Tire Pressure Monitoring System (TPMS) FMVSS No. 138

SAE Government / Industry Meeting
Washington, DC
May 13, 2003

Joseph P. Scott

Office of Crash Avoidance Standards

202/366-8525



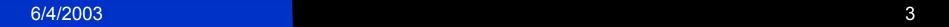


Introduction

- Provide an update of the Tire Pressure Monitoring System (TPMS) rulemaking in the Office of Crash Avoidance Standards, NHTSA
- Three main areas of discussion:
 - 1) TPMS Phase I Final Rule
 - 2) TPMS Petitions for Reconsideration
 - 3) TPMS Phase II Final Rule

Tire Pressure Monitoring System





Tire Pressure Monitoring System (TPMS) Rulemaking

- TPMS Rulemaking was mandated by the Transportation Recall Enhancement, Accountability, and Documentation (TREAD) Act of 2000, Section 13
- Final Rule for Federal Motor Vehicle Safety Standard (FMVSS) No. 138, <u>Tire pressure monitoring</u> <u>systems</u>, was published in the Federal Register on June 5, 2002

Underinflated Tires

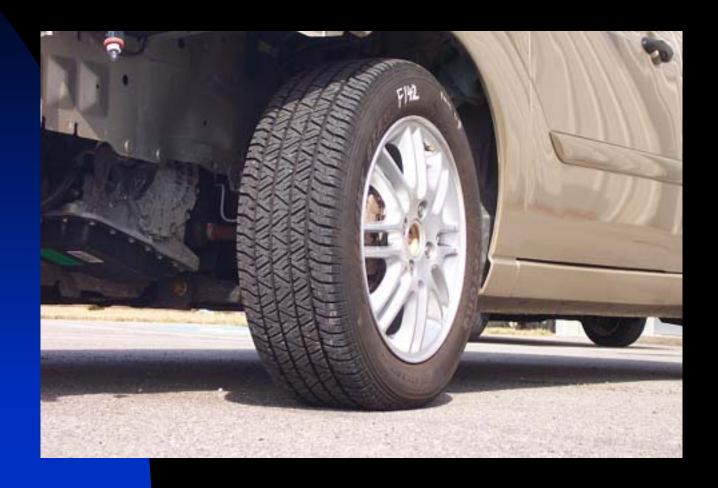


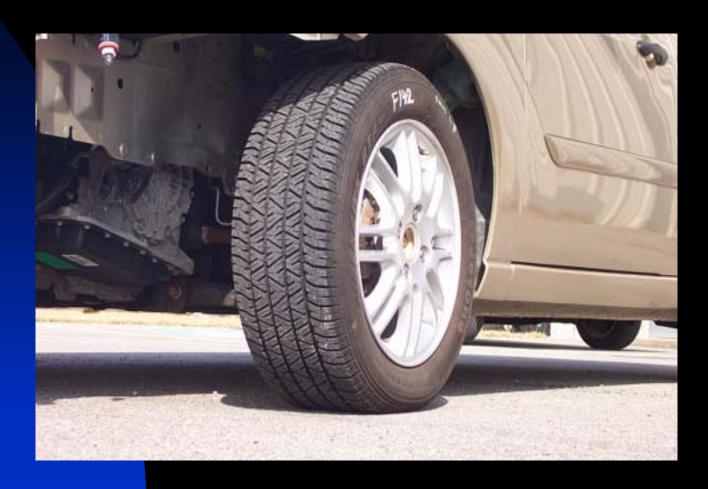
Pictures of Underinflated Tires: Background

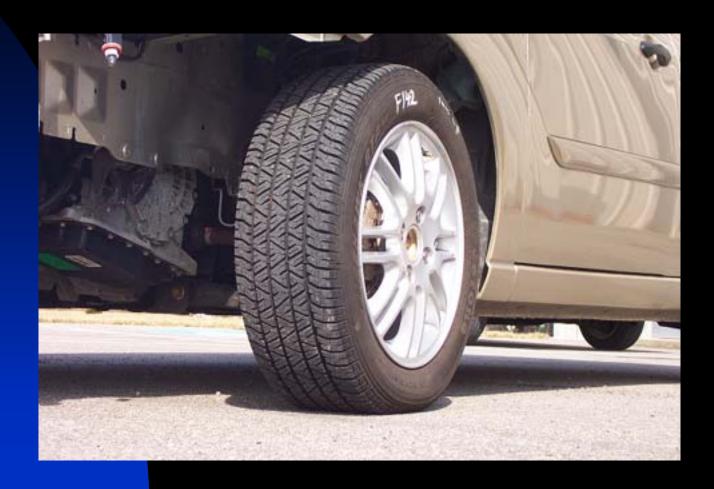
- A car and a mounted tire (on driver's side, front) with an initial cold inflation pressure of 32 psi
- The tire pressure was decreased in 10% increments from 100% to 10% (or, from 32.0 psi to 3.2 psi)

Pictures of Underinflated Tires: Inflation Increments

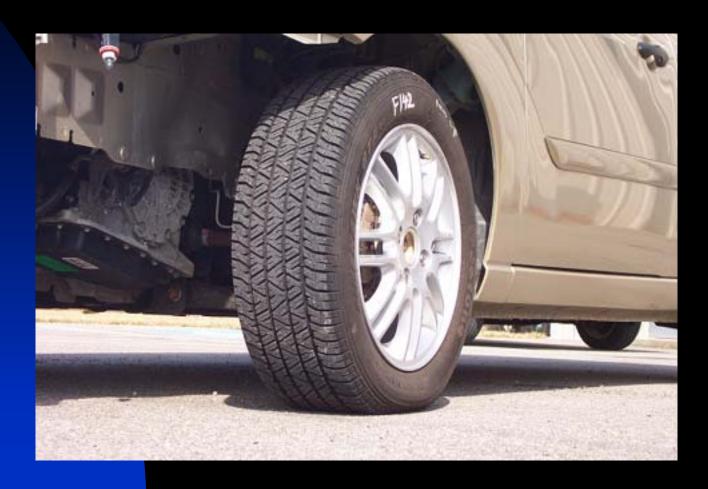
- 100% = 32.0 psi
- 90% = 28.8 psi
- 80% = 25.6 psi
- 70% = 22.4 psi
- 60% = 19.2 psi
- 50% = 16.0 psi
- 40% = 12.8 psi
- = 30% = 9.6 psi
- **20%** = 6.4 psi
- 10% = 3.2 psi

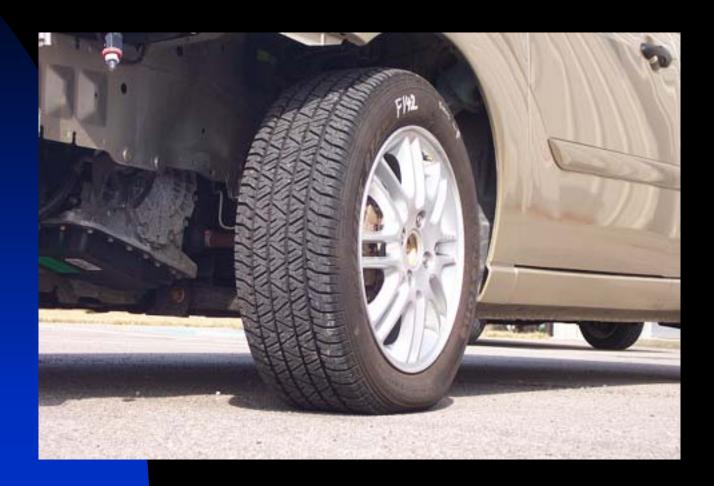




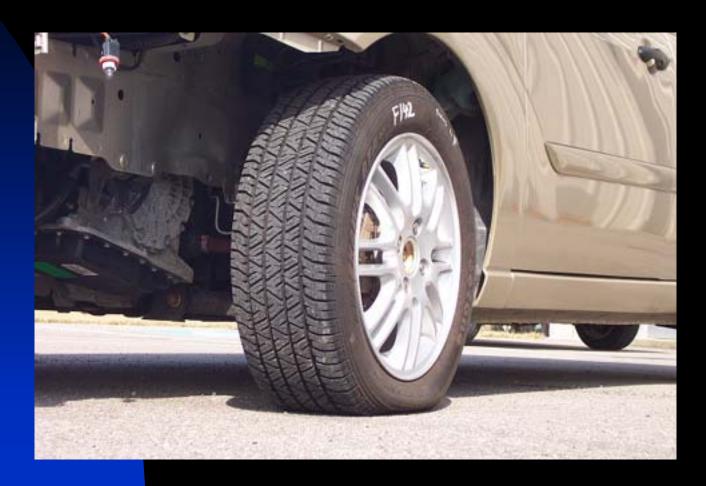


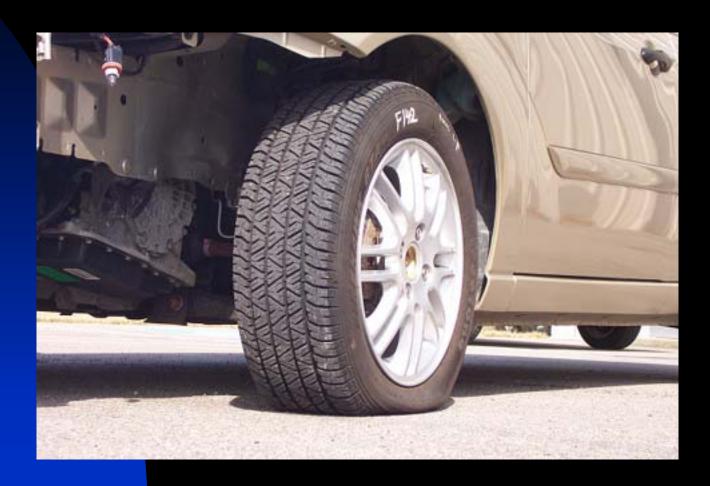


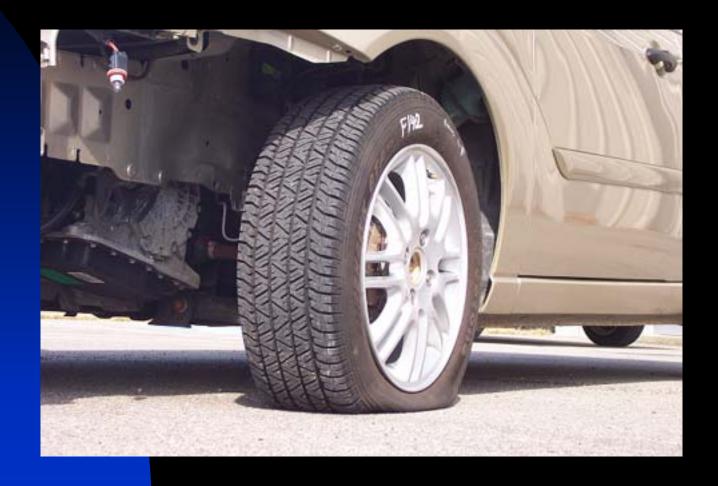












100% vs. 40%!





Conclusions From Pictures

- Difficult to visually determine level of under-inflation
- Highlights the need for TPMS
- 70% (activation level for TPMS) looks like 100%

Summary of FMVSS No. 138

- Final Rule Phase I has a compliance date of November 1, 2003
- Final Rule Phase I is applicable to 2-axle, 4-wheel motor vehicles under 10,000 lbs GVWR
- Does <u>not</u> apply to:
 - Vehicles with dual wheels on an axle
 - Trailers
 - Motorcycles

Summary of FMVSS No.138 - Continued

Final Rule - Phase I:

- Requires the TPMS telltale, mounted in the vehicle's instrument panel, to be illuminated within 10 minutes after the inflation pressure falls below the acceptable level
- Permits the use of the following:
 - a) Direct systems
 - b) Indirect systems
- Performance options allowed:
 - 1) 4 tires @ 25% underinflation
 - 2) 1 tire @ 30% underinflation

Summary of FMVSS No.138 - Continued

Final Rule – Phase II:

- Conduct TPMS effectiveness survey (Direct/Indirect TPMS vs. without TPMS)
- Based on survey results, determine whether TPMS Phase I requirements should be revised
- Publish Final Rule Phase II by March 2005
- Effective date for Final Rule -Phase II is November 1, 2006

Petitions for Reconsideration of TPMS Final Rule



- Petitions for Reconsideration are filed with the agency when an organization or individual disagrees with contents of a final rule
- The agency received 13 Petitions in response to FMVSS No. 138, final rule from automobile manufacturers, manufacturers' suppliers, tire manufacturers, and TPMS developers

Major Concerns Expressed in TPMS Petitions

- Two Major Issues:
 - Compliance Testing with Replacement Tires
 - 2) Compliance Testing to Detect Low Tire Pressure

Compliance Testing With Replacement Tires

- Final Rule text: A vehicle will be tested for TPMS compliance with any tire of a size recommended for the vehicle by the manufacturer
- Issue: For some vehicles, there are potentially several hundred tires that are candidates for TPMS compliance testing

Compliance Testing to Detect Low Tire Pressure

- Final Rule Text: After deflation of tire(s) to a level that should illuminate the TPMS telltale, the vehicle is driven at any speed between 50 km/h (31.1 mph) and 100 km/h (62.2 mph). The telltale must illuminate not more than 10 minutes after the vehicle reaches a speed of 50 km/h(31.1 mph)
- Issue: According to petitioners, the final rule does not provide sufficient details about the vehicle driving conditions during compliance testing for TPMS telltale illumination

Summary: Next Steps

- NHTSA will provide, in the Federal Register, a response to the TPMS "Petitions for Reconsideration" by late Summer 2003
- TPMS Field Survey and Analysis to be completed by March 2004
- Phase II Final Rule:
 - Publish by March 2005
 - o Effective Date: November 1, 2006