



Tire Pressure Management Systems TPMS

2013 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

- 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

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

TPMS



- 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?

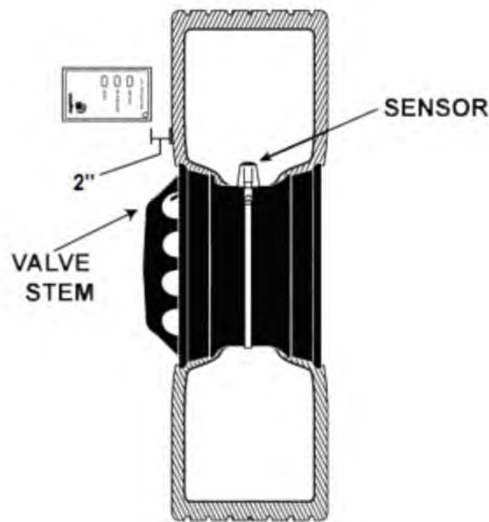
Gas Law - $PV = nRT$

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

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)

Discussion



Tire Pressure

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Tire Pressure - Cold

Tire pressure is set when the tires are cold

- This does not mean thermometer cold
- It means before moving, i.e. first thing in the morning
- Don't change the pressure the rest of the day

Tire Pressure – Max PSI

Should I always fill my tires to Max PSI?

- If you know the actual load on your tires, you can set the tire pressure to a value for your load
- If you don't, then set to Max PSI

Tire Pressure – Over Max PSI

The Max PSI on the tire sidewall is for Cold setting

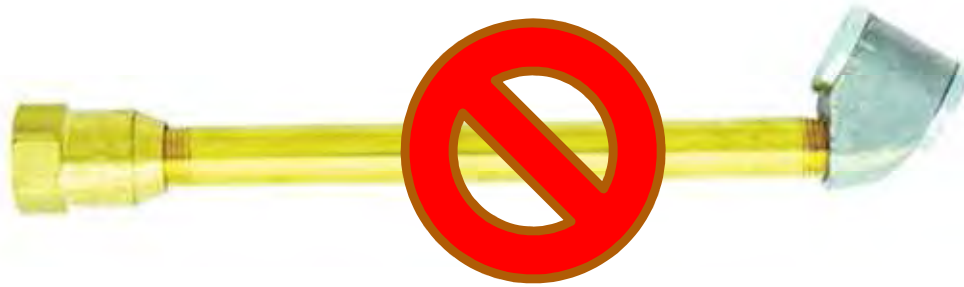
- The 20+ degrees pressure rise as the tire is being used is calculated into the Max Cold numbers

Tire Pressure – Over Max PSI

What if my pressure goes way too high

- Determine what is going on.
- If you bleed air pressure out, you may under-inflate your tire

Tire Pressure – Air Chuck



Get a long
chuck

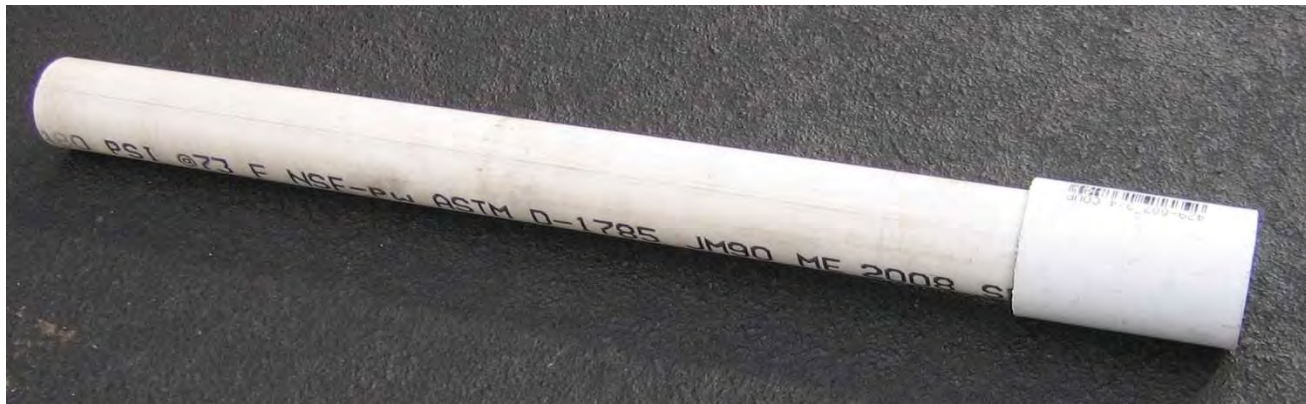
Straight ahead
for inner dual
stem



Straight back
or angled for
outer dual
stem

Tire Pressure – Sensor Mount

Its too hard to install a TPMS sensor on in inner dual stem.



Make a tool from 1" PVC

Discussion