



Tire Talks II

Let's be an informed user.

by

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Tire Talks II



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Outline

- ◆ Safety Briefing
- ◆ Preamble – Before the Tire Talks II starts
- ◆ You are riding on air!
- ◆ End of Tire Life
- ◆ Into the Winter season
- ◆ Economics in Tires
- ◆ Seasonal Changeover between Summer/AS and Winter
- ◆ Non-Normal Tires
- ◆ Other Tire Maintenance Issues
- ◆ Q & A
- ◆ Addendum - for your reference -



Safety Briefing

- We are on the 2nd Fl. at 147 E.14th St.
- Emergency Exits?
- Muster points?
- How many people do we have?
- Evacuation leader and sub-leader (volunteer)?
- First Aid Kit?
- Qualified First aid volunteer?
- AED Location?
- Who can call 911 in case of an emergency?
- Earthquake! Remember: Drop – Cover – Hold.



Tire Talks II - Preamble I



... - . - - ... - - .

- The best time to shoot a question is ---
 - **When you come up with one.**
- I will not be recommending
 - a specific Brand or Store** ---
 - Because I worked for A tire company.
- I will not be recommending **a specific Product** ---
 - Because I have retired 12 years ago and don't have access to the latest inside info.
- The **main purpose** of this presentation is ---
 - To obtain **practical wisdom** about tires.



Tire Talks II - Preamble II



• • • - • - - • • • - • • • • - •

■ Joe Higuchi's personal career as a "Tire Guy"

- ◆ 1969: Started working at the **Motor Sports Team**, Tire Domestic Marketing Dept., Yokohama Rubber Co. in Tokyo, Japan right after graduating from International Christian University in Tokyo.
- ◆ 1972: Moved to Tire Overseas Marketing Dept., Y.R.C. After Technical Training, started Circuit Engineer, **Mining Tires** in Asia, then in Southern Africa.
- ◆ 1984: Transferred to Vancouver as VP, Marketing at Yokohama Tire (Canada) Inc., directly involved in **product planning for N/Am.**
- ◆ 1994: Back to Tokyo HQ as Product Manager for Special Service tires. (**Earthmover and Aircraft Tires**)
- ◆ 1997: Assigned back to Canadian company. EVP Marketing and Technical. **North American Product Planning team.**
- ◆ 2003: Back to Tokyo HQ as North American Dept. Manager.
- ◆ 2006: Retired from the tire company



Tire Talks II – You are riding on air!



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Yes, but not like this.

All the loads and vehicle weight are supported by
AIR inside the 4 tires.

***Without the sufficient amount of air in the
tires, your car or truck will not function
properly and safely.***



Tire Talks II - You are riding on air!



- ... - . - - . . . -
- Which of the 2 sets of photos have right air pressure?
(Same vehicle, same position, one with 20% lower pressure)

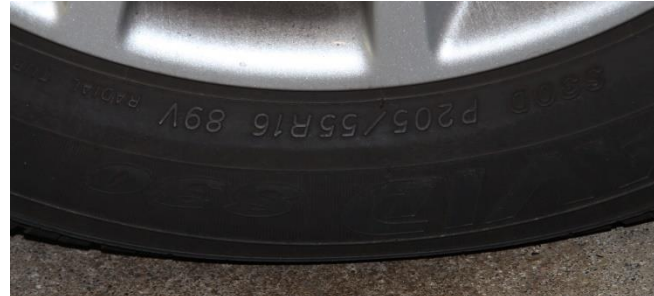


Photo-A

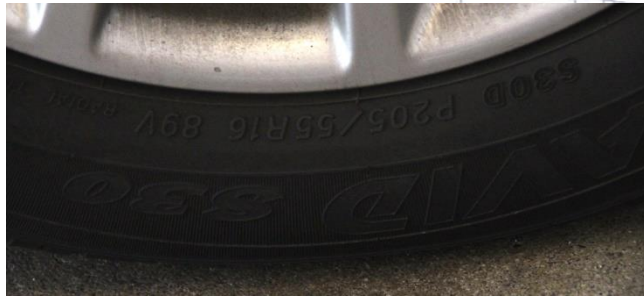


Photo-B



Answer: B - As you can see, it is near impossible to visually judge low air pressure, different from old bias tire days.



Tire Talks II – You are riding on air!



... - . - - ... - - .

- ***Question:*** *On a heavy rain day, do you INFLATE or DEFLATE your tires on your car?*

- ***Answer:*** *Inflate your tires 10% over placard pressure especially on rainy days.*

- **Knowledge:**
 - ◆ Inflation your tires 10% over placard: safety margin, wet roads
 - ◆ Check tire pressure at least once a month, 1st thing in the morning when tires are COLD. Slow leakage from valve and/or air permeability loss are always your risk.
 - ◆ Don't trust somebody else's pressure gauge.

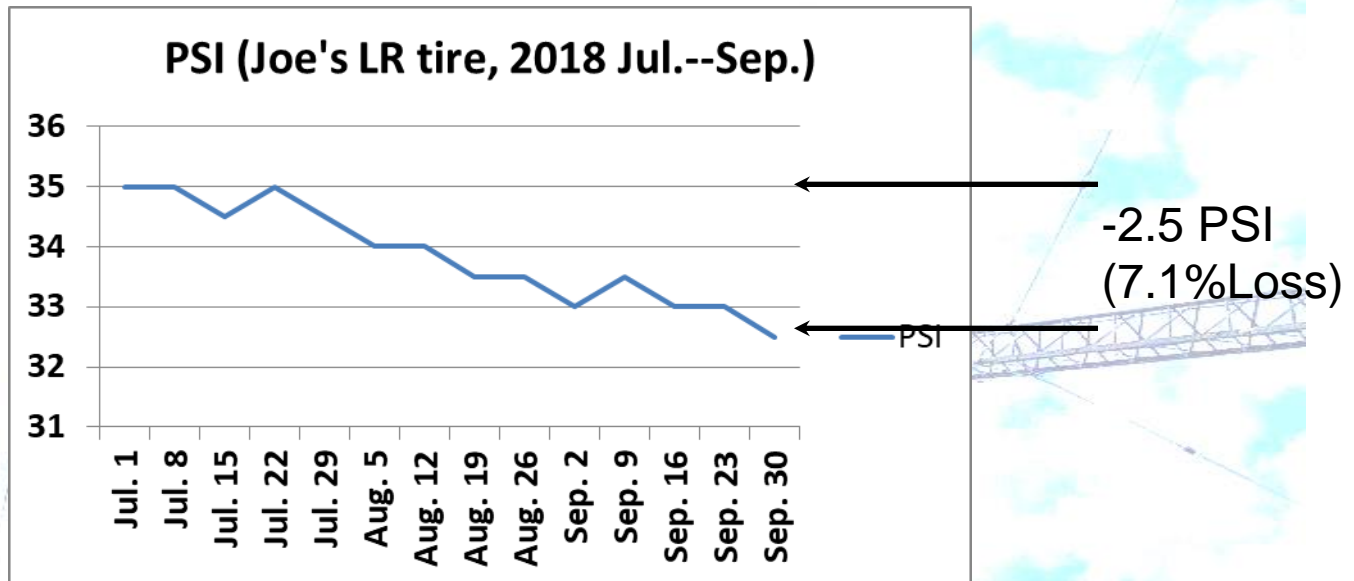
- **Transport Canada** “ According to a recent study, about 50% of the vehicles on the road in Canada have at least one tire that is either over or underinflated by more than 10%. In fact, 10% of all vehicles surveyed had at least one tire underinflated by 20%. ”



Tire Talks II – You are riding on air!

- Air permeability loss (natural loss of pressure) :

Air cells permeate through the rubber cells



- The loss was caused by combination of air permeability and valve core/cap slow leakage. Air permeability loss alone could cause similar loss.
- Air loss brings higher heat generation, together with lower hydroplaning speed.

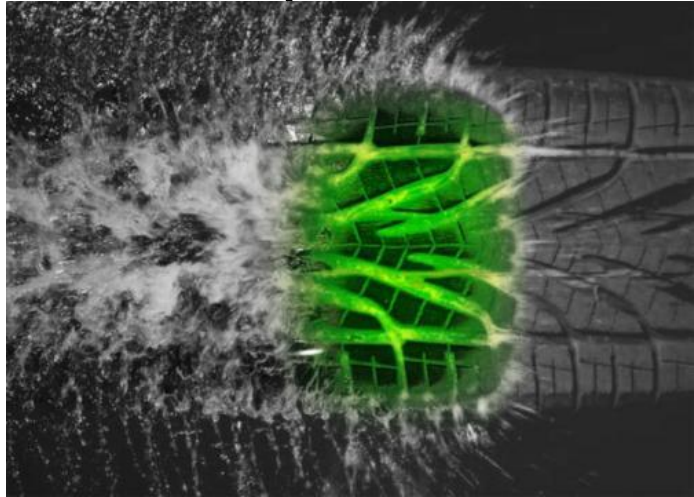


Tire Talks II - You are riding on air!

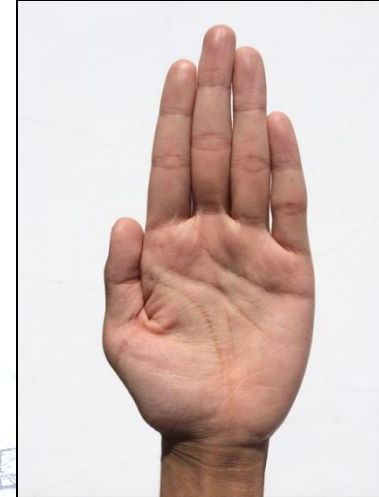


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- Tire contact patch is about the size of your palm.



=



- You have ONLY 4 of them to stop/drive/steer your 3000lbs car going at 100km/h. Use them in full.
- *“Tires are born by heat and killed by heat.”* -- Importance of tire pressure maintenance.

■ ***Let's use them Properly, Effectively and Wisely!***



Tire Talks II - End of its Life



• • • - • - - • • • - • • • • - •

□ Legal Limit: Wear Indicators (Arrows near the shoulder)

- Shows at 2/32" (see next page)
- Change well before 2/32"

□ Practical end of tire life

- Legal limit of 2/32" is the dead minimum. Replace at 4/32" left or earlier.
- Aging – S/W cracking, tread rubber hardening, etc.
 - After 5-6 years, the tread rubber gets hardened to give reduced wet/winter traction.
 - Physical Damages, especially sidewalls and bead area.
- Winter tire wear indicators (4 arrows near the rim. see next page)
 - Shoulder blocks connected at 50% [Transport Canada: 4mm (5/32")]
 - Winter effectiveness is close to end



Tire Talks II - End of its Life



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■ Wear Indicators (Summer/A-S)

- Shows at 2/32"
- Change well before 2/32"

■ Winter tire wear indicators (②)

- Shoulder blocks connected at 50%
- Winter effectiveness is close to end
- Transport Canada refers to 4mm or 5/32" replacement

Winter tires normally wears faster due to softer rubber and flexible blocks, esp. if driven in summer.

*Example (Joe's case on Subaru): 100 : 51
AS=9142km/32th vs Winter=4693km/32th*



Tire Talks II – Into the Winter Season

- What are the major differences between a SUMMER, an ALL-SEASON and a WINTER tire??
- **Answers: Tread rubber, Tread pattern (and sidewall markings)**



SUMMER



ALL SEASON



WINTER

**Tread pattern is not
THE ONLY difference.**

- **Knowledges:**
 - ◆ Quebec is the only province to enforce Winter tires (now).
 - ◆ Do NOT drive on Winter tires in summer. – Unsafe, Uneconomical
 - ◆ Do use Winter tires in winter, even for a city driver.
 - ◆ 4WD can go forward better, but does NOT stop better than 2WD.
 - ◆ Mild winter tire vs. “Dedicated” winter tire

Tire Talks II – Into the Winter Season

Practical Tire Choice



- If you currently have a **SUMMER** tire;
 - Get a set of **Dedicated Winter** tires and wheels
- If you have an **A/S (M+S)** tires now;
 - If you are a **CITY ONLY driver** without hills nor ice, drive carefully on your current tire.
 - If you are an **occasional touring driver**, get a set of **Winter-rated** tire and wheels.
 - If you **go through mountains and country road**, get a set of **Dedicated Winter** tires and wheels to secure the maximum safety.

■ ***Always buy as a set of 4 winter tires. “Two at the drive axle” is a thing of the past!***



Tire Talks II – Into the Winter Season



A/S? M+S? Winter? Dedicated Winter?

Summer, Rain,
Winter Dry,
Very light Snow

Winter Dry, Rain,
light Snow

Winter Dry, Rain,
Snow, ICE

All Season w/ M+S

Winter w/ "Mtn. Snowflake" mark

Dedicated Winter w/ "Mtn. Snowflake" mark



- No performance standard to brand "M+S"
- "Mtn+Snowflake" can be branded by having only 110% snow performance of A/S tire.
- Dedicated Winter: 130%~150% with Ice performance added.
- A/S is a 3-season tire.
- Dedicated Winter tire??;
 - Product Naming: Ice, Winter, Blizzard, etc.
 - Tread Pattern: Block and aggressive, Square shoulder, Lots of Sipes



Tire Talks II - Into the Winter Season

- Additional knowledge on Winter Tires -1



- Ask for “Dedicated” Winter tire, if the store does not know, rethink about the store.
- Safe bet is to Choose Japanese or European brands.
 - More development efforts by market demands.
- Install Winter tires in Oct. and Remove in Apr. (depending on your driving area – Will discuss later)
- Buy a set of 4 with dedicated wheels - Safer and more Economical

3 Year Cost Comparison (typical)
Buy tires only – Mount/Dismount
 Yr.1: Remove/Mount \$25 + Bal. \$20
 Yr.2: Remove/Mount \$25 + Bal. \$20
 Remove/Mount \$25 + Bal. \$20
 Yr.3: Remove/Mount \$25 + Bal. \$20
 Remove/Mount \$25 + Bal. \$20
 Yr.4(Spring): Remove/Mount \$25 + Bal. \$20
Total Cost = \$315/tire \$1260/car

3 Year Cost Comparison (typical)
Buy tires and wheels
 Yr.1: Steel wheel \$65
 Valve: \$4
 Mount: \$16 Balance: \$20
 Yr. 2--4(Spring) Installation: self \$0
Total Cost = \$105/tire \$420/car
You can even purchase a torque wrench, better jack and a few more small tools for \$200 and still save big.



Tire Talks II - Into the Winter Season

- Additional knowledge on Winter Tires -2



■ Tire slips on Ice and Snow with WATER!

➤ In Yellowknife in the middle of winter, you can drive a cheap A/S tires without too much of a problem, like driving on wet sand.

➤ Rubber compound technology competition for “the latest Dedicated winter tires.”

M

(Mチップ) →

水 水

タイヤ

水

水

氷

路面

アクティブ発泡ゴム2 **BLIZZAK VRX2**

親水作用で水がはじかれないので、水路に水が入り込みやすい

水膜

氷

路面

親水性コーティングをすることで、水が入り込みやすくなったため、路面にしっかり接地する

アクティブ発泡ゴム2

接地

水泡

太い水路

0.3mm

T

100µm

B

Y

Y

D

重合部位

分岐構造

●: 二重結合(反応点)

β-ファルネセン

ポリファルネセン: 分岐構造ポリマー

1 新マイクロ吸水バルーン

2 エコ吸水ホワイトゲル

水膜

水



Tire Talks II - - Economics in Tires



• • • - • - - • • • - • • • • - •

■ **Proper Annual Schedule**

➤ **Winter to A/S back to Winter – Legal:** Oct to Apr on some Hwys

➤ **Ave. Snowfall in Vancouver: (cm)**

Oct: 0.1, Nov: 5, Dec: 16, Jan: 16, Feb: 5, Mar: 3, Apr: 0, May: 0.1

-- **Practical:** Shorten Winter tire period as much as possible

Because: Winter wears faster and finish earlier (slide 12)

Because: Generally fuel economy is better on A/S

➤ **The last run of remaining Winter tread:** You can put on thru' the summer. Note some short comings (performance/fuel economy.)

➤ **NEVER wear different type of tires on one car. *Your life is far more valuable than half worn tires!***

■ **Buy Winter tires on a cheap steel wheel (as previously shown.)**

Winter is not a period for good looking Aluminum wheels.

■ **You might want to make friends with a reliable tire dealer. (Deals, Information, scheduling convenience, etc.)**



Tire Talks II -

A/S to Winter, Back to A/S changeover - 1



• • • - • - - • • • - • • • • - •



- Remove any object from the grooves.
- Observe for any injuries.
 - **Photo Right:** Found a push-pin nail!!
- If uneven wear is found, check wheel alignment at a dealer.



- Measure the depth of the main grooves.
 - Inside and Outside
 - Record: Date, Mileage and the depth.



- Put a Position Indicator (eg. **LF → LR**)
 - Next Spring (or Fall) this tire will be installed at Left Rear position. Tire Rotation, Done!!

Nov. 15, 2018



Tire Talks II -

A/S to Winter, Back to A/S changeover - 2



• • • - • - - • • • - • • • • - •



■ Deflate to HALF pressure

- If reg. is 32psi, down to 16
- Use Phillips screw driver to push valve core pin.



- Store in a tire storage bag (Top left) or,
- Plastic bag supplied by a tire dealer (Top right).

- Don't forget to cover the back side of the storage bag to protect from water or oil damage.



Tire Talks II - Non-Normal Tires 1



Run-Flat Tires

Regular

Run-Flat
(note: heavy
sidewall)



- Limited to;
 - Low profile tires only
 - Stiff suspension vehicles
 - Limited availability of size and types
 - 80--kph, 50—100km
 - Other systems exist

- Benefits are;
 - Safety in Expressway flats(Continue driving till getting out of Exp. Way.)
 - Weight and space by eliminating spare tire (minor)
- Demerits are;
 - Weight (under-sprung weight)
 - Ride comfort
 - Repair/purchase difficulty (limited store/limited availability)



Tire Talks II - Non-Normal Tires 2



Temporary Spare

- Light weight, space saving spare
- Light construction, Limited durability
- High pressure (60 psi) **CAUTION**
- 80- km/h, up to 80km
- Install on rear, if all possible (esp. FF cars)

On-road Repair tools

- Pressurized repair fluid container
 - Effective life, No second use, Limited reparable damage
 - Final repair normally not available
- Compressor + Repair fluid combination
 - Effective life, No second use, Limited reparable damage
 - Final repair **MAY** be available depending on brand



Tire Talks II – Other Maintenance Issues



• • • - • - - • • • - • • • • - •

- **Tires do not like;**
 - ◆ **Petroleum products and fumes**
 - ◆ **Sun light and ozone**
 - ***Store your tires away from those. Dry/Cool/Dark/No oil***

- **If you find “unusual” pressure reduction;**
 - **Check valve leakage. If not;**
 - **Get your tire checked at a tire shop for puncture, and get it repaired.**

- **If you find a “bulge” on the sidewall;**
 - ◆ **Possibility of serious damage exists.**
 - **Get your tire checked at a tire shop.**

Tires deserve a bit more attention and care from you!



Tire Talks II - Let's be an informed user

Do you have any questions?

Thank you very much and Safe Driving!

Joe Y. Higuchi VE7JYH



Tire Talks II - Addendum Care & Maint. - Tire Pressure 3



Remember!

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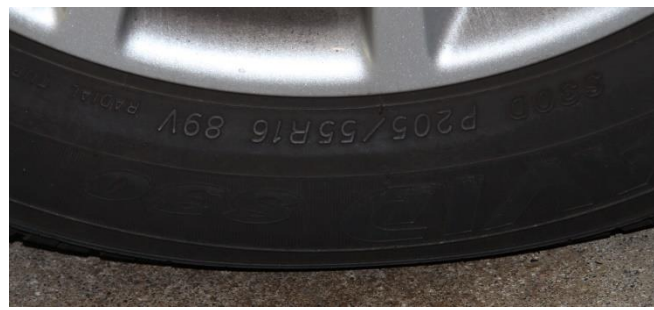


Photo-A (-20% LOW!)



Photo-B (Right Pressure)



You never know until you measure!!!



Tire Talks II - Addendum

Care & Maint. - Tire Pressure 1

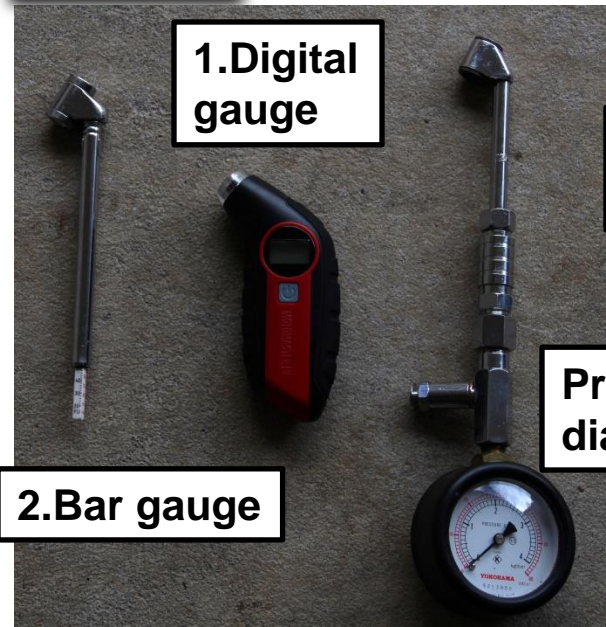


- Load on tires supported by ---
 - **AIR PRESSURE** Low Pressure leads to destruction
- Do you recall “Firestone tire / Ford Explorer Roll-over” incidents back in 90s?
 - ***Majority of accidents were due to lack of AIR PRESSURE.***
- Protect your life with tire pressure maintenance.
 - Right pressure? --- Vehicle placard, not tire sidewall
 - Right tools --- Don't rely on somebody. Buy 2 gauges
 - Right interval --- Once a month
 - At right time --- At the start of a day at home, COOL!
 - 10% safety margin (Manual:33psi +10% = 36psi)



Tire Talks II - Addendum

Care & Maint. - Tire Pressure 2 - pics



1. Digital gauge

Buy 1 and 2 and compare!

Professional dial gauge

2. Bar gauge



Door sill Placard – Important!

TIRE AND LOADING INFORMATION RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT			
SEATING CAPACITY NOMBRE DE PLACES		TOTAL 5	FRONT 2 ARRIERE 3
The combined weight of occupants and cargo should never exceed 408kg or 900lbs. Le poids total des occupants et du chargement ne doit jamais dépasser 408kg ou 900lb.			
TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS A FROID	SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS
FRONT AVANT	P205/55R16	230KPA, 33PSI	
REAR ARRIERE	P205/55R16	220KPA, 32PSI	
SPARE DE SECOURS	T135/80D16	420KPA, 60PSI	



Tire sidewall marking only shows MAXIMUM Load and Pressure (580kg per tire at 51psi!!)
-- DO NOT USE!

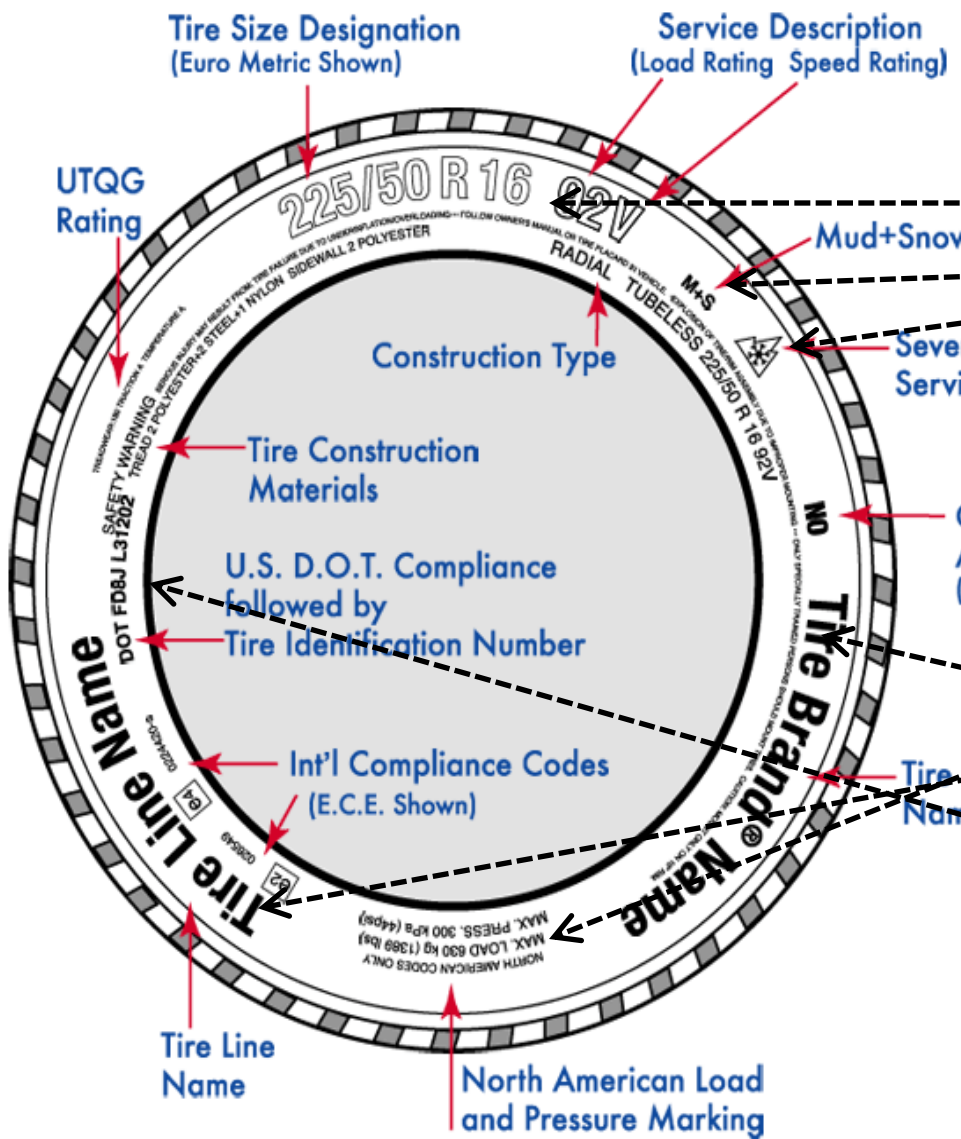


Tire Talks II - Addendum

Important Basics



What do you see on sidewall

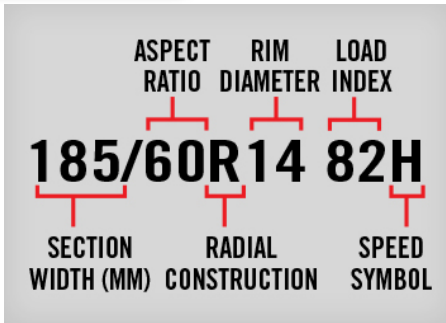


- Tire Size
- M+S, "Mountain Snowflake" mark
- Load and Pressure!!
- Brand and Product name
- DOT Serial #



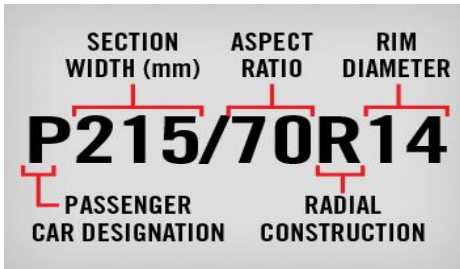
Tire Talks II - Addendum

Important Basics - Tire Sizes, Serial#

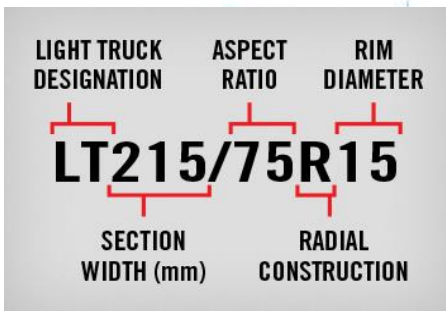


- Car tires with Load Index/Speed Rating

Section width(mm) “/” Aspect ratio “R” Rim diameter(inch) Load Index Speed



- Car tires with Load Index/Speed Rating (P-Metric)



- Light Truck tires (comes w/load rating or Ply Rating)



- DOT Serial#: FD 8K-PEM 31 13
FD=Plant code, 8K=Size code, PEM=Spec.,
31=31st week, 13=2013