



**Tires are chambers of Air**



## Sizing

- **Alpha Numeric**

**MT90-16, MU90-16**

- **Inch**

**5.00-16**

**5.10-16 (low profile)**

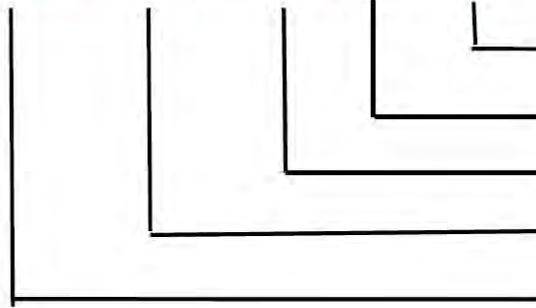
- **Metric**

**130/90-16, 180/55R17**



# Measurements

**140 / 90 B 16 77 H**



**Speed Rating**

**Load Rating**

**Rim Diameter (inches)**

**Aspect Ratio (90%)**

**Section Width (mm)**

- **140 Width in mm**

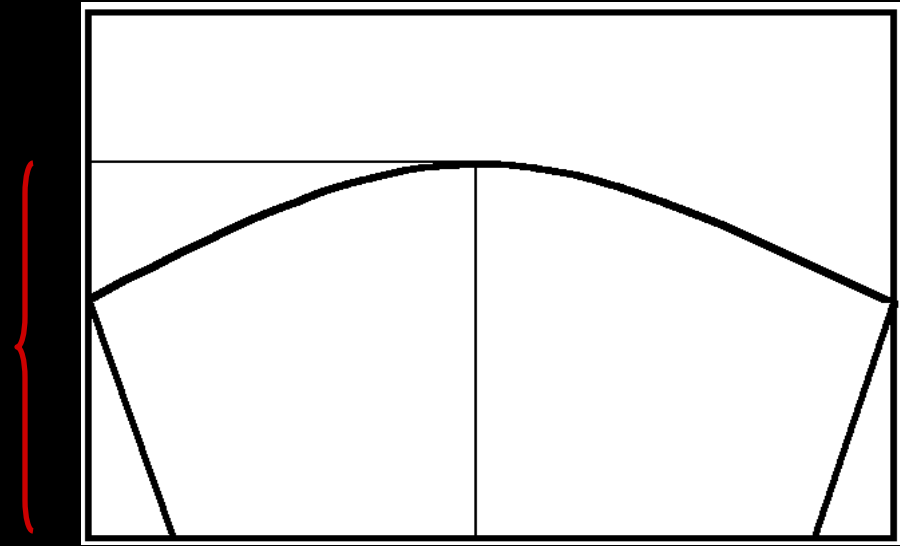
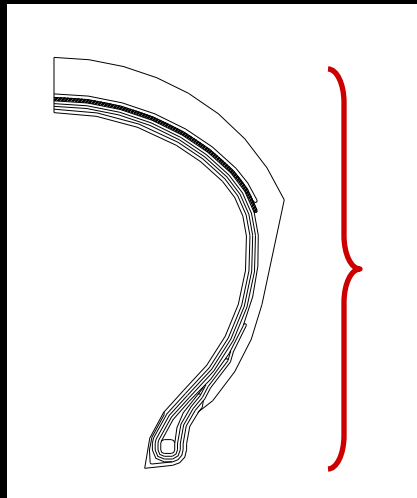
(Design section width  $145 \times 1.07$ . Could be up to 155 overall width or conversely  $145 \times -4\% = 139.2$ . If difference  $< 4\text{mm}$  go with 4mm)

- **90 Aspect ratio (section height)**

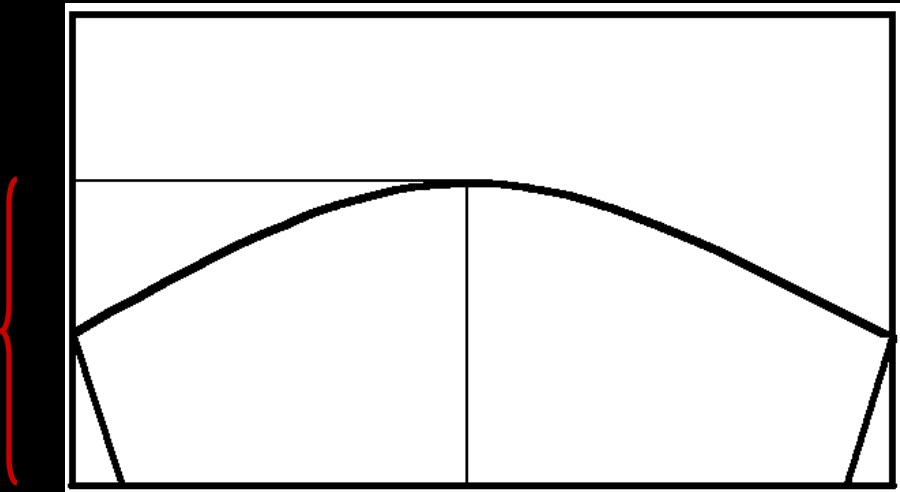
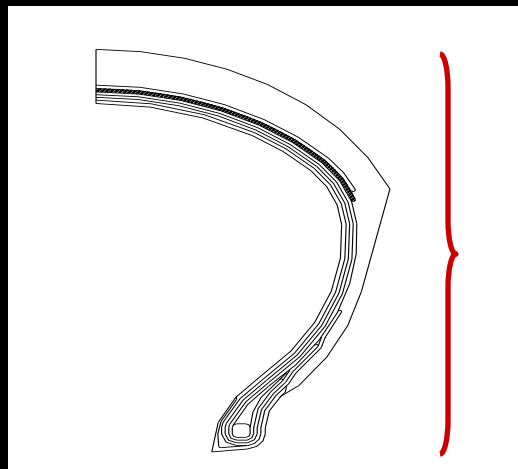
(90% of 140 = 126mm approx)

- **16" Rim Diameter**

# 190/55R17 w/section height 105mm (4.1")



# 190/50R17 w/section height 95mm (3.7")





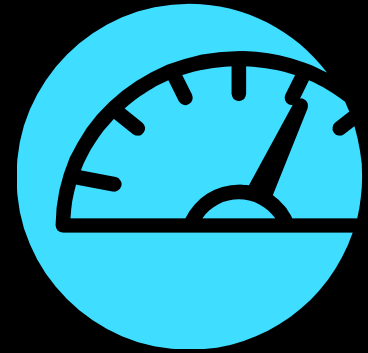
## Aspect Ratio of Tires

- **Low aspect ratio – better grip**

**At max adhesion slides w/less warning**

- **High aspect ratio – lower grip**

**Tire slips on more gradual basis**



## Speed Rating

- **S ≤ 112 mph/180 kph**
- **H ≤ 130 mph/210 kph**
- **V ≤ 149 mph/240 kph**
- **Z > 149 mph/240 kph**
- **W ≤ 168 mph (270 kph)**
- **(W) ≥ 168 mph (270 kph)**

**Higher speed tires = more grip < load capacity**

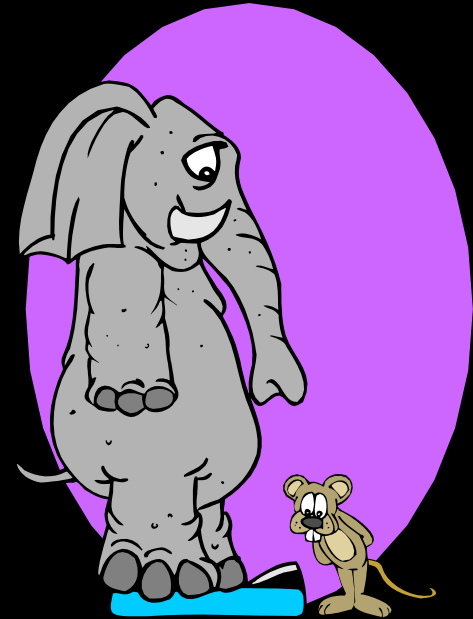


## Load Index

**140/90H16 77H**

**77 = 907 lbs or 412 kg\***

**\* When tire is at max psi (cold)**





## Tire Growth & PSI



- **Can grow 7% 1st 200 miles/320 km**
- **Ck fender/swing arm clearance**
- **Sidewall PSI is cold PSI**
- **> 4-6 lbs(10%) ↑ in PSI bad**
- **Use accurate gauge**





## Recommended PSI?

Example – things to consider

Rider weight	200 lbs/91 kg
Co-rider weight	150 lbs/68 kg
Bike weight	892 lbs/405 kg
Tongue weight	35 lbs/16 kg
Gear/luggage	60 lbs/27 kg
<b>Total</b>	<b>1337 lbs/607 kg</b>



**Tires' capacity fully inflated: 1400 lbs/635 kg**

Cobra or Venom with reinforced construction

	<i>Solo</i>	<i>2 up light</i>	<i>2 up heavy</i>
Front	38-40	40-41	42-43
Rear	44	46	48-50

## **Tread Pattern**

- **Disperses water**
- **Resists irregular wear**
- **Avoids tracking**
- **Quieter**

**Center  
groove and  
arrow  
shaped  
grooves**

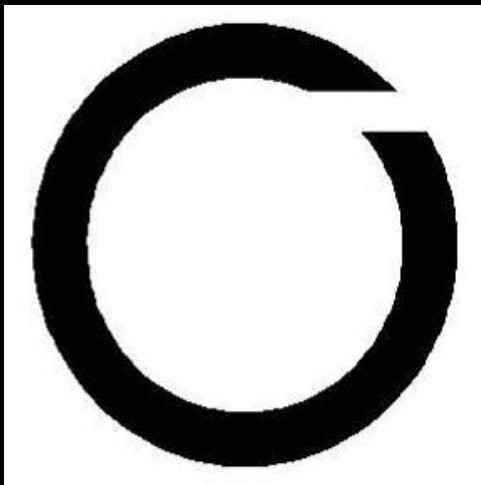


**Deep  
Grooves**



# Directional Arrow

- Why do tires have this?



## Prevent Tread Splice





## Rim Fitment

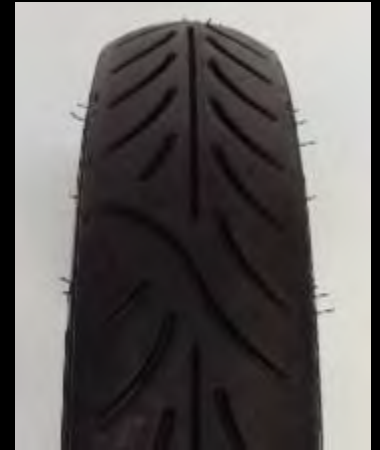
**Correct rim size critical**

**Too wide: excess contact**

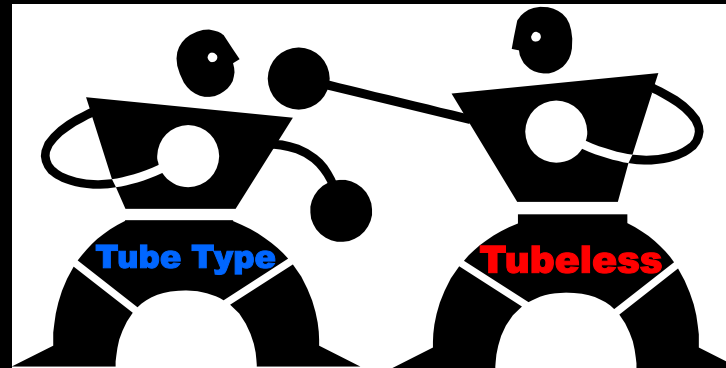
**Too narrow: triangulated contact**

**Sidewall is stressed**

**Reduces mileage/handling**



## Tubeless vs. Tube Type



**Most tires are both TL/TT**

**TL tires on TT rims OK\***

**\*Except on CP, CM wheels**

**TL tires deflate slower**

Cylindrical Bead Seat Rim (WM Series)



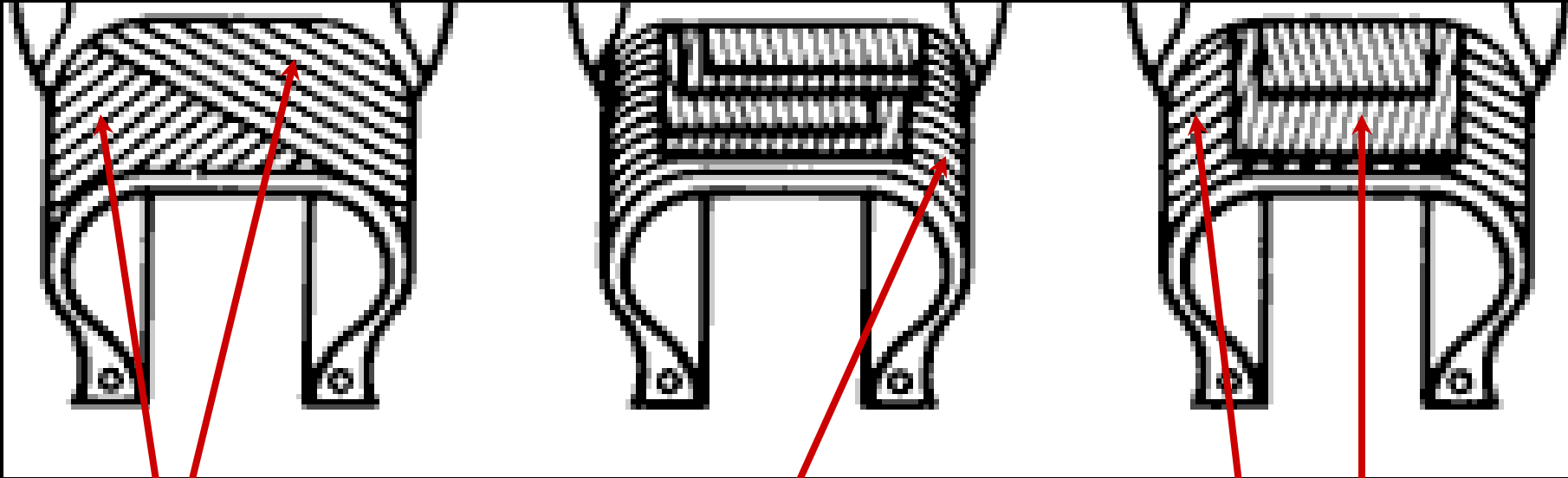
MT 5° Tapered Rim



Optional CP Contour



# Tire Construction



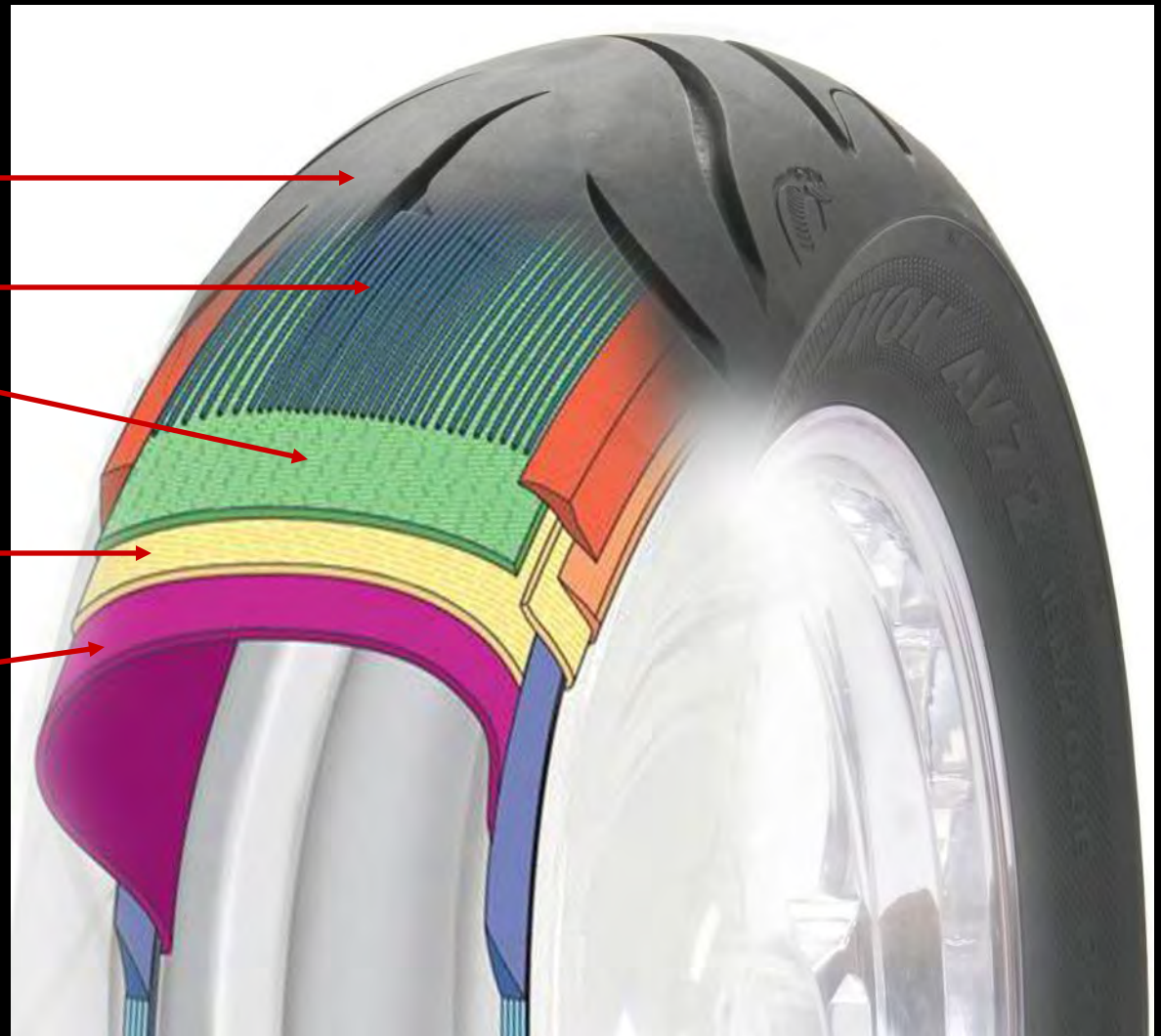
**Bias Ply -**

**Radial R**

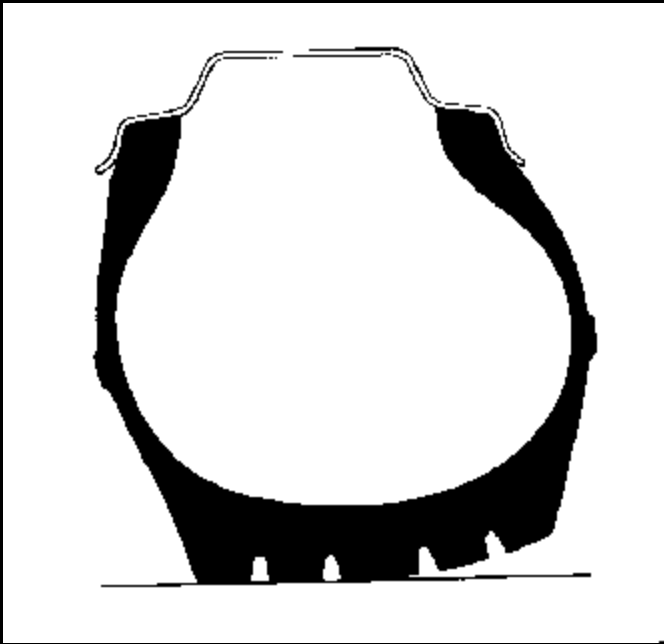
**Bias belted B**

**“A plied” Technology!**

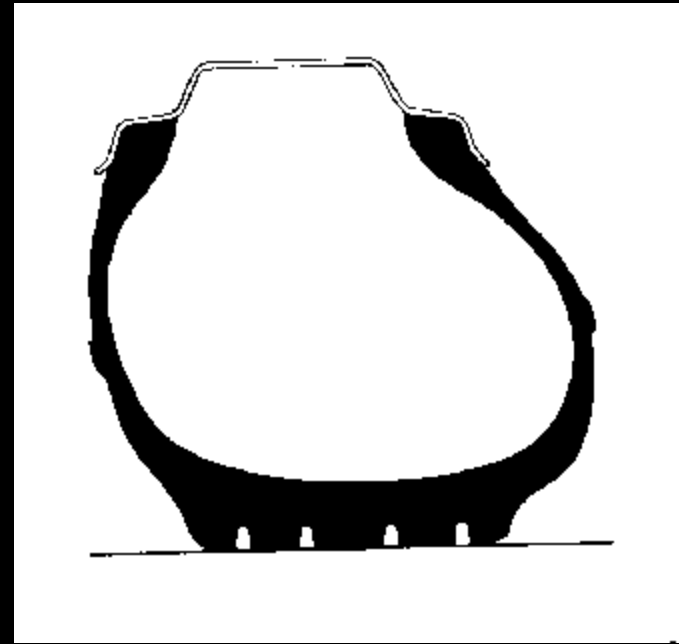
- Tread** →
- 0° Belt** →
- Bias Belt** →
- 90° Radial** →
- Liner** →



Do we have contact?



**Bias contact  
patch**



**Radial  
contact patch**



# Bias/Radial Combos

## Mixing Bias front/radial rear?

- If manufacturer approved
- On a custom application

## OK to retro fit with radials?

- If wheels wide enough for tire
- Stiff enough suspension
- If manufacturer approved



**Bias on  
stiff  
suspension  
bike**



**Radials on  
compliant  
suspension  
bike**

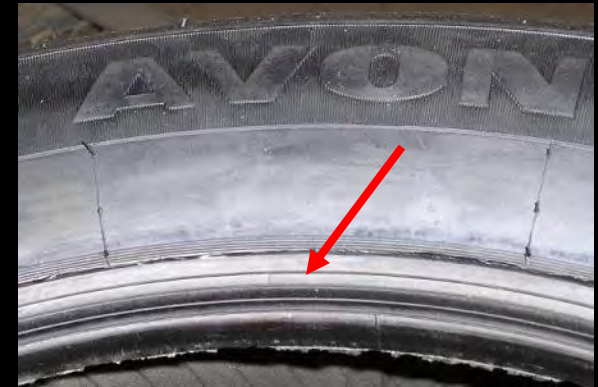


## Mount & Balance

- **Clean rim (rust, weights, tape)**
- **Good tire lubricant**
- **No sealant or fluids**
- **Bead line parallel to rim**
- **New tube/valve stem**



**Paste Tire Lube**





**From 2000 & up last 2 digits in the oval are the year & the 2 digits preceding = week**

**DOT AT8E103909 = tire made the 39th week of 2009.**



**< 2000 the last digit in the oval = year, 2 digits preceding = week.**

**DOT AT8CT039 = tire made 3rd week of '99. ◀ or • after digit indicates tire was built in the '90s. In the '80s ◀ or • absent.**



## Dry Rot

- **Insulate tires from contacting cold flooring in winter**
- **Clean tires w/mild soap & water**
- **Avoid exposure to fertilizer, ozone, temperature extremes**
- **No cleaners/preservatives**
- **Don't park near power lines/electric motors  
e.g. furnaces**
- **Don't store near gasoline or solvents**



# Groove Cracking

- **Under or over inflation**  
(Ck [www.avonmoto.com](http://www.avonmoto.com) for correct psi)
- **Maintain front forks & rear suspension**





## Handling Problems

- **Tire pressure** (watch elevation changes & heat)
- **Suspension, frame alignment, bearings**
- **Overloaded, unbalanced luggage, rider position**
- **Out of round or out of balance tire**
- **Irregular wear**

**AVON**  
TYRES

**Where is the balance dot?**



**Not all manufacturers use a balance dot.**



# Out of Round/Out of Balance

**>1mm lateral/radial = O.O.R.**

**>2.45 oz/70 gms = O.O.B.**

**within first ½ mm of tread wear**

**Balanced wheel**

**(<½ oz/14 gms) leave weights on rim**

**Check:**

**Tire seated correctly**

**Bead line parallel to wheel**

**Bent wheels**

**Sealants or foreign matter**





## **Wear Patterns**

- **Scalloping**

**Braking, low PSI, tread pattern**

- **Squaring Off**

**Burn outs, high speed interstates, flat roads**

- **Wear on Left or Right Side**

**Left hand turns, crown of road, Offset motor**

## **Repairs!**



**Plug & patch to get home**  
**Follow Manufacturer's Guidelines**  
**Have skilled mechanic do repair**

## Mix and Matching Tires



- **Watch for differing profiles/construction**
- **Radial tires more difficult to match**
- **Ideally same brand/model**

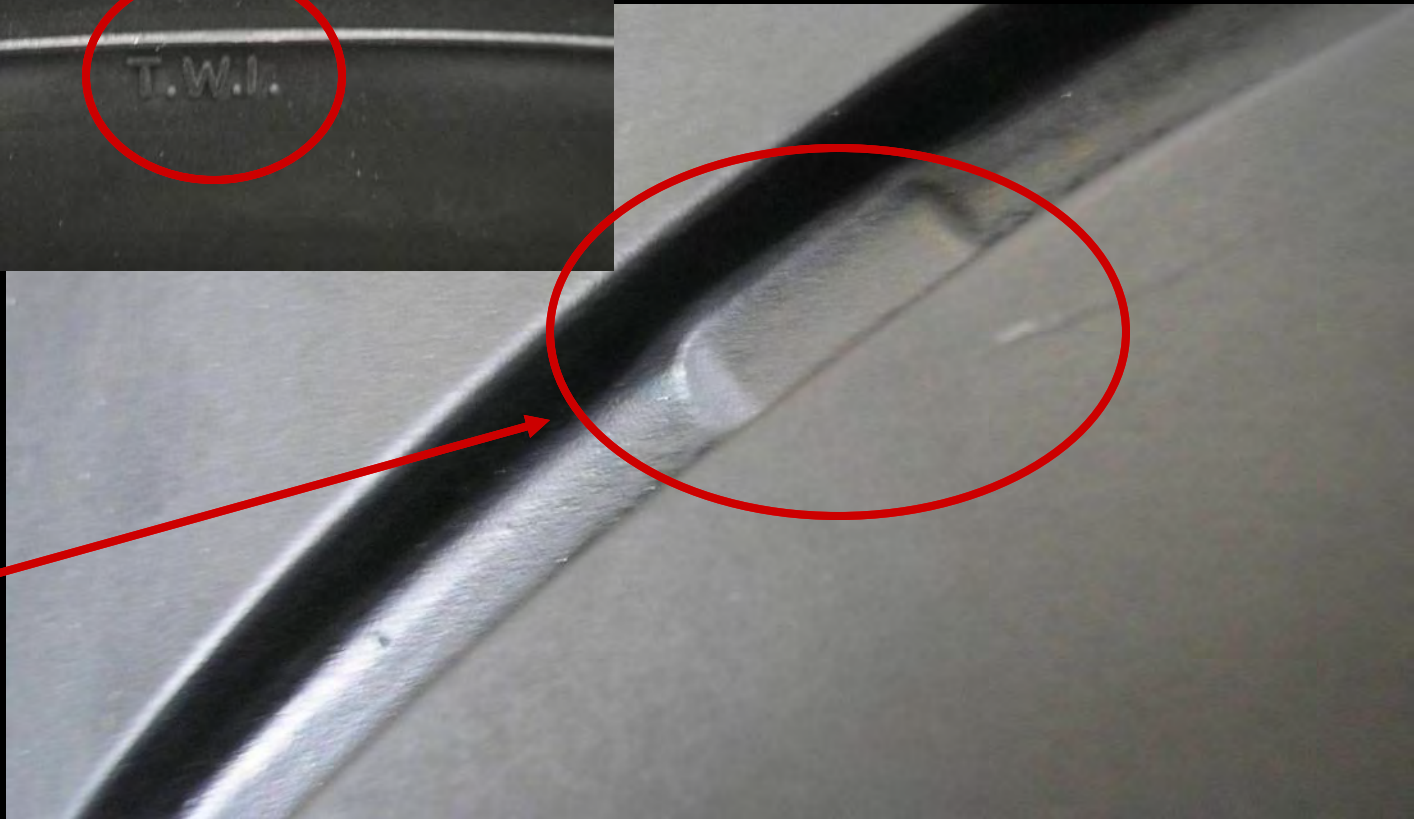


## **Tire Life – what effects it?**

- **Load, burn outs, hard riding**
- **Speed, road surface, temperature**
- **Wheel condition, storage**
- **Pressure, suspension**
- **Incorrect brake adjustment**
- **Frame/wheel alignment**



**Tread Wear Indicator**



**Wear Bar**

**1mm or 2/32nds**



# Warranty

## 5 year Coverage Examples\*

- Separation
- Chunking
- Non-uniformity
- Balance issue
- WW blemish
- Premature Cracking

\* Tire abuse not covered



**Average Mileage?**



**Hypersport**

**Sport**

**Sport-Tour**

**Cruiser**

**Touring**

**Dual-Purpose**

**Front**

**Miles / Km (000)**

**2-3 / 3-6**

**4-6 / 6-9**

**5-8 / 8-12**

**12-15 / 18-24**

**18-24 / 24-35**

**6-12 / 9-18**

**Rear**

**Miles / Km (000)**

**1-3 / 2-5**

**3-5 / 5-8**

**5-8 / 8-12**

**8-10 / 11-16**

**12-20 / 19-32**

**4-10 / 6-16**