# Modern Automotive Technology Chapter 65

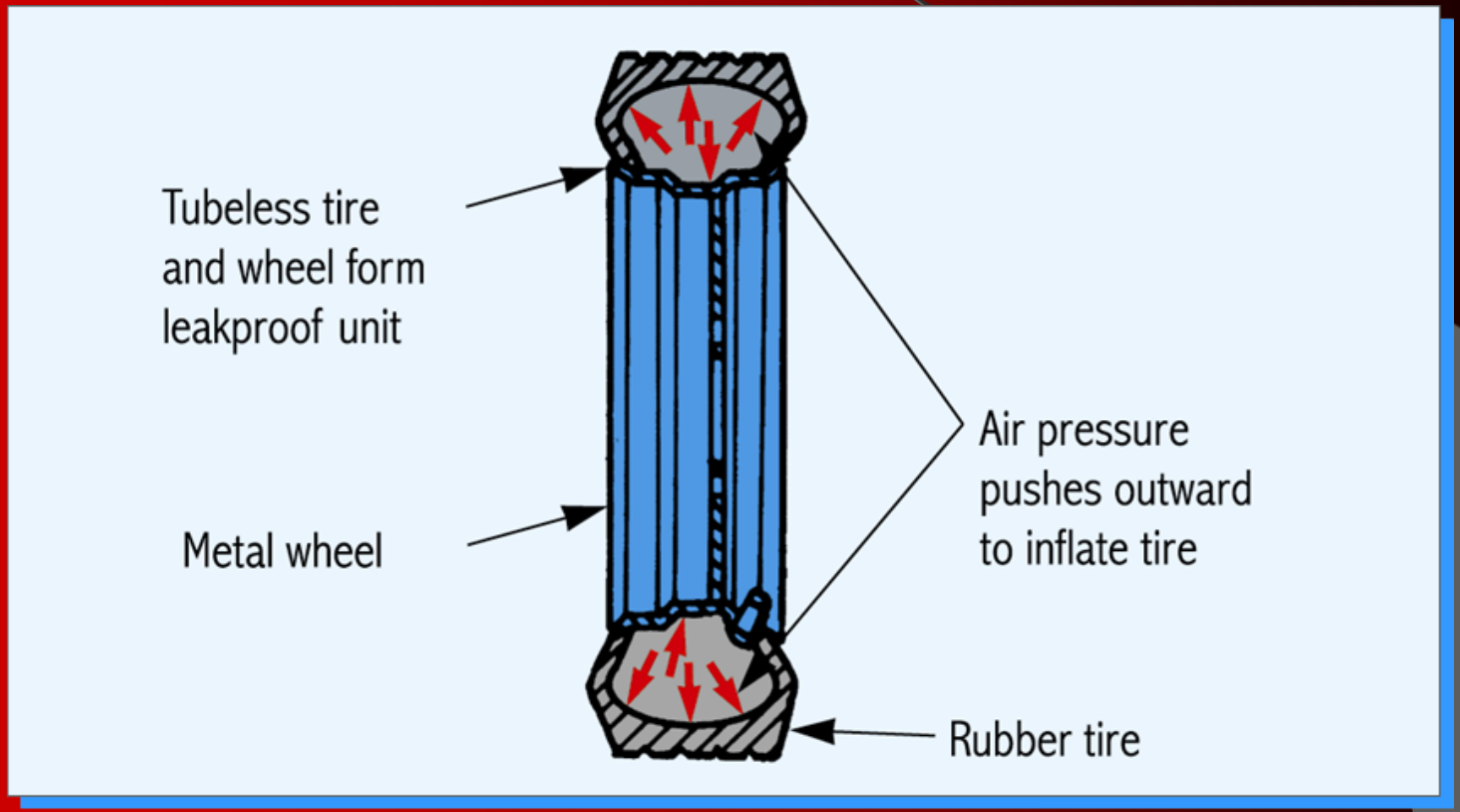
## Tire, Wheel and Wheel Bearing Fundamentals


North Montco Technical Career Center

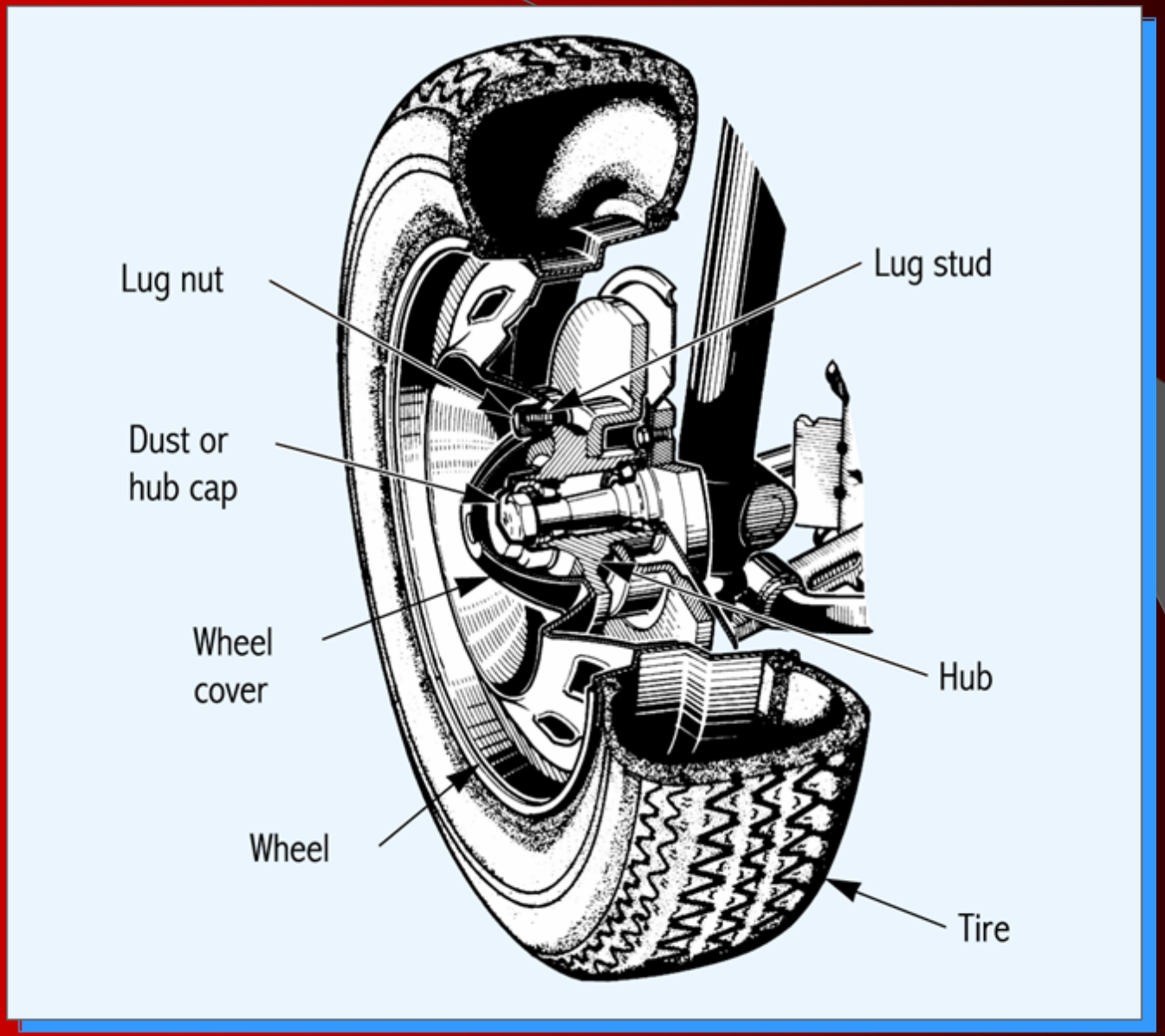
# Learning Objectives

- Identify the parts of a tire and wheel.
- Describe different methods of tire construction.
- Explain tire and wheel sizes.
- Describe tire ratings.
- Identify the parts of driving and non-driving hub and wheel bearing assemblies.

# Tubeless Tire



# Wheel Assembly



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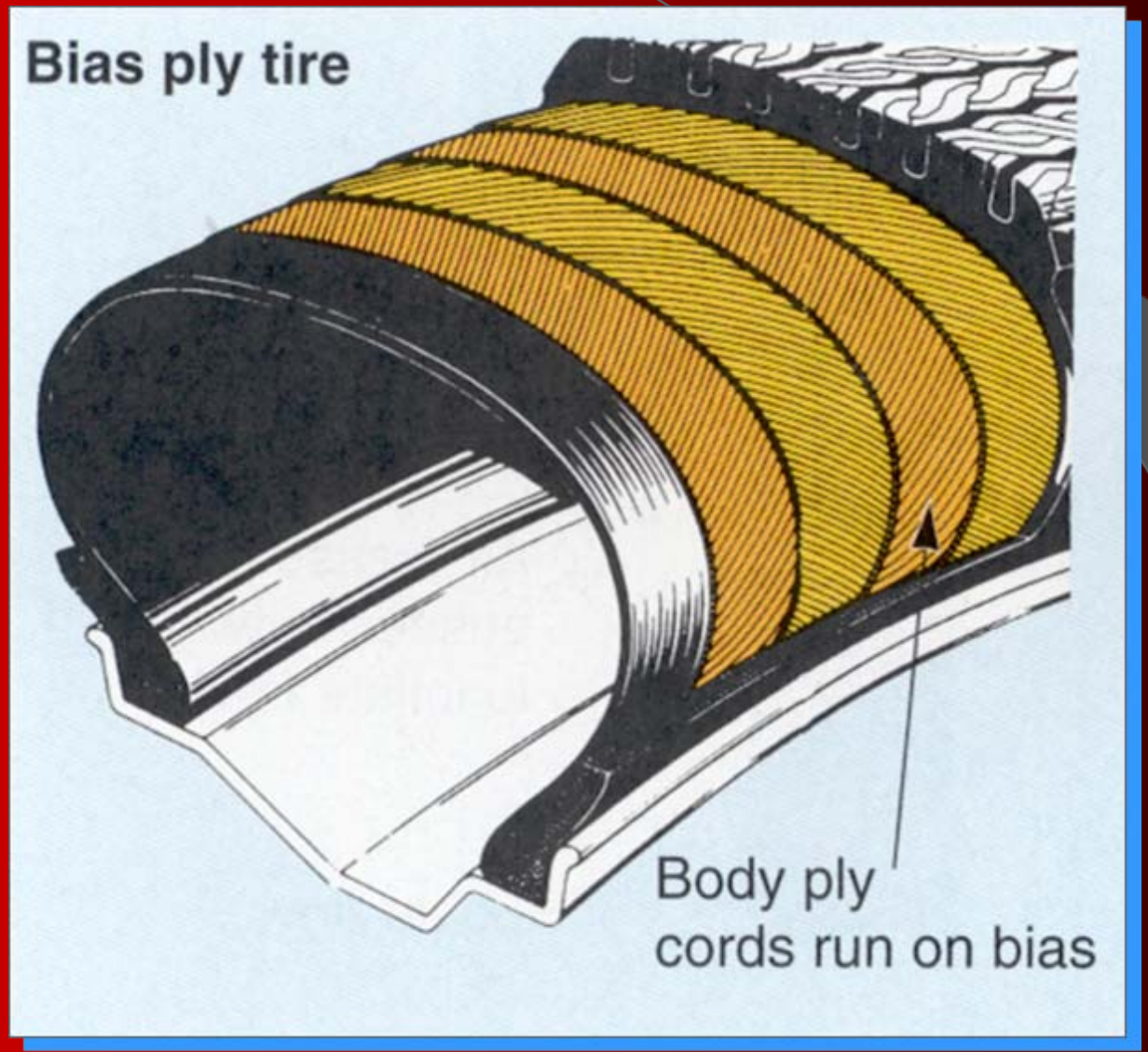
1. Sometimes BELTS are used to strengthen plies and stiffen tread; they lie between tread and inner plies.

2. Two rings, called TIRE BEADS, made of steel wires encased in rubber that hold tire sidewalls snugly against wheel rim.

# Bias Ply Tire



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3. The tire TREAD is the outer surface of tire that contacts road.

4. The tire LINER provides a leakproof membrane for modern tubeless tire.

# Parts of a Tire

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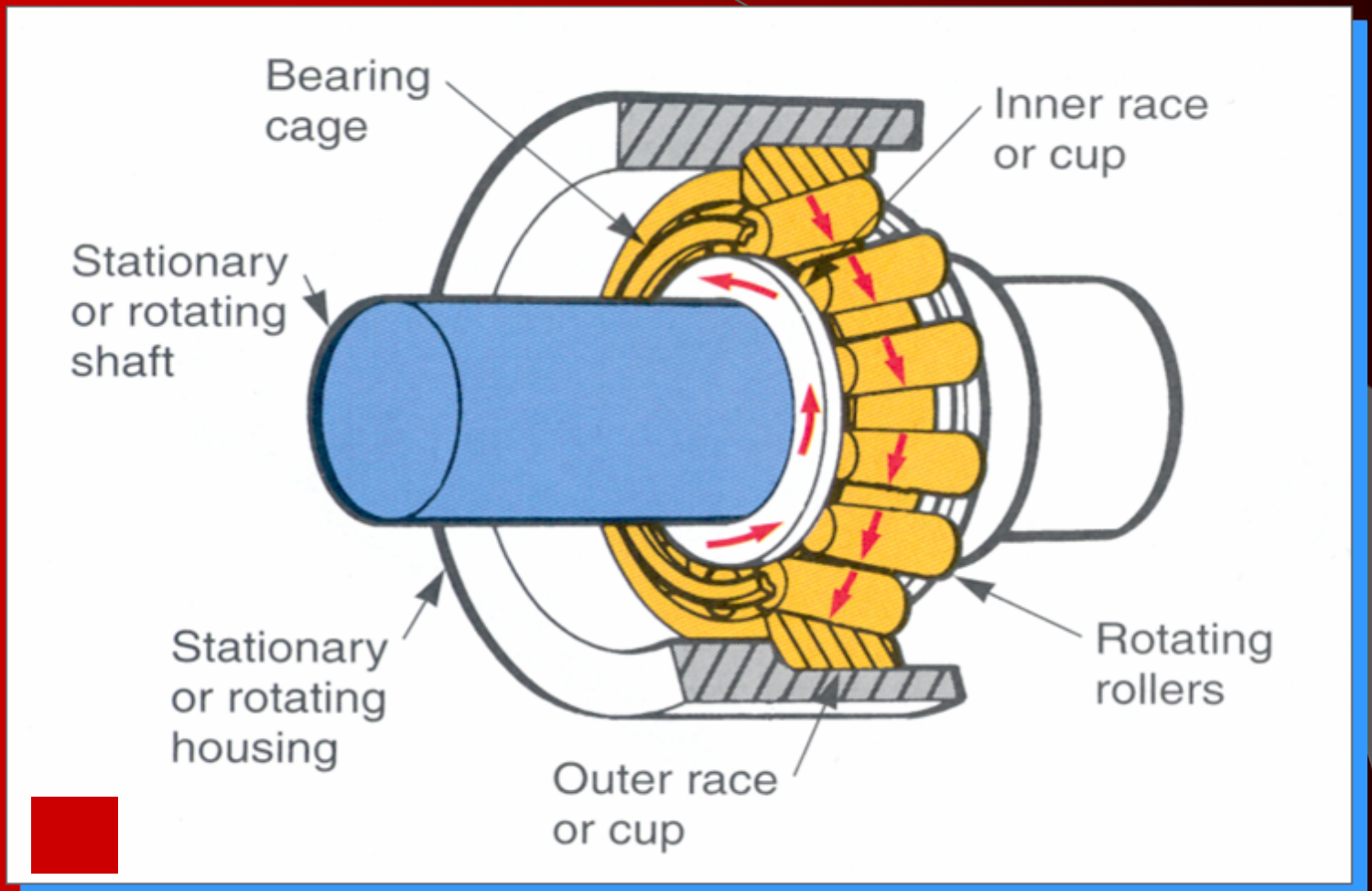
5. On wheel bearings, BALLS or ROLLERS are the antifriction elements that fit between inner and outer races.

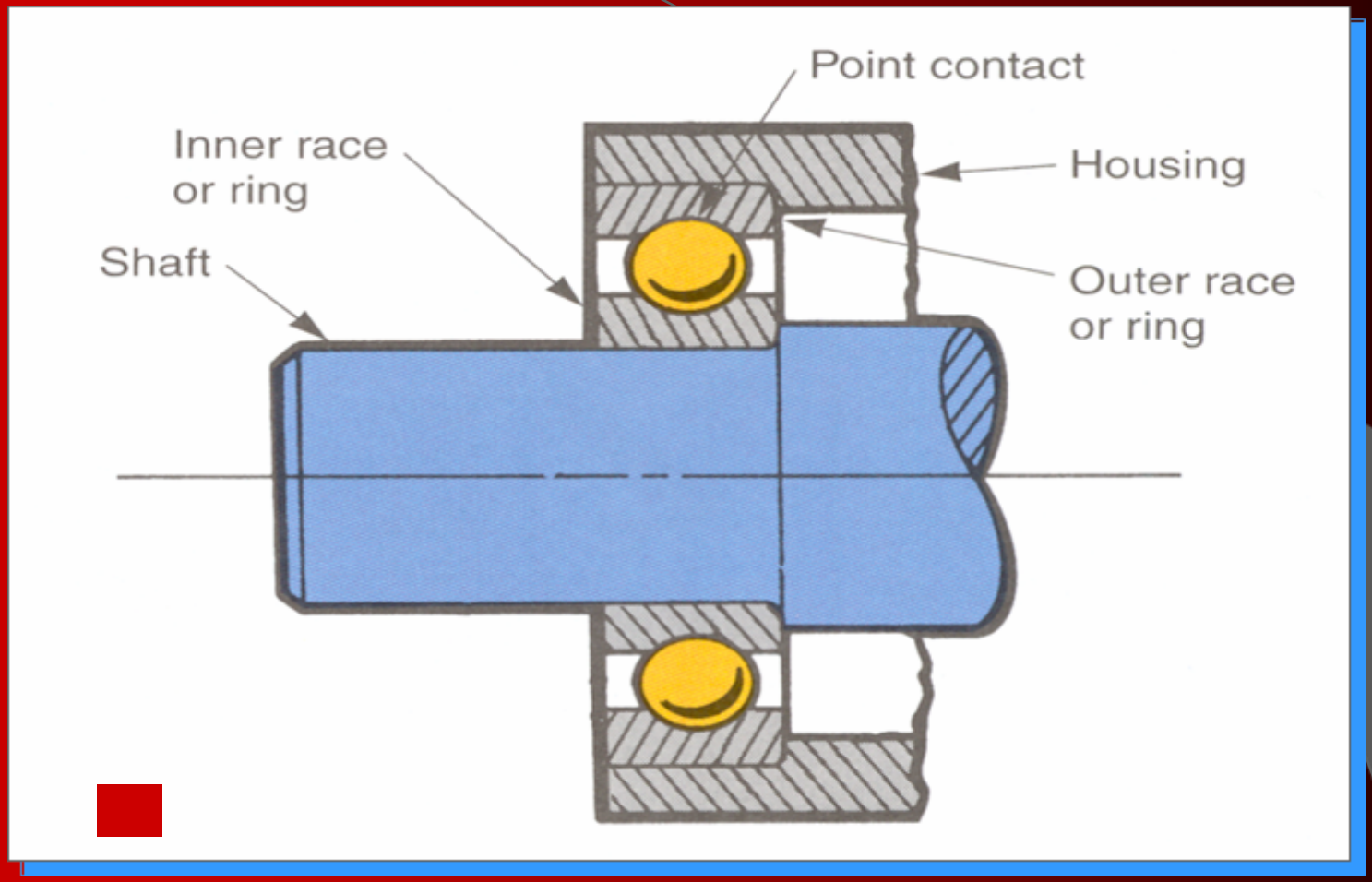
6. An INNER RACE is a cup or cone shaped portion of a wheel bearing that rests on spindle or drive axle shaft.

# Tapered Roller Bearing



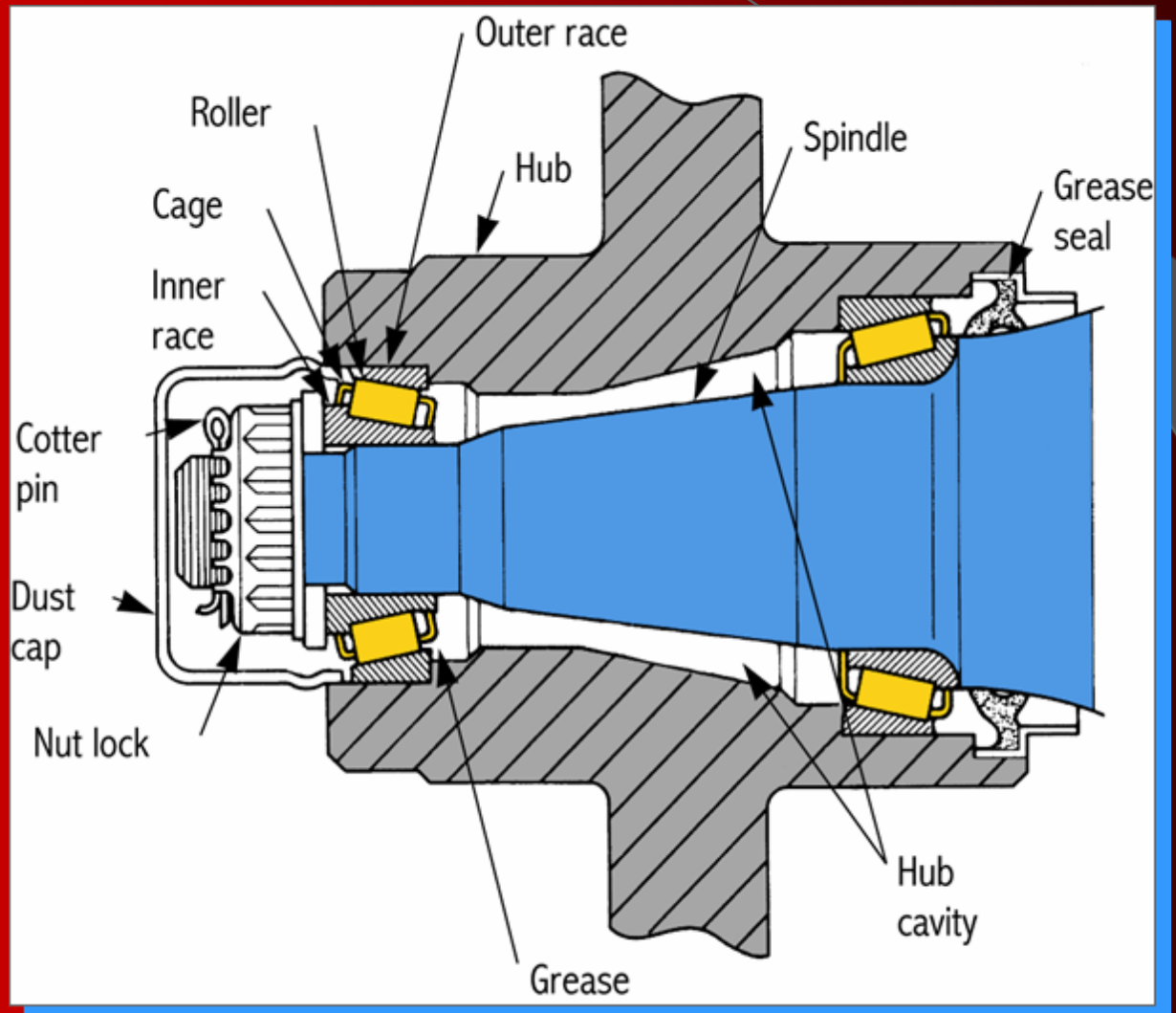

Lubricated with high-temperature grease

# Ball Bearing




Balls allow parts to rotate with a minimum amount of friction and wear

# Hub and Wheel Bearing
## (Non-Driving Wheels)



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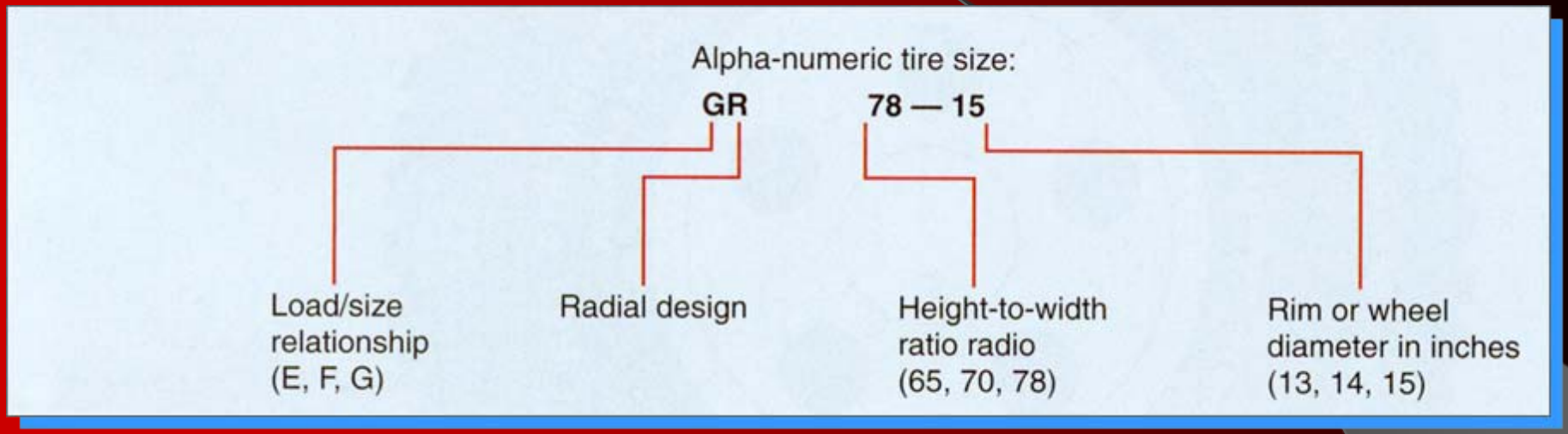
7. The P-Metric identification system for tires uses metric values and international standards.

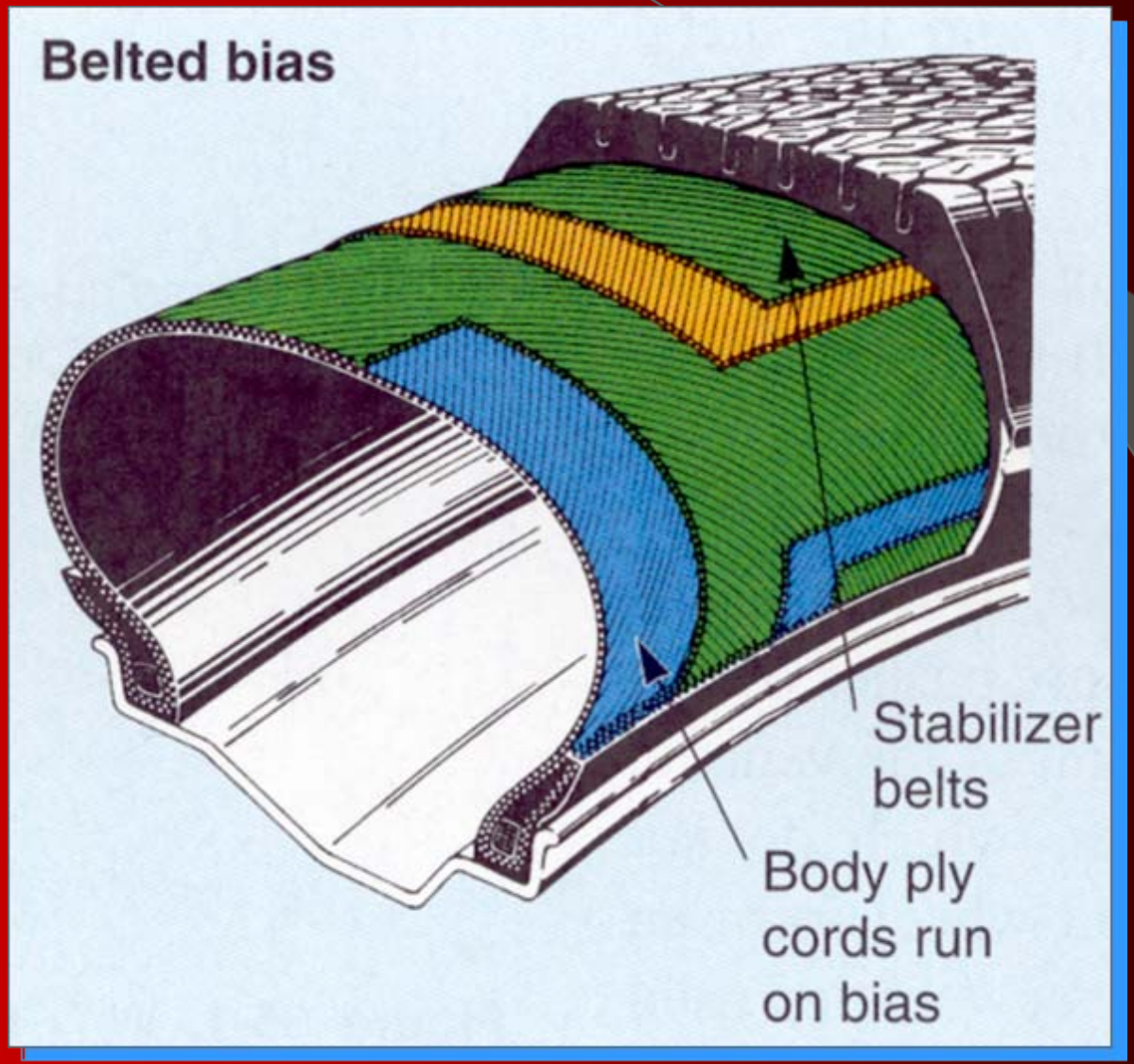
8. The BODY PLIES are rubberized fabric and cords wrapped around the beads of a tire.

# Tire Size




**P-Metric**–Uses metric values and international standards

# Belted Bias Tire



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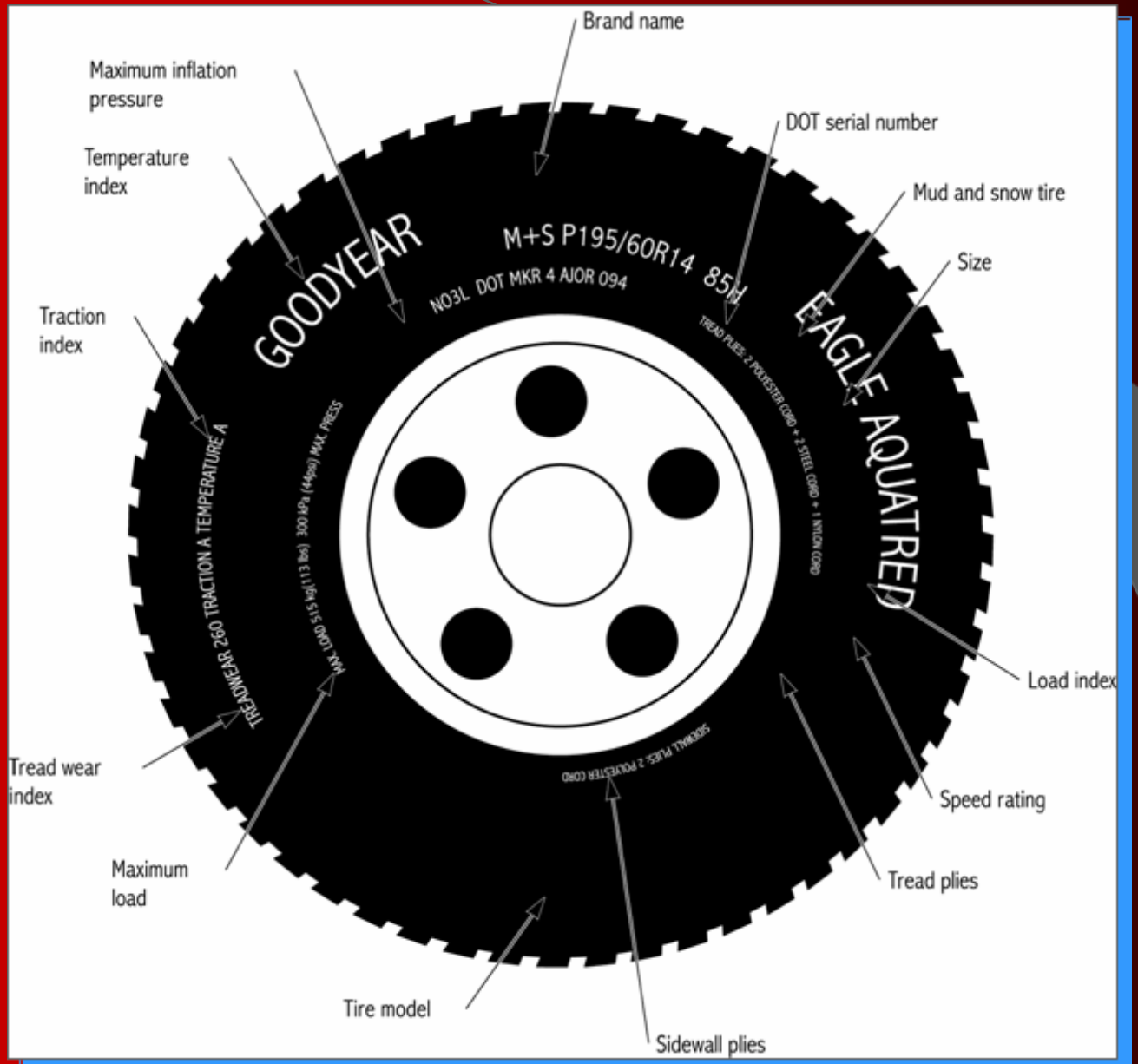
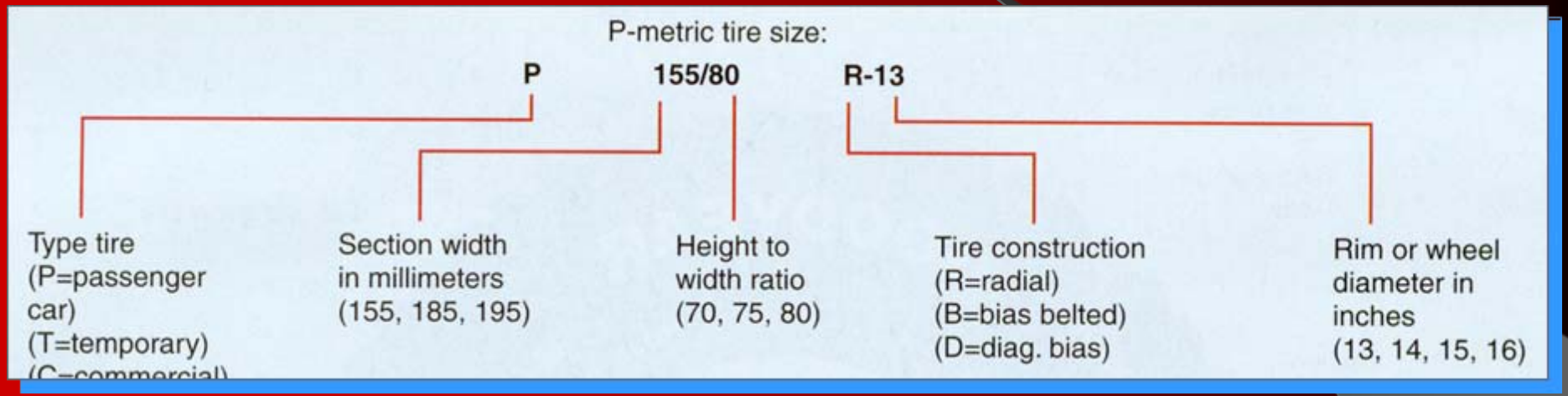
9. The SIDEWALL is the outer part of tire extending from bead to tread.

10. Tire size designation using letters and numbers to denote tire sizes in inches and load-carrying capacity in pounds is called an ALPHA-NUMERIC measurement system.

# Tire Sidewall Markings

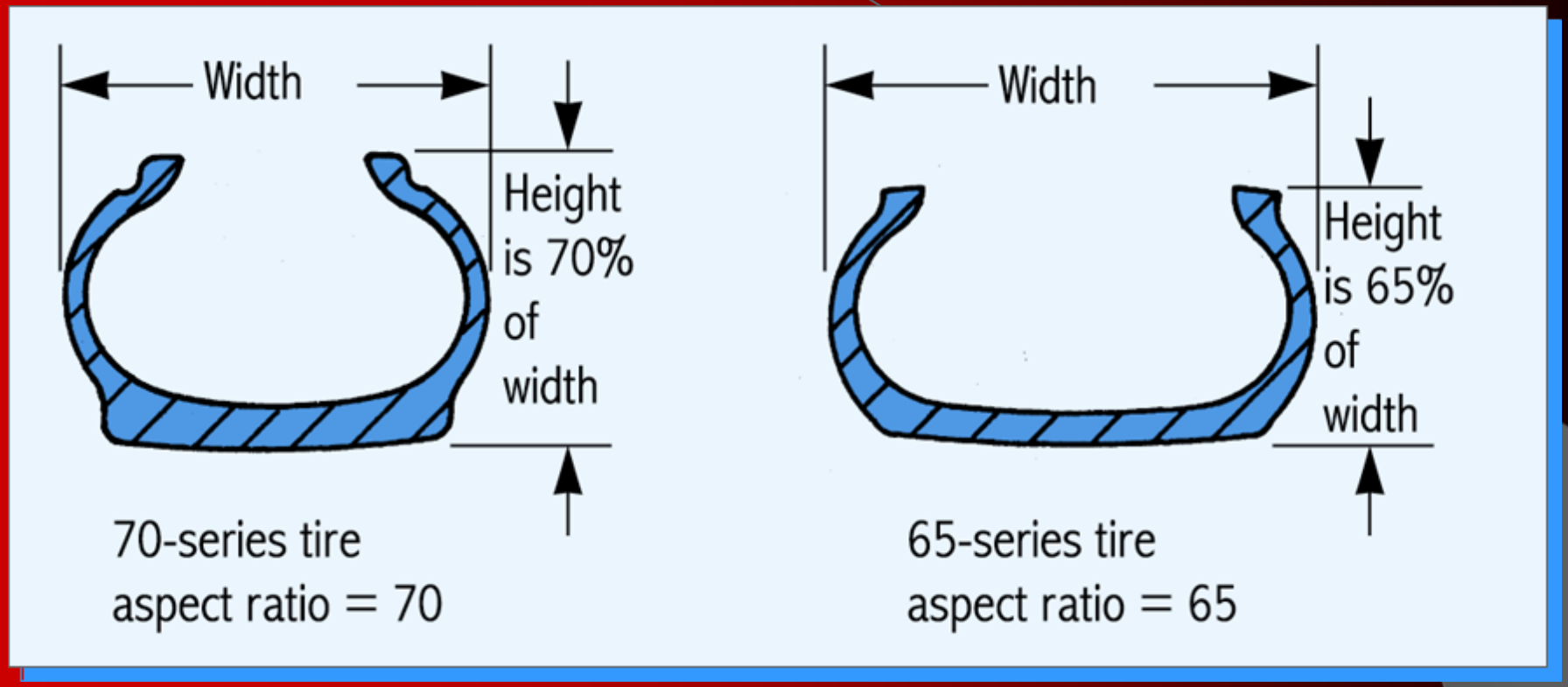


# Tire Size




**Alpha-Numeric**–Uses letters and numbers to denote tire size in inches and its load-carrying capacity in pounds

# Aspect Ratio

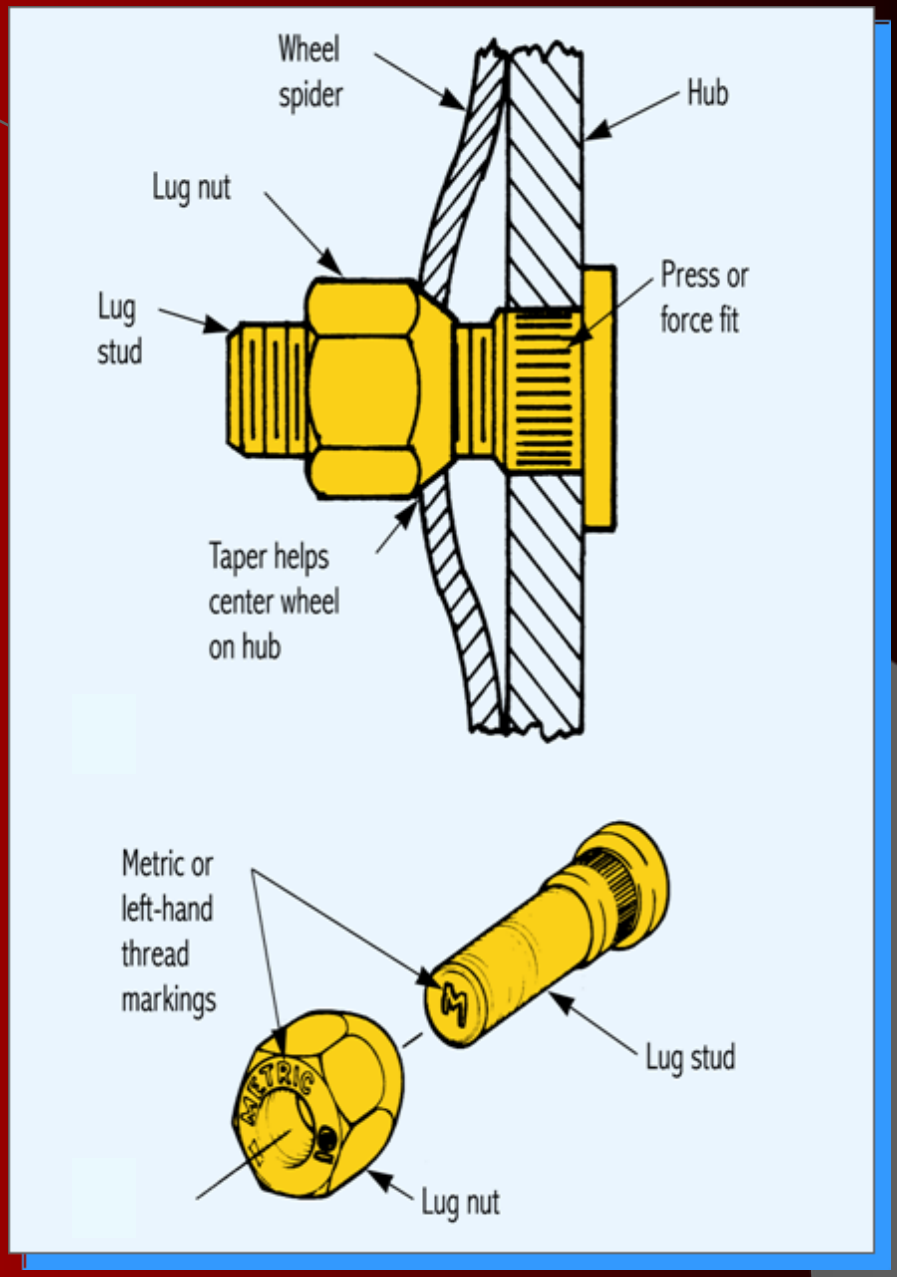



Height-to-width ratio of a tire. Comparison of a tire's height and width

# Lug Nut and Stud

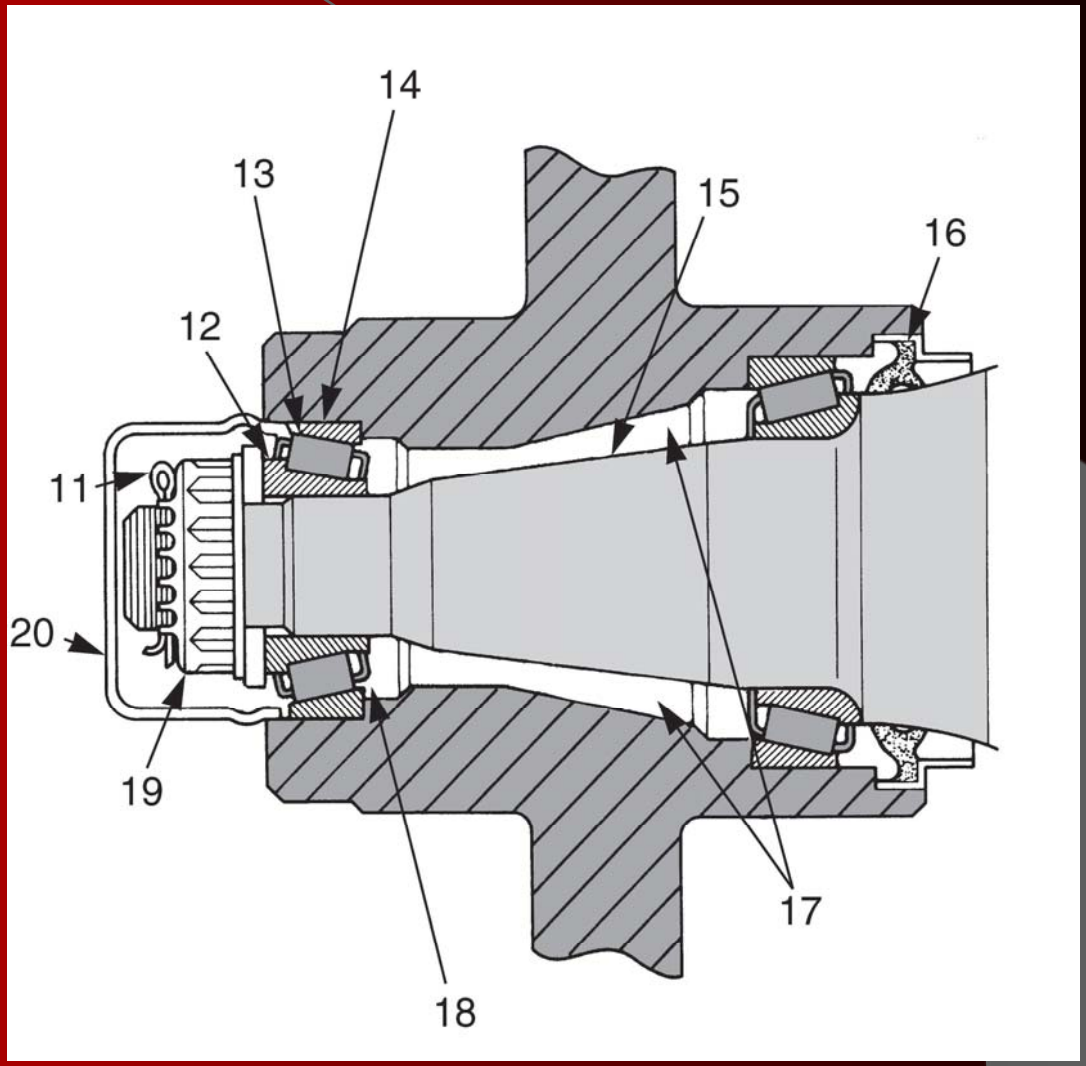
Stud is pressed into the hub or axle flange

If metric or left-hand threads are used, markings will normally be given



# Hub and Wheel Bearing
## (Non-Driving Wheels)

11. Cotter pin
12. Inner race
13. Roller
14. Outer race
15. Spindle
16. Grease seal
17. Hub cavity
18. Grease
19. Nut lock
20. Dust cap



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