



# **Tire Pressure Management Systems TPMS**

2017 National HDT Rally

TPMS:

Don't become an  
**Unintended Pedestrian**

## TPMS - Unintended Pedestrian:

- The way law enforcement refers to people who find themselves on a highway then didn't plan to be there
- Like when you have a flat tire
- Road shoulders are not big enough to park on and have you out of the traffic

## TPMS - Unintended Pedestrian:

- Nothing can prevent road shrapnel cutting a tire
- But tire pressure leakage can be detected in advance of a tire failure and give you time to exit the highway to a safer place to take corrective action.

## TPMS - Unintended Pedestrian:

- A Tire Pressure Management System (TPMS) monitors the pressure in your tires and give you a warning to avoid being an unintended pedestrian.

## TPMS - Unintended Pedestrian:



- But I thump my tires every time I stop
- It is hard to thump your tires at 55 MPH.

## TPMS - Benefits:

- Checking tire pressure without stooping
- Checking tire pressure without releasing pressure
  - Less air pressure loss over time

# How Important is Temperature Sensing?

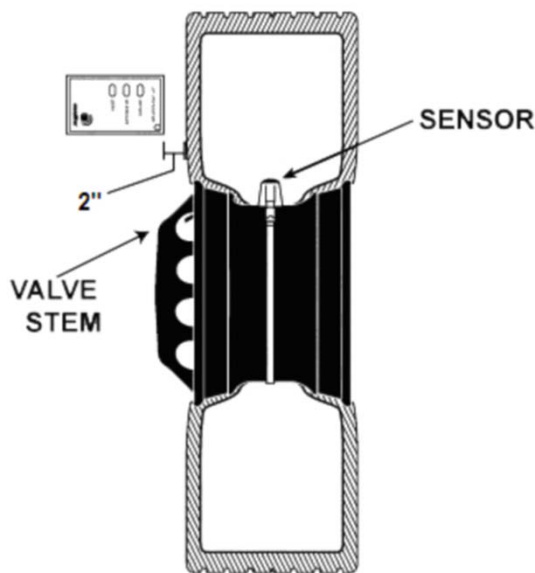
Gas Law -  $PV = nRT$

In simple terms, an increase in Temperature will increase the Pressure

A tire is a fixed Volume if the tire is not collapsed

- P = Pressure
- V = Volume
- n = amount of substance
- R = Universal Constant
- T = Temperature

## TPMS – Temperature Sensing



Temperature is most valuable in sensing wheel hub problems.

SmarTire was probably the best sensor system for measuring temperature.

The sensor is attached to the wheel and can sense temperature build from wheel bearing and brake issues.

Of course SmarTire is no longer available.

## TPMS - Systems

Some of the systems in alphabetic order

- Doran
- PressurePro
- TireTraker
- TST

## TPMS - Sensors



Typical Wheel sensor similar to the ones from:

- Doran
- PressurePro
- TireTraker
- TST

## TPMS - Sensors



Some systems offer replaceable batteries

- Electronics are epoxy sealed
- Seal is subject to failure during battery change
- Battery contacts are not sealed
- Have replacement O-Rings

## TPMS - Sensors



### Pass-thru sensors

- Offered by TST
- Adds length to the tire stem
- Can be a problem on Toad wheels

## TPMS - Sensors



### OEM Like wheel Sensors

- Offered by TST
- For Toad wheels only
- Needs to be removed to change battery

## TPMS - Monitors



### Doran Monitor

- Up to 22 sensors
- Uses DC power
  - Cigarette Lighter
  - Hardwired

## TPMS - Monitors



### PressurePro Monitor

- Up to 34 sensors
- Uses DC power
  - Cigarette Lighter
  - Hardwired

## TPMS - Monitors



### TireTraker Monitor

- Claims 30 days on one charge
- not recommended to be hardwired

## TPMS - Monitors



### TST 510 Monitor

- Up to 34 sensors
- Uses DC power
  - Cigarette Lighter
  - Hardwired
- Note sensors not battery changeable

## TPMS - Monitors



### TST 507 Monitor

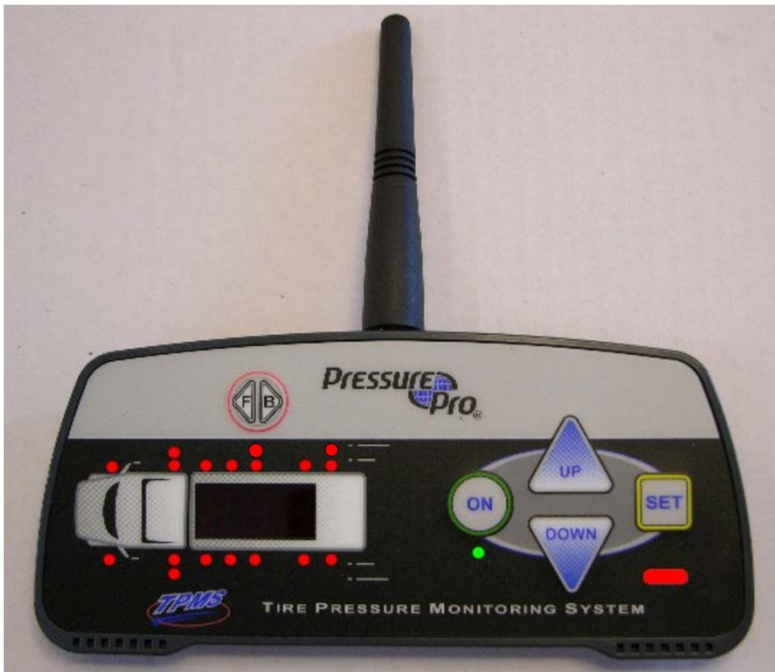
- Up to 22 sensors
- 5-7 days on charge
- can be hardwired but not recommended

## TPMS - Monitors

### Monitor observations:

- LCD displays can be hard to read in bright lights, typical in HDT cab
- Non-hardwired power can lead to forgetting to recharge monitor
  - Lower cost systems for battery systems

## TPMS - Monitors



Why 34 sensors display?

- Truck (6)
- Trailer with spare (7)
- Toad with Spare (5)

# TPMS - Repeaters

Most of the TPMS system have come to the realization that many RV configurations require extending the signal reception for the monitors.



One option is an external antenna



A second option is a signal repeater located between the monitor and the farther sensors (Toad)

# TPMS - Discussion