Dockets, Room PL-401
U.S. Department of Transportation
400 Seventh Street SW
Washington, DC 20590

Comments of Public Citizen[1] Re: Tire Performance Safety Standards, Notice of Proposed Rulemaking 67 FR 10050

In response to NHTSA's request for comments on its proposed tire safety performance standards, Public Citizen is pleased to submit the following comments. Under the Transportation, Recall Enhancement, Accountability, and Documentation Act (TREAD) of 2000, NHTSA was given a mandate to revise and update the safety requirements for tires. TREAD, however, gave NHTSA considerable discretion over the substance of the final rule. Congress did not specify what revisions or updates to the current rule were necessary to improve tire safety.

The proposed new standard addresses the following six aspects of tire performance:

1. Tire Dimension
2. High-Speed
3. Endurance
4. Bead Unseating
5. Road Hazard Impact
6. Low Inflation Pressure
7. Aging effects

The existing standard for new pneumatic tires, 49 CFR 571.109, specifies the requirements for all passenger car tires. Issued in 1967 under the National Traffic and Motor Vehicle Safety Act, Federal Motor Vehicle Safety Standard (FMVSS) No. 109 dictates that passenger car tires be subject to the following requirements for tire performance:

1. Tire dimension
2. High-speed
3. Endurance
4. Bead unseating
5. Strength
6. Labeling specifications

When the 1967 tire standard was issued, more than 99 percent of the tires on the road used bias ply construction. The tests and specifications, mandated in FMVSS 109, were

[1] Public Citizen is a nonprofit consumer advocacy organization based in Washington, D.C. that accepts no industry or government funding. Public Citizen has fought vigorously on behalf of auto safety since its inception in 1971.

developed in an era dominated by bias ply tires. Bias ply tires have since been replaced by radial tires. By virtue of their design, radial tires are less vulnerable to most types of failures and therefore comply with the standards set for bias ply tires with relative ease. For example, radial tires are not susceptible to the type of failures measured in the existing strength test. Also, the existing high-speed test, endurance test, and bead unseating test are ineffective in differentiating among today's radial tires with respect to these aspects of performance. The most important contributing factors for radial tire failures include: *tire under inflation, high ambient temperature and vehicle load*.

Following the approval of the proposed requirements, they would be added to the December 2001 proposed FMVSS No. 139 for light vehicles, replacing the outdated FMVSS Nos. 109 and 119, which applied similar requirements as those in Standard No. 109 to multipurpose passenger vehicles, trucks, buses, trailers and motorcycles manufactured after 1948. Ultimately, the final rule would for the first time then apply similarly to all new tires for use on vehicles with a gross vehicle weight rating (GVWR) of 10,000 lbs. or less.

Public Citizen will address the applicability of the Data Quality Guidelines to NHTSA rulemakings, an issue that has been raised in some of the comments, by submitting a separate comment to this docket as well to the agency's Data Quality Guidelines docket.

Traction Performance Requirements: Slipping through the Cracks of Tire Performance

Given the broad scope of the Congressional mandate, it is disappointing and insufficient for NHTSA to address tire safety as pertaining *only* to the prevention of tire failure. The agency must set a minimum coefficient for tire traction. As the General Motors Corporation states in its comments, "increased tire high speed capability results directly in compromises with mass, fuel economy (rolling resistance) and ride comfort."[2] Because the NPRM fails to establish a minimum coefficient for traction, tire manufacturers may sacrifice traction performance in order to meet the updated safety standards.

The Congress and NHTSA realize that traction is a critical factor in tire safety as evidenced by its inclusion in the factors measured by the Uniform Tire Quality Grading Standards (UTQGS) requirements for consumer information. Although some groups have called for the abolition of the UTQGS in favor of the alpha speed rating system, Public Citizen adamantly disagrees with this recommendation because the alpha speed rating system fails to address a tire's treadwear and traction capabilities. Adoption of the alpha speed rating system would unnecessarily limit consumer information solely to a tire's high-speed performance. The agency's failure to include traction performance in the safety criteria for the revised tire safety standards is a glaring omission on the part of the agency that must be corrected in the Final Rule.

[2] General Motors, Comments to Docket No. NHTSA-2000-801104, "Tire Testing-Federal Motor Vehicle Safety Standard (FMVSS No. 109) p. 2.

NHTSA's Data Collection Systems

The data collection systems employed by NHTSA, particularly the National Automotive Sampling System—Crashworthiness Data System (NASS-CDS) and the Fatality Analysis Reporting System (FARS), do not accurately reflect the number of crashes caused by tire failures.

The NASS-CDS was developed in 1979, as part of a concerted effort to reduce the number of fatalities and injuries occurring on U.S. roadways. Due to a serious cut in funding however, the data collections have dropped from 18,000 crashes per year with 75 investigative teams down a collection of 5,000 crashes per year with 24 teams of investigators.[3] The NASS-CDS focuses specifically on passenger vehicle crashes. The data are used to investigate injury mechanisms in order to identify potential improvements in vehicle design. Based on the information coded in police crash reports, information is collected by field researchers who study and record aspects of a random sample of these motor vehicle crashes. The investigators examine factors such as vehicle damage, occupant injury, crash scene investigation and environmental conditions, among others. If a tire problem is not noted in the police report, it is likely that the problem will go underrepresented in the sample. The danger is that the problem might remain undetected or the investigation may never progress beyond an inchoate stage. A tire problem would only be recorded when a known, pre-crash loss of control resulted from a blowout, flat tire, de-treading or partial tire destruction. Also, a tire problem that contributes to the severity of a crash, but does not cause the crash itself, would not likely be included in the NASS-CDS.

FARS was created in 1975 and is designed to archive data about motor vehicle crashes that subsequently result in a motorist or non-motorist fatality within 30 days of the crash. An agency in each state provides NHTSA with accident information from the state's own source documents. The data is then coded on standard FARS forms. Tire problems are noted after the crash, if at all. The file does not indicate whether a tire problem caused the crash, influenced the severity of the crash, or occurred during the crash. FARS data provide insight into the potential magnitude of tire problems, but do not provide an accurate number of fatalities occurring annually from tire problems.

The NHTSA Proposal

The proposed standards for light vehicle tires require compliance with the following:

1. High-Speed Test
2. Endurance Test
3. Low Inflation Pressure Performance Test
4. Resistance to Bead Unseating Test
5. Road Hazard Impact Test

[3] Vartabedian, Ralph. "Inadequate Collection and Analysis of Accident Data Prove Costly," Los Angeles Times, June 5, 2002.

6. Accelerated Aging Test

High-Speed and Endurance Tests

For the high-speed and endurance tests, NHTSA has developed a set of parameters that increase the stringency of the tests set forth in FMVSS 109 and 119. The parameters include the following five criteria:

1. Ambient Temperature
   - The ambient temperature in both the high-speed and endurance tests has been raised from 38 to 40 degrees Celsius to reflect summertime weather in the South and Southwest regions of the U.S. Public Citizen supports the agency's modification of the temperature parameters in order to better simulate real world conditions.

2. Load
   - The load for the high-speed test has been reduced from 88 percent of the gross vehicle weight rating (GVWR) (as is currently mandated by FMVSS 109) to 85 percent of the GVWR. NHTSA asserts that the reduction in load percentage results in a larger margin of safety when vehicles are loaded to GVWR or are operating on under inflated tires. The reduction in load percentage increases the tire reserve needed by a vehicle during normal loading conditions. The requirement for a tire reserve currently applies to passenger car tires only. The proposed rule would extend this requirement to Light Truck (LT) tires as well. Public Citizen commends the agency for requiring LT tires to provide for a reserve load, however, we believe that a 15 percent load specification does not adequately account for the typical loading conditions for the range of these vehicles. For vehicles that exceed the 6000 lbs. GVWR, Public Citizen recommends that the agency require between an 18 and 20 percent reserve load.

   - The current standard requires only a load percentage of 85, 90 and 100 percent. The load specifications for the proposed endurance tests are 90, 100, and 110 percent. Public Citizen believes that proposed load specifications will provide passenger cars and Light Trucks less than 6000 pounds with a higher margin of safety. However, considering that trucks exceeding 6000 pounds tend to have an excess of cargo space and are more prone to overloading, Public Citizen strongly urges the agency to set a standard for these vehicles that is commensurate with real world loading conditions. Thus, the agency should adopt load specifications of 100, 110 and 115 percent to adequately provide for the loading conditions of these heavier commercial vehicles.

3. Inflation Pressure
   - For the high-speed test, inflation pressures vary depending on tire type. For example, all non-rated and speed rated P-metric tires will be inflated to 220 kPa

(32 psi) whereas extra load tires will be inflated to 260 kPa (38 psi).[4] Also, LT tires will be tested at an inflation pressure which corresponds to both their higher recommended maximum inflation pressures as well as a level of under inflation experienced during normal vehicle operation: 320 kPa (48psi) for load range C, 410 kPa (61.5psi) for load range D, 500 kPa (75 psi) for load range E. All of the above-listed inflation pressures simulate an under inflation rate that is between 7 and 8 percent below the manufacturer's recommended inflation pressure. In light of the increased stringency in the areas of speed and load, Public Citizen supports the proposed inflation pressures for the high-speed test.

- The endurance test requires an inflation rate that is 25 percent below the recommended inflation pressure.[5] Public Citizen believes that the proposed inflation pressures will provide for an adequate test.

4. Speed
   - The proposed high-speed test specifies test speeds that are substantially higher than the current standard (from 75, 80, & 85mph to 88, 94, 100 mph). Public Citizen recommends that the agency require speed rated tires to be tested in accordance with their alleged performance levels in the rating assigned by the tire manufacturer to the tire. Furthermore, Public Citizen strongly urges that NHTSA require vehicle manufacturers to test tires at the maximum speed listed on a vehicle's speedometer. It is only reasonable for vehicle manufacturers to select tires that can perform at the maximum speed capabilities listed for the vehicle.

   - The endurance test speed was raised from 50 to 75 mph. Public Citizen believes that manufacturers of speed rated tires should be subject to government testing to ensure their tires actually perform at the level claimed. The proposed standard, however, fails to validate industry's speed ratings because it tests all tires at one speed.

5. Duration
   - The proposed high-speed test requires total testing time of 90 minutes. Tires will be tested at each of the three speed intervals cited above for a duration of 30 minutes per interval.[6]

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[4] Note that the 220 kPa proposed inflation pressure is the same as that specified in FMVSS No. 109. The agency contends however, that 220 kPa is a test inflation pressure that would be appropriate for the high-speed test given the parameters of speed, load and test duration.

[5] The 180 kPa inflation pressure represents a 25 percent under inflation level for 240 kPa tires and is the same inflation pressure currently required for the endurance test in FMVSS No. 109. The specified inflation rates are as follows: 180 kPa (26 psi) for P-metric, 260 kPa (38 psi) for LT range C, 340 kPa (50 psi) for LT range D, and 410 kPa for LT range E.

[6] The 90-minute duration is the same as is currently specified under FMVSS No. 109. The Rubber Manufacturers Association (RMA) however, recommended lessening the duration to a ludicrous total of 30 minutes (10 minutes at each speed interval).

- The current standard for endurance testing requires a total test time of 34 hours. The proposed total test time has been raised to 40 hours. The proposed test will be conducted at a constant speed of 120 km/h (75 mph) with intervals of increasing load percentages. The tire will be tested at a load percentage of 90 percent for 8 hours, 100 percent for 10 hours and 110 percent for 20 hours. It should be noted that the original test being considered by the agency called for a total duration of 50 hours (a load of 90 percent for 8 hours, 100 percent for 10 hours, and 110 percent for 32 hours). NHTSA concluded that the 50-hour duration was too stringent and therefore reduced the duration in the proposed test to 40 hours. Under the conditions of the 50-hour test, 40 percent of the P-metric failed and 20 percent of LT tires failed. NHTSA has calculated that, under the proposed conditions, 19 of the 24 tires tested would pass the proposed test.[7] Public Citizen supports the 40 hours duration as being a sufficiently stringent test time.

Low Inflation Pressure Tests

NHTSA is proposing to include in the standard a low inflation pressure test to ensure a minimum level of endurance and/or high-speed performance safety when operated at a significant level of under inflation. The two alternatives being proposed include a low pressure tire pressure monitoring system (TPMS) test or a low pressure high-speed test:

- The low-pressure TPMS test results indicated that all of the 24 tires tested completed the 90-minute low inflation test without failure.[8] Similar tests were conducted on LT tires at an inflation pressure that is 58 percent of the recommended pressure. NHTSA asserts that this test would provide an extra safeguard, however, the stringency of the test is highly questionable considering that all of the tires tested passed the test.

- The high-speed low pressure test provides a link between the TPMS requirement and the high-speed performance test.[9] Of the 8 tire brands tested, 30 percent of tires with an "S" speed rating, 63 percent of tires with an "R" speed rating, and 75 percent of tires with an "Q" speed rating would not pass the test. 70 percent of tires with an "S" speed rating and all "T" and "H" rated tires would pass the test. The agency concluded that an inflation pressure of 180kPa (26 psi) produces a substantial number (32 out of 168, or 19 percent) of failures at speeds less than the rated speed of the tire.

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[7] The Rubber Manufacturers Association (RMA) recommended the agency keep the load percentages as currently mandated and called for a 10-hour reduction from the current standard.

[8] [The test conditions were as follows: load percentage of 100 percent, inflation pressure of 140 kPa (20 psi), test speed of 120 km/h (75 mph), duration of 90 minutes following the 40-hour endurance test, temperature 40 degrees Celsius.]

[9] The conditions of this test were as follows: test speeds of 140, 150, and 160 km/h (88, 94, and 100 mph), inflation pressure of 140kPa (20 psi), load 67 percent, duration of 30 minutes at each speed interval, temperature 40 degrees Celsius.

- At lower inflation pressures 140kPa (20 psi), failure rates are higher for tires with lower speed ratings than would be predicted from the results of tests run at higher pressures, such as those proposed in the high-speed test. At lower inflation pressures, NHTSA claims that the results do not provide a consistent picture. They cite the inconsistency between the Rubber Manufacturers Association (RMA) data and the agency's data. The RMA data at 180kPa (26 psi) suggests that it is probably not necessary to test for durations of more than 10 minutes. Conversely, NHTSA's data at 140kPa (20 psi) suggests that 10 minutes is too brief of a time period. In light of the fact that the RMA's recommendations for testing parameters consistently call for less stringent standards, the agency should question the validity of the RMA's findings.[10]

The agency's testing indicates that a minimum level of low pressure endurance safety will be satisfied solely by the revised endurance test. Therefore as proposed, the low pressure endurance test will not improve tire performance beyond what is being proposed in the endurance test. In theory, the test is meant to provide an extra safeguard, but in actuality, the test is extraneous. The agency claims that it wants to provide a minimum level of endurance and/or high speed safety when tires are being operated at a significant level of under inflation. In the Preliminary Economic Assessment the agency states the following: "The low pressure-endurance test would have no benefit, since all of the tires tested passed."

Public Citizen urges the agency to adopt the high-speed low pressure test and abandon the low pressure endurance test. The results of the agency's testing indicate a surprisingly high tire failure rate for this test. When the low pressure warning lamp appears on the dashboard, drivers should be able to operate their vehicles safely en route to the air pump. The high speed low pressure test will ensure driver safety whether driving on an interstate or through a school zone. The purpose of the warning lamp is to prevent the occurrence of a critical pre-crash event such as a flat tire or blowout. If while driving on the interstate, the warning lamp appears and a blowout occurs only minutes later, then the mechanism fails to fulfill its preventative purpose.

In order to provide the public with an adequate margin of safety when driving on significantly under inflated tires, the agency must choose the high-speed low pressure test. Adopting the low pressure endurance test neglects to improve tire performance and would forsake the effort to ensure safe high-speed operation at low inflation pressures.

Road Hazard Impact Test

The road hazard impact test is designed to simulate and evaluate the effect of the impact of raised or sunken hazards on wheel and tire assemblies. The proposed road hazard impact test lacks thoroughness and fails to enhance the impact resistance of tires. In fact, the agency concedes that virtually all of the current production tires would pass the

[10] In his September 3, 1999, letter to the RMA, L. Robert Shelton, NHTSA's Associate Administrator for Safety Performance, highlights numerous failings of the RMA's inadequately supported recommendations for the development of a global tire standard.

proposed test.[11] The agency should seriously consider adopting measures to augment the stringency of the proposed test. Public Citizen recommends that after performing the SAE pendulum test, a tire should be then be evaluated on a pulley wheel, such as a dynamometer or road wheel. This would help the agency to assess the extent of internal damage inflicted by the pendulum. Currently, the proposed test ignores the possibility of internal tire degradation.

The proposed test's exclusive reliance on visual inspection for determining test compliance is a major oversight on the part of the agency. Public Citizen believes that visual inspection alone is highly inadequate and the proposed test could be considerably improved through the use of shearography analysis.[12] This would supplement visual inspection to ensure that interior tire damage does not go undetected, and would help in assuring the objectivity of test results. Furthermore, the agency states in the NPRM that, "the analysis has proven to be a valuable tool in analyzing tire failures during the agency's high speed and endurance testing program."[13] Therefore, it is only reasonable to utilize this valuable technology for the other proposed tests as well.

Bead Unseating

The current bead unseating test was originally formulated for bias ply tires and is now outdated. NHTSA proposes to replace the current bead unseating test with the Toyota Air Loss test. There are two variations of the test being considered: 1.) The air loss bench test method; and 2.) The on-vehicle air loss test method.

- Under the air loss bench test method, a tire receives a lateral force from the ground and the tire is deformed. Due to its tire bead being separated from the rim bead, the tire may become deflated. The test is intended to measure the tire inflation pressure at which a tire is deflated under the above condition. The test may be conducted using an actual vehicle or by using a tire assembly and test bench.

- Under the on-vehicle air loss test method, an actual vehicle is used for the air loss test. The vehicle is driven at 60 km/hr (37 mph) along a straight course, then makes a curve with a radius of 25 meters, so that a lateral force is applied to the tire. One of the advantages to using this J turn test method is that the fluctuation in input load is relatively small.

Public Citizen supports the agency's proposal for the air loss bench test method because the test is independent of vehicle type. We do not, however, support the 200 millimeters per second as being satisfactory for the speed of lateral force. The mere pushing of the

[11] 67 FR 10050-01, p. 60 ("We do not anticipate an increase in costs for the proposed Road Hazard Impact and Bead Unseating tests because our testing indicates that most of all of current production tires would pass these tests.").

[12] Shearography analysis assesses the internal condition of a tire using laser technology. The technology can be used to evaluate impending tread and belt separations that would otherwise go undetected by visual inspection.

[13] 67 FR 10050-01, p. 56.

tire tread sideways neglects the flexing and rocking of the bead that would occur during actual driving maneuvers. Furthermore, the proposed speed does not simulate the bead's resistance to unseating when stuck by a peak lateral force such as a pothole or raised fixture. In order to satisfy the statutory intent of the TREAD act, the agency must alter the proposed quasi-static test by subjecting the tire bead to a peak lateral force. Public Citizen maintains that the agency's obligation to base its testing parameters on real world conditions requires that the agency revise the bead unseating test to account for surface irregularities.

Aging Effects

There is currently no industry consensus regarding a recommended practice for accelerating aging effects on tires. There are three tests being considered:

1. Adhesion Test,
2. Michelin's Long-Term Durability Endurance Test
3. Oven Aging

The adhesion test evaluates a tire's resistance to belt separation by determining the adhesion strength.

The Michelin method employs a road wheel endurance test to simulate testing the tire to tread wear-out. The four factors that significantly altered the outcome of these tests were

1. Filling gas
2. Test speed
3. Test temperature
4. Tire load

The Oven Aging Test combines oven aging and a 24-hour test that is similar in method to the 40-hour endurance test. Michelin objects to the Oven Aging test on the grounds that oven aging does not create a representative heat differential. The company also claims that oven aging does not adequately simulate oxidation at the belt edges. NHTSA is seeking comments on which test to include in the final rule.

Public Citizen supports the Michelin Long-Term Durability Endurance Test as a great starting point for the proposed aging test. We believe that the Michelin test is a reliable start until the agency gains more experience with tire aging. Michelin has been conducting this test for years and Public Citizen strongly recommends that NHTSA require all car manufacturers to follow suit.

Because the aging tests base compliance on visual inspection, Public Citizen questions how any of the proposed tests can accurately detect interior tire deterioration due to aging. We also question how the agency plans to control for assessment subjectivity. We believe shearographic analysis to be critical in accurately determining aging test compliance.

Additional Considerations

1. Lead Time for Implementation of New Tire Standard

    - NHTSA is proposing two alternative implementation schedules: a two-year phase-in whereby all applicable tires must comply with the final rule by September 1, 2004; and a three-year phase-in whereby all applicable tires must comply with the final rule by September 1, 2005. The three-year phase in will require partial compliance before it requires total compliance.

    - The agency anticipates that tires bearing the C rating for the Uniform Tire Quality Grading System (UTQGS) for temperature resistance will have to be either redesigned or taken off the market because they will not be able to comply with the new standard. Also, a larger percentage of LT tires, than P-metric tires, will need to be redesigned to pass the proposed standard.

2. Shearography Analysis

- This method evaluates the condition of a tire using laser technology. The technology provides information on impending tread or belt separations that cannot be detected through visual inspection. Shearography analysis is being considered for its appropriateness as a test, in addition to the visual inspection now required to determine failure at the end of the proposed tests. The agency supports the use of the technology in the NPRM, "in the STL testing, shearography analysis detected initial stages of belt separation in tires that completed the tests."

NHTSA is seeking comment on whether the physical indications of possible future tire failure can be described with sufficient specificity to fulfill the statutory requirement. Public Citizen supports the use of shearography analysis in conjunction with visual inspection. The agency needs to develop new criteria for evaluating test compliance.

Public Citizen recommends that the agency devise a list of all the possible indications of tire failure. From that list, the agency must distinguish which specific indications are sufficiently dangerous that they individually would constitute non-compliance from those that collectively would constitute noncompliance.

3. Road Wheels and their effect on Tire Testing

- The RMA claims the use a curved road wheel for testing purposes results in a higher degree of heat build-up than would normally occur on a flat surface. Public Citizen believes the heat differential to between curved and flat surface testing to be minimal and if anything will provide consumers with a higher margin of safety. We oppose any attempt to compensate by reducing the stringency of the standard for the heat

differential caused by the curved road wheel and urge the agency to maintain the proposed test parameters.

4. Recommendations

- A tire's mere compliance with the minimum government standards for tire performance is not always indicative of a tire's actual performance. For example, while the Firestone ATX and Wilderness tires complied with all of the government standards, the actual performance of these tires in use degraded significantly. Therefore, the only way to monitor the actual performance of a tire is to run each tire model to failure for each of the required tests. Public Citizen urges the agency to require a sample run to failure by the manufacturers for each test at the initial start of production of a tire model or whenever the design of a production model is modified. Such a requirement would establish a baseline for the tire's performance. Future routine compliance testing must also include running the tire to failure to ensure consistency with the baseline. The agency could schedule this periodic run-to-failure annually. Public Citizen believes that such a requirement is the only way to ensure that regulatory compliance reflects a tire's actual performance. Requiring a run-to-failure would not result in any significant cost to the industry, considering that the performance tests are already being administered.

- Public Citizen supports the recommendation that tire temperature be monitored during testing to help evaluate the cause of tire failures.[14]

Relationship Between the TREAD Act and Tire Harmonization

During the late 1990's, RMA developed a global tire standard that it pressured NHTSA to adopt as the updated tire standard. An industry-developed standard, namely the Global Tire Standard 2000 (GTS 2000), was used as the basis for discussions on the global harmonization for light vehicle tire standards. Proponents of the Global Tire Standard sought to replace all of the existing tests with one high-speed test. The industry asserted that this standard would incorporate the best safety practices from around the world. The industry argued that the strength test the bead unseating test and the endurance test applied to the domain of bias-belted tires and should be omitted from the new standard. The RMA petitioned NHTSA to adopt the GTS 2000 standard. We commend NHTSA for rejecting this industry maneuver that failed to adequately challenge current radial tire technology.

In its response letter to the RMA's 1999 petition, NHTSA exposes many of the inadequacies of the very weak GTS 2000 standard. A summary of the agency's letter is listed below:

- NHTSA requests that the RMA submit the engineering analyses upon which the RMA determined that a single test would be more stringent than the 4 tests currently specified under FMVSS No. 109.

[14] General Motors, Comments to Docket No. NHTSA-2000-8011-4, p. 2.

- NHTSA questions why GTS 2000 bases various performance requirements on the speed rating of the tire without providing the criteria necessary to verify that a tire has been correctly rated.
- NHTSA asks the RMA to provide the engineering analyses employed to conclude that the current endurance test specified by FMVSS 109 should continue to apply *only* to tires with a speed rating of Q or below.
- NHTSA questions why RMA failed to include a test to measure resistance to bead unseating.
- NHTSA seeks an explanation as to why the GTS 2000 standard omits a test for tire strength.
- NHTSA asks the RMA for the engineering analyses used to recommend 10 minutes as an adequate duration for the high-speed test. The current standard requires a 30 minute test time.
- NHTSA seeks justification for the RMA opposition of a maximum inflation pressure marking on tires.
- NHTSA questions the procedural integrity of the 15-minute window allotted for the checking of inflation pressure subsequent to testing. The agency currently requires that inflation pressure be taken immediately following a test.

NHTSA Explains the Complexities of Conducting a Cost/Benefit Analysis for the Proposed Standards

In brief, both NHTSA's proposed rule and Preliminary Economic Analysis (PEA) state that the agency cannot directly link the improvements in tire standards with improvements in safety. The agency also stated that it could quantify some, but not all of the benefits of the proposed standards.

The agency contends that a number of factors limit its ability to conduct a detailed cost-benefit analysis. According to the agency, the first limitation stems from the June 1, 2002, deadline imposed by the TREAD Act. It states that the second limitation arises from the complexity inherent in crash avoidance rulemakings because there is a multiplicity of factors contributing to auto crashes, making it difficult to isolate any one factor.

NHTSA's inability to assess the effects of each contributing factor, in addition to the agency's failure to link the specific proposed safety requirements with a specific reduction in deaths and injuries, will undoubtedly be a point of contention for review under Executive Order 12866 by the Office of Management and Budget (OMB). Likewise, the agency's assertion that there are non-quantifiable benefits that will result from the new standards is likely to be seized upon by John Graham at the Office of Information Regulatory Affairs (OIRA) as a basis for undermining the standard. Placing such a substantial burden of proof on this terribly underfunded agency gives unwarranted preference to the industry's financial interests at the expense of highway safety.

Sound public policy must not be based on cost/benefit analysis alone. Cost/ benefit analysis is only *one* tool by which to evaluate the impact of a regulation, but it is by no means the only tool. The costs of a regulation, by nature, are easier to quantify than the expected benefits. Relying solely on a cost/benefit analysis tends to overestimate costs relative to the benefits. The agency's cost data is provided by the industry and tends to be grossly inflated as a means of undercutting the regulation. Therefore, policies must be grounded on both logic and public interest. It is reasonable to assume that improving tire performance standards will result in better tire performance and therefore fewer accidents fatalities and injuries.

Costs

The costs of the proposed tire standards are broken down into the following areas:

1. Original Equipment Tire and Vehicle Costs
2. Total Annual Costs
3. Testing Costs.

Original Equipment: Tire and Vehicle Costs

- The National Traffic and Motor Vehicle Safety Act requires manufacturers that oppose the implementation of safety requirements on the grounds of cost to submit cost information to the agency for evaluation. Furthermore, the manufacturer's cost information, as well as the Secretary's, evaluation are required by law to be published in the Federal Register.[15]

- The proposed standards will result in tires that are less susceptible to heat build-up. It is estimated that virtually all P-metric tires with a C temperature resistance rating, some P-metric tires with a B temperature resistance rating, and some LT tires will be unable to pass the proposed tests. Based on NHTSA's calculations, the average cost of implementing the proposed standards would range from $3.94 to $4.92 per vehicle.

- Another cost that NHTSA briefly addresses is the possible market effects of the standards. Based on the assumption that some less expensive tires will be taken off the market, the agency speculates that there could be a rise in new tire alternatives such as retreads and used tires. The agency also contends that tire manufacturers might compromise treadwear and traction to lower heat build-up, a tradeoff that could be alleviated by traction standard.

[15] "The National Traffic & Motor Vehicle Safety Act," 49 U.S.C. §30167 (c) ("A manufacturer opposing an action of the Secretary under this chapter because of increased cost shall submit to the Secretary information about the increased cost, including the manufacturer's cost and the cost to retail purchasers, that allows the public and the Secretary to evaluate the manufacturer's statement. The Secretary shall evaluate the information promptly and, subject to subsection (a) of this section, shall make the information and evaluation available to the public. The Secretary shall publish a notice in the Federal Register that the information is available.").

Total Annual Costs

NHTSA estimates that the lowest-priced aftermarket tires will increase in price by $3 per tire once they are redesigned to meet the performance levels required in the high-speed and endurance tests. NHTSA calculates that 32.8 percent of P-metric and LT tires currently on the market would fail the proposed high-speed and endurance tests.

Therefore, of the 287 million light vehicle tires sold, 32.8 percent *might* see their price increase by $3 per tire. The agency estimates the overall annual cost to be $282 million [(287 million tires)(.328)($3)]. Although the calculations are not included in the NPRM, NHTSA claims the net cost per equivalent life saved to be $7.2 million. Presumably, NHTSA estimates a total of 39.167 equivalent lives saved (since 282/7.2 equals 39.167.)

- NHTSA believes that the bead unseating and road hazard impact test would not result in a significant cost increase because most of the current production tires would pass these tests. The agency reports that the costs of the proposed aging tests are not quantifiable at this time because there has not been an adequate amount of testing to calculate an estimate. It is believed, however, that the cost would be minimal considering that most manufacturers already perform an aging test. Of the two alternatives for the low inflation pressure tests, the cost of the TPMS test would result in no added costs because agency's testing data indicates that current production tires pass the test. The low pressure high-speed alternative, however, has a higher failure rate and is therefore likely to result in some added costs. For unstated reasons, the agency claims it is currently unable to estimate the costs for this test. This is wholly insufficient.

Testing Costs

- The proposal will increase the test time from that currently required by FMVSS 109 by a total of 6.5 hrs (5 hours for the endurance test and 90 minutes for the high-speed low inflation test). Subsequently, labor costs associated with the increased test time are estimated to be $281 per tire test.

2. Benefits

NHTSA claims that the proposed rule would improve tire performance with respect to strength, endurance, and heat resistance of tires. Its general assumption is that tires meeting the improved tests would experience fewer blowouts, tire failures and bead unseating problems: The resulting societal costs of motor vehicle crashes must be considered when estimating the benefits of a proposed regulation.

Catastrophic crash avoidance has a large value to the consumer, considering that cost to society of each fatality is in excess of $977,000 and the cost of treating a critically injured survivor is, on average, $1.1 million.[16] After factoring in the loss of workplace productivity, medical costs, property damage costs and costs of travel delay on congested

[16] NHTSA report, "The Economic Impact of Motor Vehicle Crashes 2000," May 2002, p.1.

roadways, the benefits of a regulation are undeniably substantial. Industry costs must not be given precedence over the costs to society. When calculating the benefits of these tire standards, the agency must also consider anecdotal justifications that would provide benefits in the following areas by reducing:

- Litigation expenses: plaintiff's fees, defense fees, and the court's costs associated with the passing of a case through the judicial system
- Insurance expenses (including property, medical & life): the cost of paying claims and subsequent premium increases
- Emergency response team expenses: the cost of responding to every motor vehicle accident by sending the police, fire department and emergency medical teams

Based upon the tests conducted, the agency estimates that, on average, tires would perform about 7 percent better in the high-speed test and about 15 percent better in the endurance test. It is unclear whether these improvements would include a reduction in the tire failure rate for the respective tests. Regardless, the agency considers these results to be additive with respect to one another. It therefore assesses the total benefit from the high-speed and endurance tests at a 22 percent improvement for those tires that currently do not pass these tests. The agency asserts that these improvements directly correlate to an improvement in safety. The agency contends, however, that the benefits of other tests cannot currently be quantified.

NHTSA states that 414 fatalities and 10,275 non-fatal injuries occur annually as a consequence of tire problems. Due to the nature of the data collection systems, the agency states that it does not know how many of these crashes are a result of tire design as opposed to tire under inflation. NHTSA makes the assumption that under inflation is involved in 20 percent of flat tire/blowout cases that result in a crash. The agency does not state the rationale upon which it bases this assumption. The agency maintains that the influence under inflation has on the chances of a blowout is affected by both tire pressure and the properties of the tire. Therefore, the agency assumes that proper inflation would represent half of the cases resulting in blowouts. Improved tires constitute the other half. Consequently, NHTSA calculates that, in actuality, 41 lives and 1,028 injuries would be saved by the Tire Pressure Monitoring System portion of the final rule.

NHTSA cites the total *potential* improvement resulting from all quantifiable aspects of the new standard as being 82 lives saved and 2,034 injuries avoided. This estimate is based on the assumption that the only tires needing improvement are tires involved in tire failures resulting in a fatality or injury. This is a very conservative estimate because it fails to account for the property damage, traffic delays, and the time wasted by police and emergency response teams that would result from a tire related crash. If the tires having flats and blowouts were a random selection of all tires and the only benefits accrued were to those tires currently not passing the proposed tests (estimated at 32.8 percent), then the benefits would be 27 lives saved and 667 injuries reduced, after all tires on the road meet the proposed high-speed and endurance test requirements. There could be additional benefits from the other tests; however, NHTSA claimed that they could not currently be quantified.

Lastly, NHTSA concluded from its testing that there is a significant variability in tires. If the variability could be reduced, it could alter the benefits from the proposed tests. The agency is seeking comment on the issue of tire variability.

John Graham at OIRA pursues an anti-regulatory agenda to which he misleadingly fits the label of "quality" regulation. "Quality" regulations tend to be those rulemakings which have a benign effect on the profits of the regulated industry. In order to ensure that the final tire performance rulemaking clears the OMB analytical gauntlet, the agency must quantify the benefits of *all* of the proposed tests. Failure to adequately quantify the benefits of the proposed tire standard will, in effect, imperil this rule.

OMB's agenda uses cost/benefit analysis in order to give economic "efficiency" preeminence over other social factors, such as justice and public interest. Public Citizen recognizes, however, that the agency is constricted by both statutory deadlines and economic resources. In the meeting before the House Commerce committee on February 28, 2002, Senator Markey offered Dr. Runge further funding to help the agency meet the now overdue June 1st deadline. Public Citizen recommends that the agency seek further funding to help complete this much needed rulemaking.

Public Citizen recommends that NHTSA subpoena all warranty claims and any other relevant data concerning tire failures, complaints regarding crashes, deaths and injuries from the automobile and tire manufacturers in order to supplement the information contained in the agency's under funded databases. Requiring this information would provide the agency with a more complete picture of light vehicle tire problems. It is more than likely that tire failures result in a far greater number of crashes than is currently reflected by the agency's data. The case of the Firestone ATX and Wilderness tires is the perfect example. Based on NASS-CDS and FARS sources, NHTSA knew of no deaths and few injuries involving the Firestone tires. After months of publicity alerting the public to notify NHTSA, these tires have been linked to over 200 deaths and over 700 injuries.

Considering that the predicted benefits are based on significantly underreported data, they should be cited only as a very low-end estimate, but the agency has failed to do this. The benefits of the proposed standard have therefore been egregiously underestimated by the agency. It would be deplorable if the proposed standard were to be delayed or undercut on account of the agency's underfunded and thus inadequate data collection systems. A reduction in the number of tire failures would, without a doubt, result in fewer rollovers and fatalities. The agency should adhere to the regulatory position it took in 1998, when it stated,

> "Although NHTSA attempts, within its capabilities to quantify the benefits of its actions, it still has a duty to regulate when such regulations would meet the need for motor vehicle safety, even in areas with inherent

> uncertainty. Therefore, especially for the crash avoidance standards, decision making necessarily rests in part on policy judgment."[17]

To avoid OMB paralysis by analysis, NHTSA must clearly emphasize that a revised tire standard is long overdue. The agency has an ethical and statutory duty to regulate in this area, despite data gaps in the agency's cost/benefit analysis.

[17]"Vehicle glazing light transmission rulemaking," Docket No. 4028, Notice 04, 63 FR 37820, 37826, p.3782 (07/14/1998).

High-Speed Test Comparison of GTS 2000 & Proposed FMVSS 139

TEST PARAMETERS	FMVSS 109	GTS 2000	FMVSS 139
Ambient (Celsius)	38	25	40
Load (%)	88	80	85
Inflation Pressure (kPa)		-	
P-metric Standard/Extra Load	220/260	-	220/260
LT load range C/D/E	-		320/410/500
Speed Rating (Standard/ Extra)			
L,M,N	-	240/280	-
P,Q,R,S	-	260/300	-
T,U,H	-	280/320	-
V	-	300/340	-
W,Y	-	320/360	-
Test Speed (km/h)	121/129/137	0-ITS[18], ITS ITS+10, ITS+20, ITS+30,	140/150/160
ITS= L,M,N,P,Q		90,100,110,120,130	
R,S,T,U		104,150,160,170	
H,V,W,Y		180,210,240,270	
Duration (minutes)	90	60	90

EnduranceTest Comparison of FMVSS 109, FMVSS 119, GTS 2000[19], & Proposed FMVSS 139

TEST PARAMETERS	FMVSS 109	FMVSS 119	GTS 2000	FMVSS 139
Ambient (Celsius)	38	38	38	40
Load[20] (%)				
P-metric	85/90/110	-	100/110/115	90/100/110
LT load range C/D	-	75/97/114	-	90/100/110
LT load range E	-	66/84/101	-	90/100/110
Inflation Pressure (kPa)				
P-metric				
Standard/Extra Load	180/220		180	180/220
LT load range C/D	-	sidewall max[21]	sidewall max	260/340
LT load range E	-	sidewall max	sidewall max	410
Test Speed (km/h)	80	80	80	120
Duration (hours)	34	34	34	40

[18] The initial test speed in GTS 2000 is equal to the speed rating of the tire minus 40 km/hr. Thus, the GTS 2000 bases speeds relative to the tire's rating. In contrast, NHTSA's proposal seeks to set a minimum standard for all tires, regardless of rating.

[19] Endurance test recommended for GTS-2000 is only for radial tires rated "Q" and below.

[20] Each tire type is tested at three increasing load percentage intervals.

[21] The term "sidewall max" refers to the maximum inflation pressure displayed on the sidewall of the tire.