



U.S. Department of Transportation

National Highway Traffic Safety Administration

Memorandum

01 MAY - 1 PM 3:48

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Subject: ACTION: Ex Parte Memorandum, Report on Meeting with Cycloid, and Docket Submission Regarding Tires and Low Tire Pressure Monitoring Systems

Date: MAY 21 2001

From: William H. Walsh
Associate Administrator for Plans and Policy

Reply to
Attn. of:

To: Docket

Thru: John Womack
Acting Chief Counsel

NHTSA - 2000 - 8572 - 25

Please submit the attached information to Docket #8572.

On May 10, 2001, representatives from Cycloid Company (Grant Renier and Merv Carse) Goodyear Tire & Rubber Company made a presentation to representatives from NHTSA (William Walsh, James Simons, Lawrence Blincoe, Joseph Scott, Sam Daniel, Arthur Carter, and Steve Peirce). The attachment entitled "The Critical Zone" is that presentation.

Cycloid Company is the maker of the AutoPump, which can pump up a tire when it loses pressure.

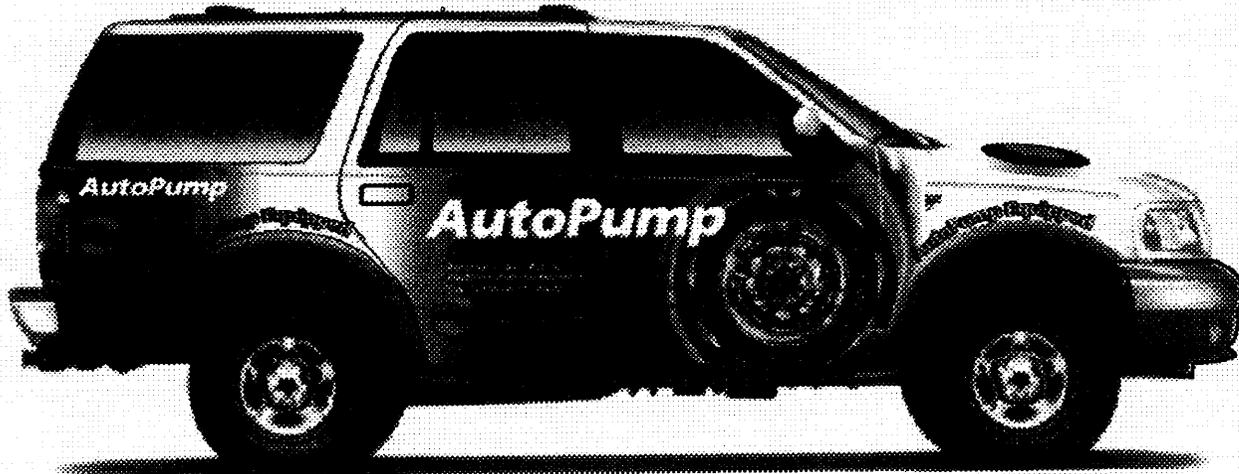
Attachment

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The Critical Zone



The Safety Revolution

Cycloid Company



The Critical Zone

- **The Critical Zone -**
 - **Tires operating up to 30% below the recommended cold pressure setting.**
 - **Safety, fuel consumption and tire wear are already compromised when operating as little as 5% below the recommended cold inflation pressure.**
 - **Properly inflated tires should operate at approximately 110% or more of the cold inflation value. Most vehicle owners are unaware of this fact.**
- **Show test data.**
- **Honeywell / Bendix truck fleet study.**
- **ASAP Program case studies.**



Technology Introduction

- **Cycloid Company CDROM presentation**
- **Canadian Broadcasting Company report.**



J. D. Powers Shows Awareness

- Top eight automotive technologies, according to percentage of consumers who said they were interested in them:
 - Tire pressure monitor 79% @ \$100
 - Premium surround sound system 78% @ \$500
 - Stability control system 75% @ \$500
 - In-vehicle personal assistance services 73% @ \$400
 - Voice-activated controls 63% @ ?
 - Navigation system 62%
 - Vision enhancement system 52%
 - External vehicle sensing aids 46%



Tire Safety Is Now a National Issue

- **Congress has passed the Tread Act, requiring tire pressure warning systems on all new 2004 MY vehicles**
- **Public not motivated to continuously check tire pressure, just as some drivers do not use seat belts.**
- **Access to tire inflation stations is becoming more and more difficult, a more daunting solution than fastening the seat belt.**
- **Monitoring devices must account for the effects of ambient temperature and pressure on tire pressure to not give false alerts.**
- **Tire warning levels are 8 to 10 psi, or about 30%, below recommended inflation pressures, The Firestone / Ford difference was about 15%.**

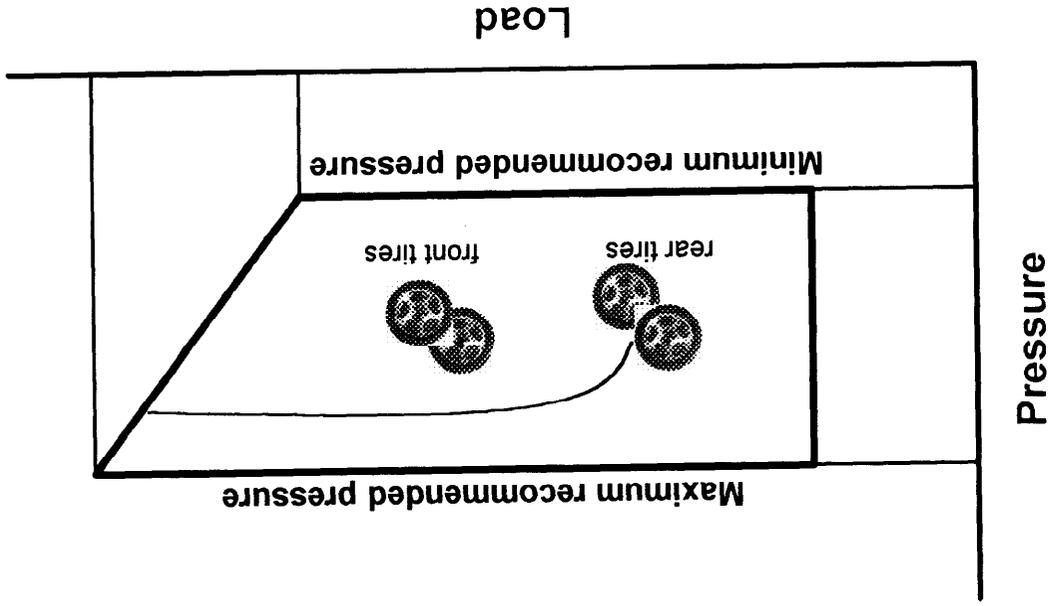


Tire Dynamics and Under Inflation

- **Safety**
 - **Under inflated tires compromise the safety of all automobile passengers and pedestrians. Automobile tires lose 1-2 psi per month; truck tires lose 5-8 psi per month – through permeation.**
 - **The Firestone / Ford incidents have created an awareness of tire safety across all vehicle lines.**
- **Tire wear**
 - **22 gallons to make a truck tire; 10 gallons to make a car tire.**
 - **20% under inflation causes 15% faster tire wear; 30% causes 30%.**
- **Ride and handling**
 - **Automobile manufacturers optimize ride and handling for very specific tire pressures. Much of that technology is nullified by under inflated tires.**



Tire Pressure vs Load





What's the Status

- **4 to 5 million gallons of fuel wasted every day by automobiles running on under inflated tires. (A pre-1995 study, when fuel prices were 50% less, automobile population was much less and average miles driven per vehicle 10% less.)**
- **Tire industry studies show that 50% to 80% of vehicles are operating on under inflated tires (Goodyear and Michelin)**
- **Michelin survey shows that proper truck tire inflation would increase fleet wear by 17%.**
- **Tire problems are the leading cause of automobile breakdowns (31%) (Car Care Council)**
- **A 10-degree drop in air temperature will reduce tire pressure by 1 psi. . . between summer and winter tire pressure can change as much as 8psi.**
- **'Zipper' tire failure – ' . . The tire has been operated in an under inflated condition which weakens the sidewall. . . this condition . . Induces early or premature sidewall fatigue . . ' and failure. (MTD Magazine)**