AUTOMOTIVE Youth Educational Systems YES The Passport to a Rewarding Automotive Career

ASE CERTIFIED

Modern Automotive Technology Chapter 67

Suspension System Fundamentals

North Montco Technical Career Center

Learning Objectives

- Identify the major parts and assemblies of the suspension system
- Describe the basic function of each suspension system part and assembly
- Compare the various types of suspension systems
- Discuss safety procedures when working on a suspension systems

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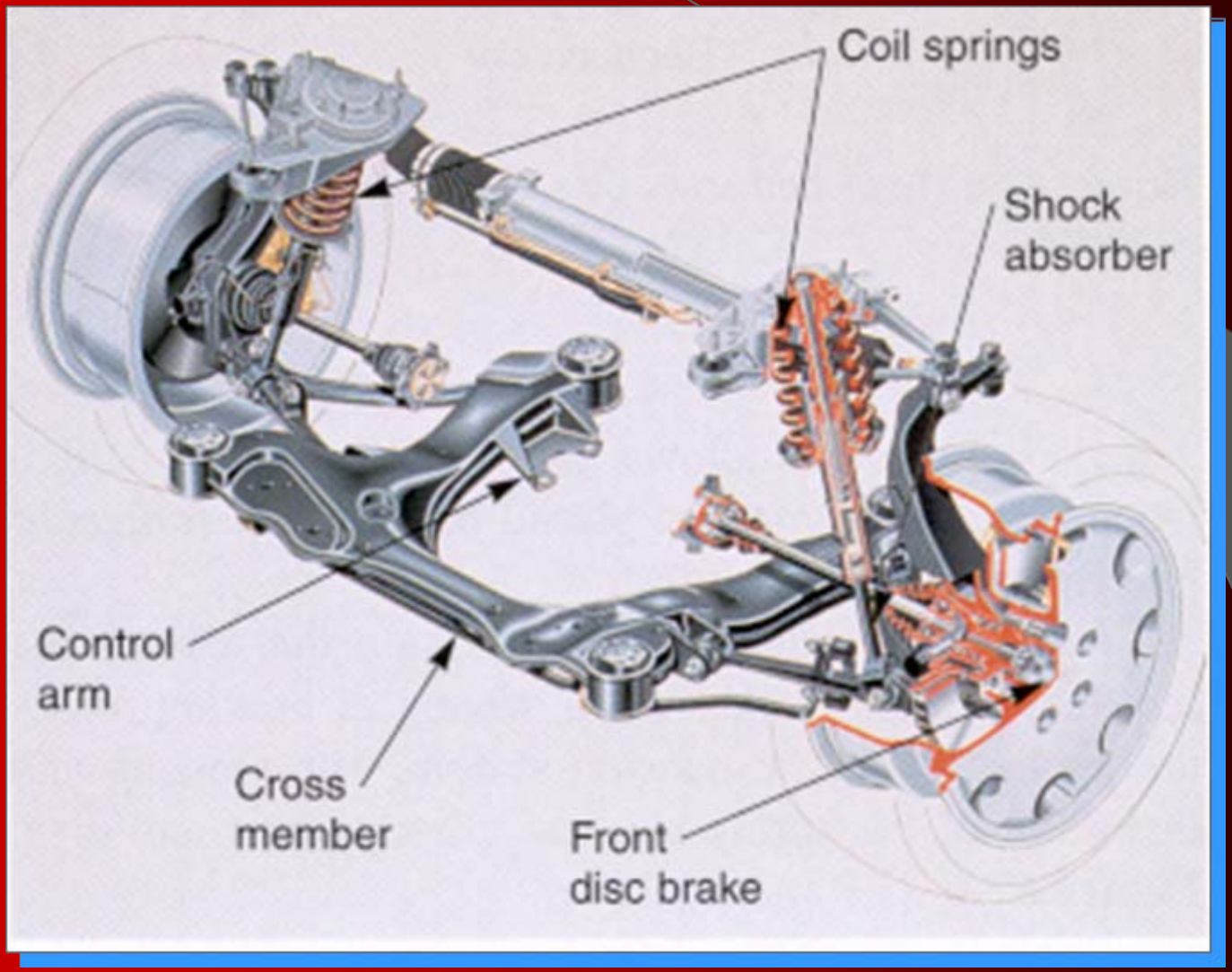
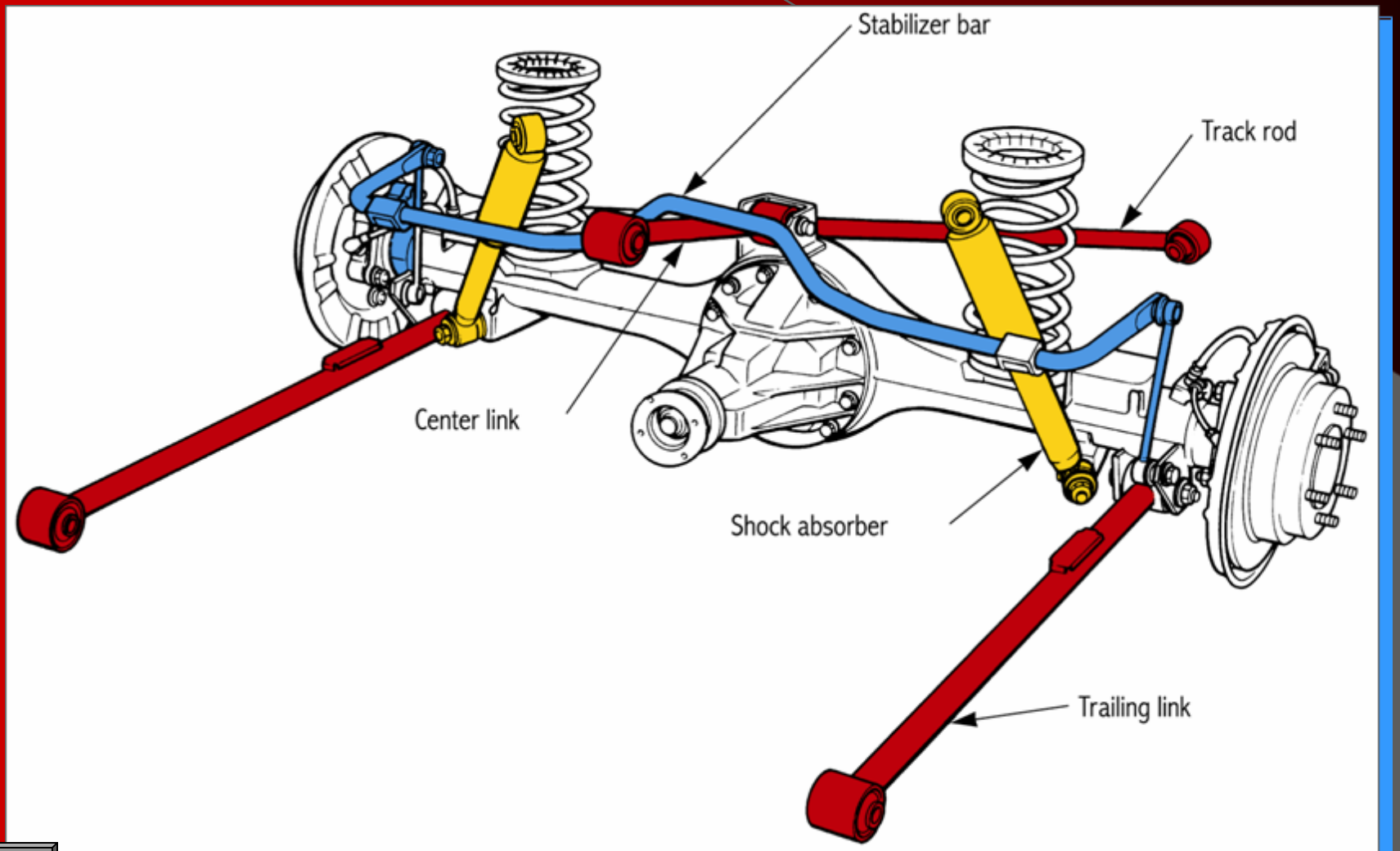
Front Suspension



Rear Suspension



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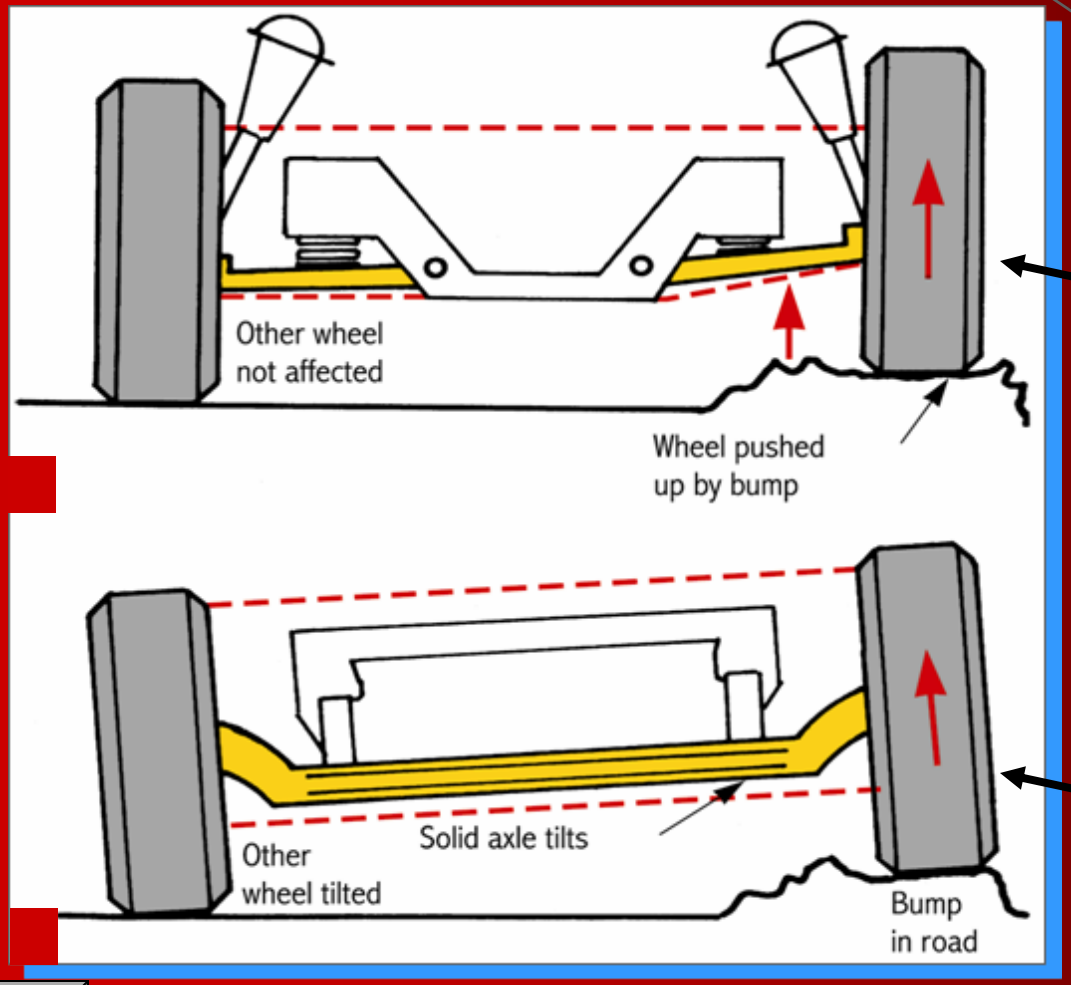
1. A DEAD AXLE is a solid rear axle on a front-wheel drive vehicle.

2. A CONTROL ARM is a moveable lever that fastens the steering knuckle to the vehicles' body or frame.

Suspension Designs



Independent Suspension

"Dead Axle"

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3. The BALL JOINT is a swivel joint that allows the control arm and steering knuckle to move up or down and from side-to-side.

4. The SHOCK ABSORBER keeps the suspension from continuing to bounce up and down after spring compression and extension.

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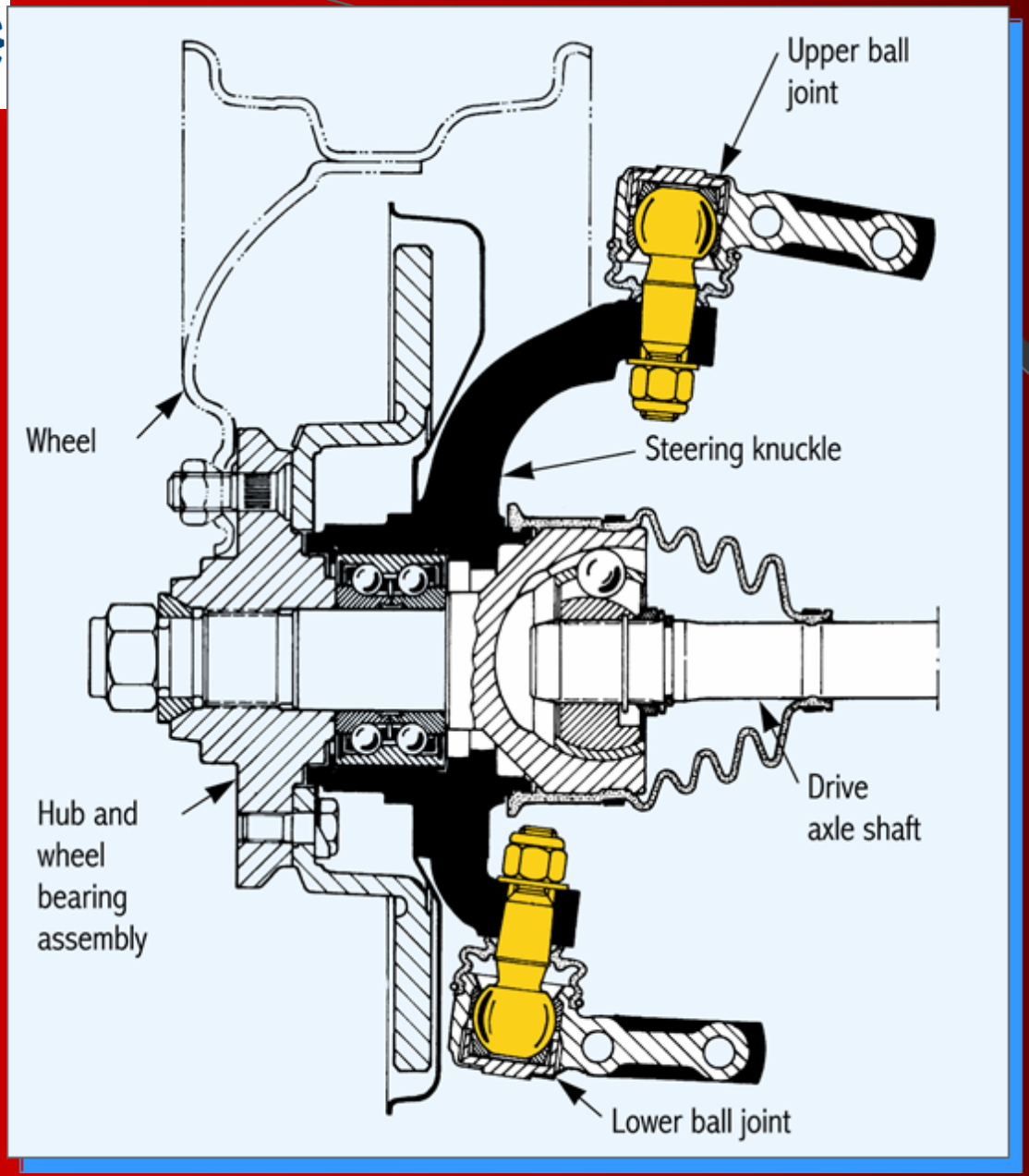
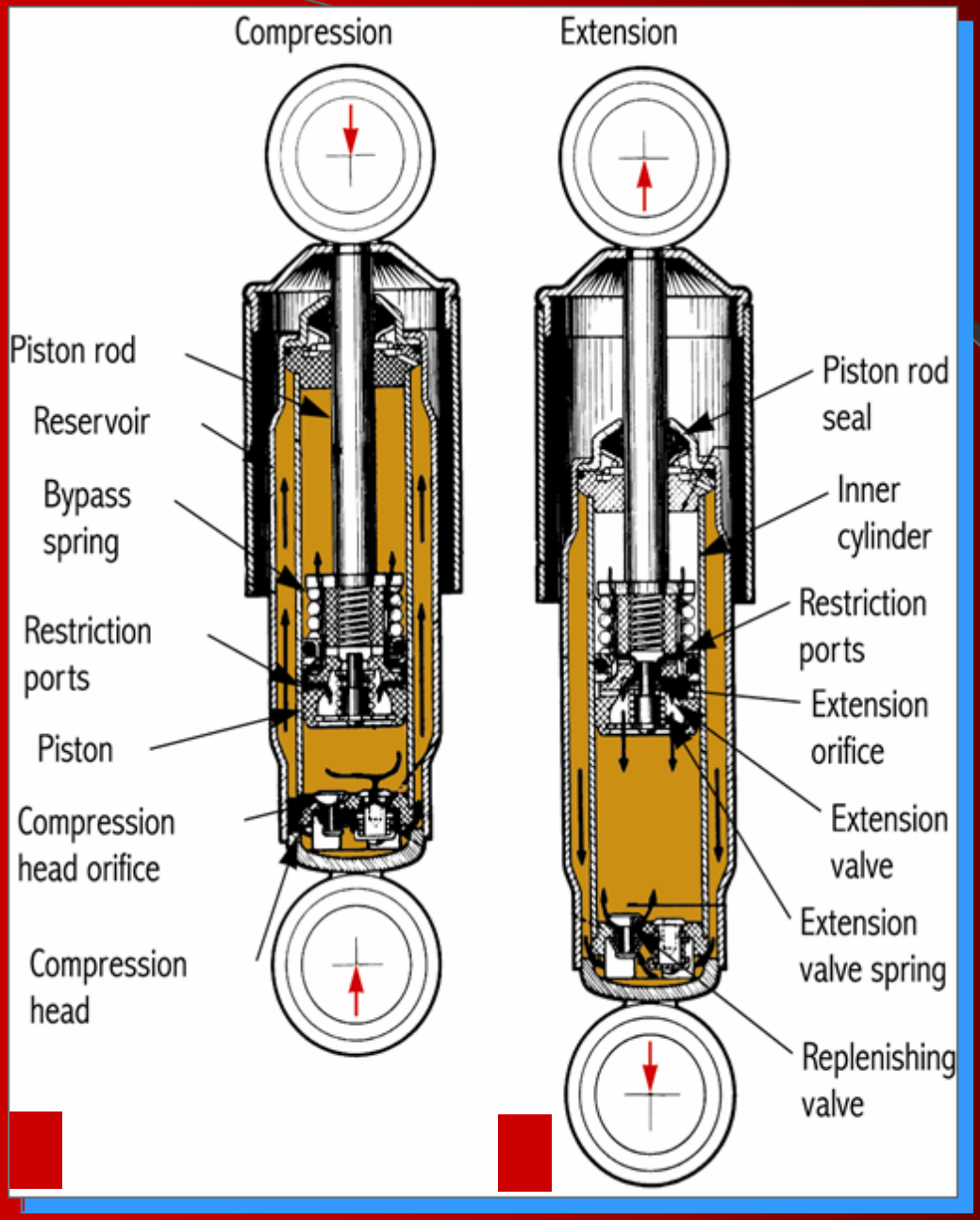
Ball Joints


Upper ball joint
Wheel
Steering knuckle
Drive axle shaft
Hub and wheel bearing assembly
Lower ball joint

Shock Absorbers



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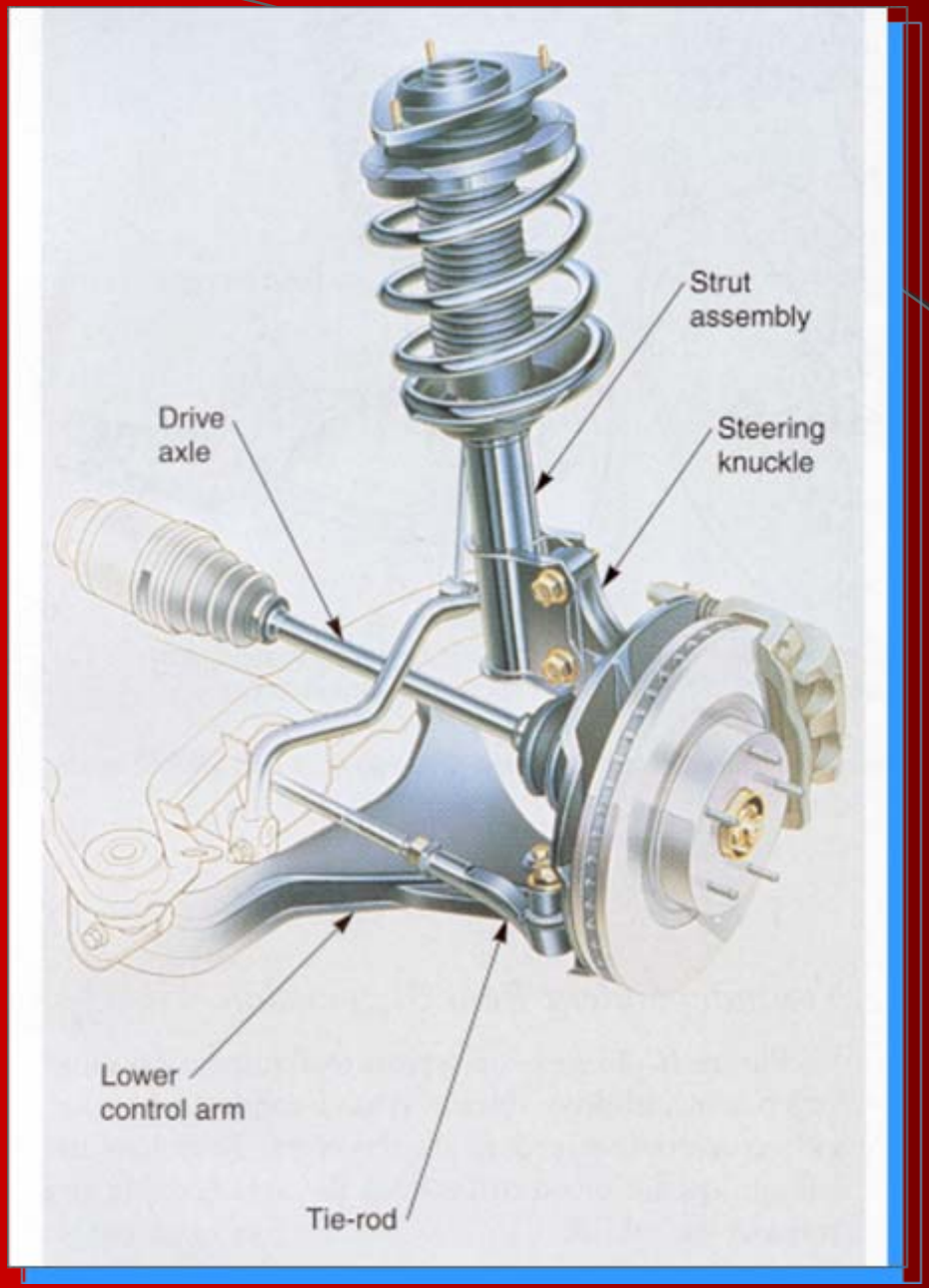
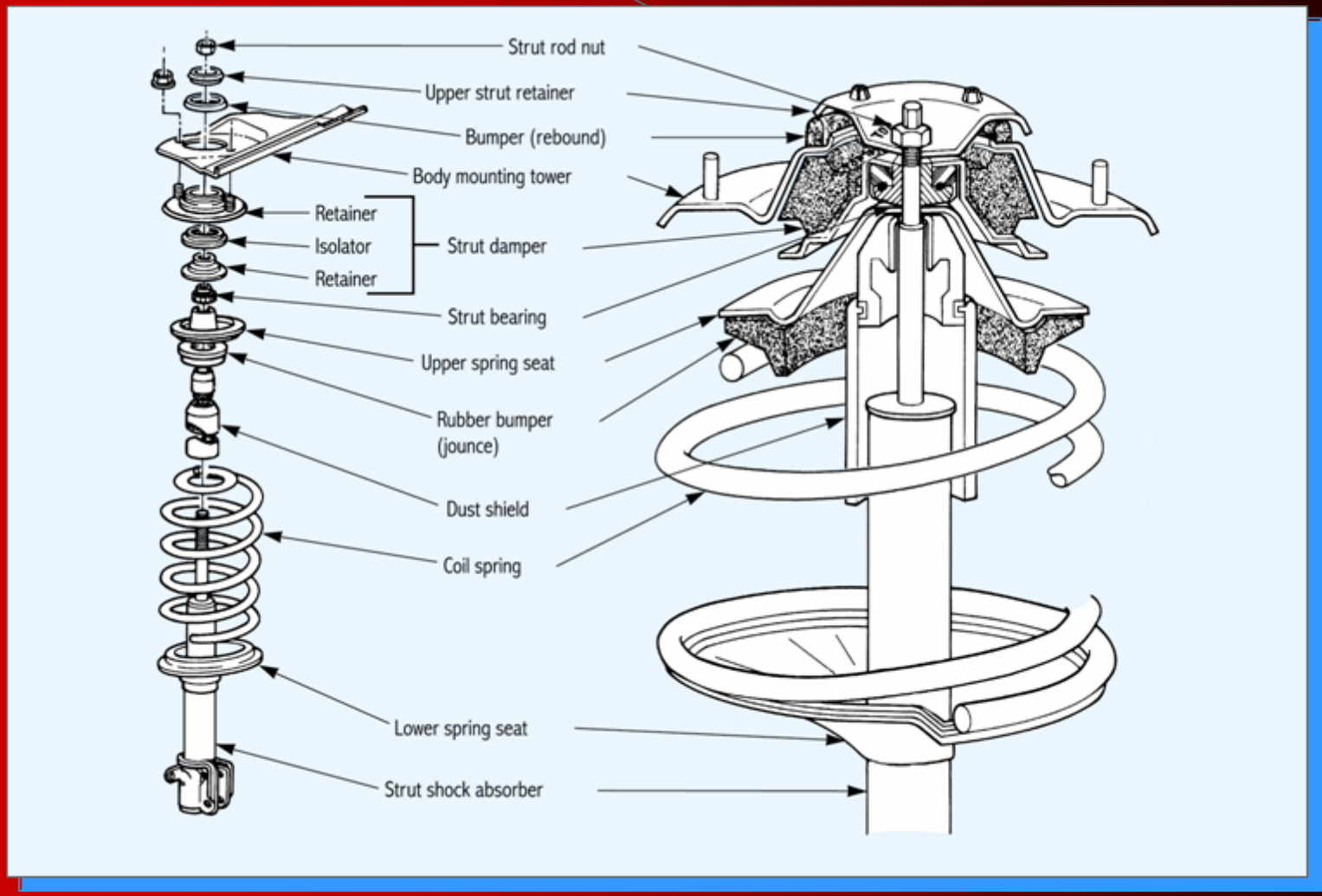
5. JOUNCE BUMPERS are hard blocks of rubber that keep the suspension parts from hitting the frame when the car hits large bumps or holes.

6. A MacPHERSON STRUT SUSPENSION only uses one control arm to support each wheel.

MacPherson Strut



MacPherson Strut



Parts of a MacPherson Strut Assembly

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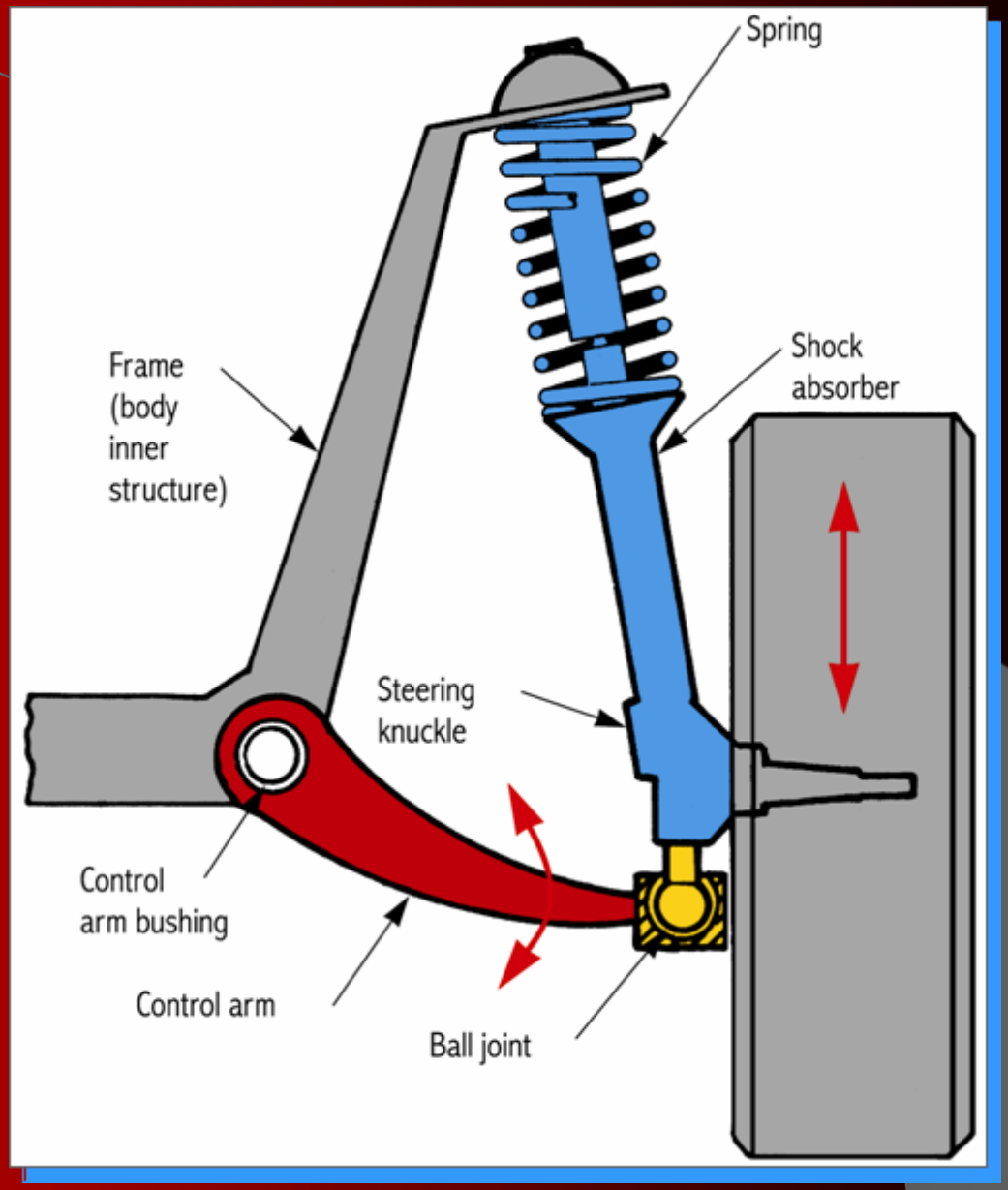
7. The SPRING(S) supports the weight of the vehicle, while allowing the vehicle to move up and down.

8. The STEERING KNUCKLE provides support for mounting wheel hubs, bearing and tire and wheel assemblies.

Control Arm & Steering Knuckle



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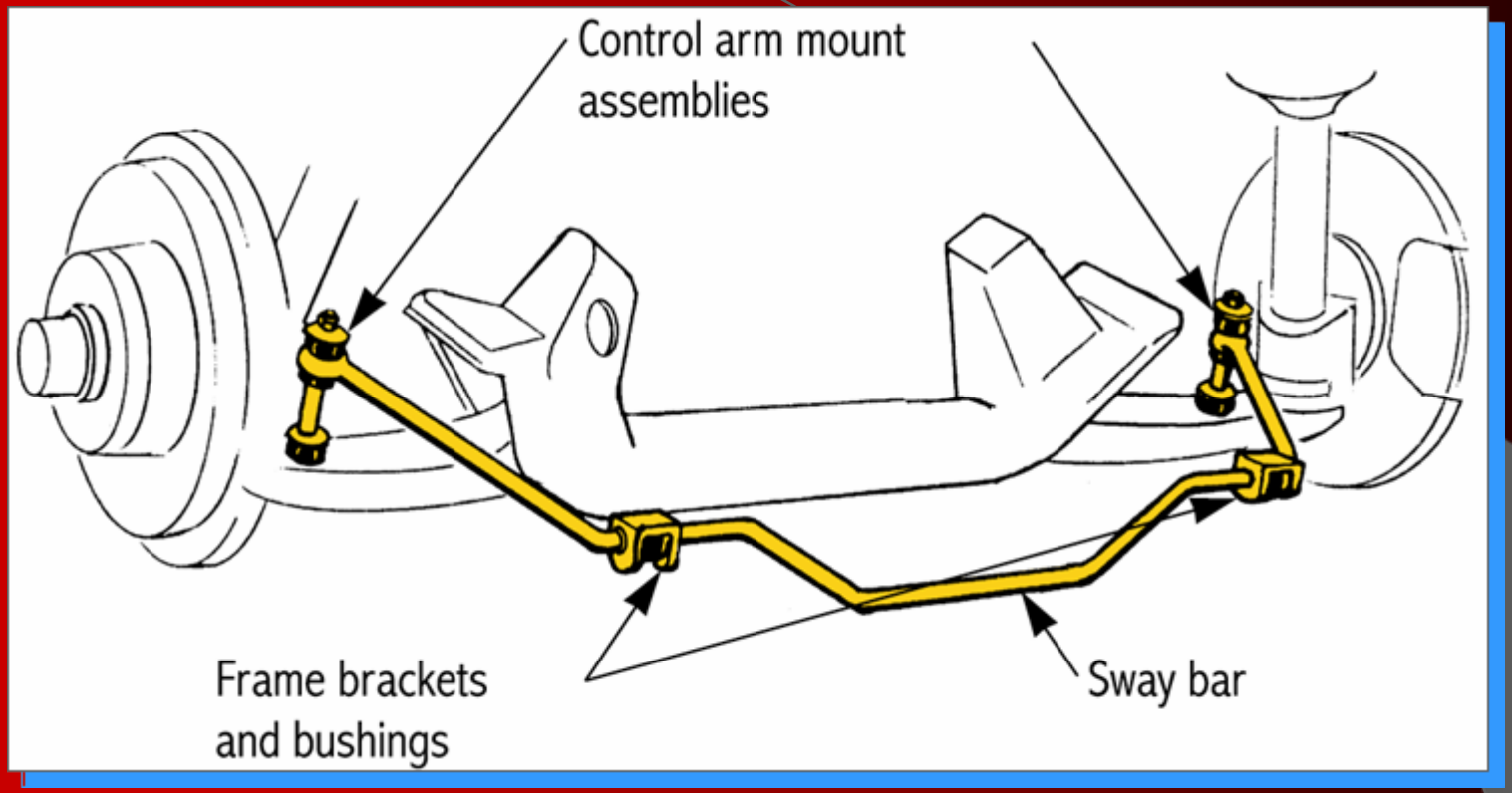
9. The SWAY ARM is used to keep the body from rolling or leaning excessively during sharp turns.

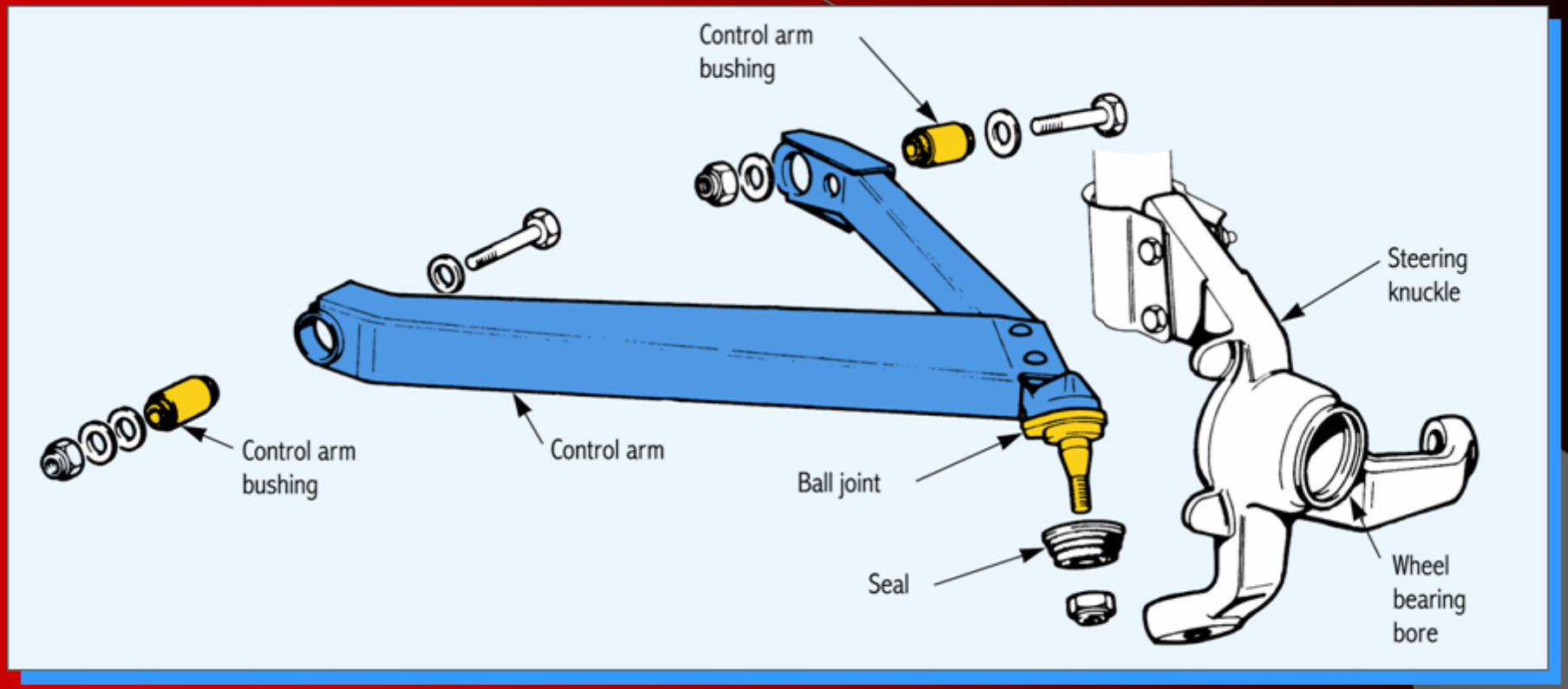
10. A CONTROL ARM BUSHING is a sleeve with a rubber or composite insert that allows the control arm to swing up and down on the frame

Sway Bar



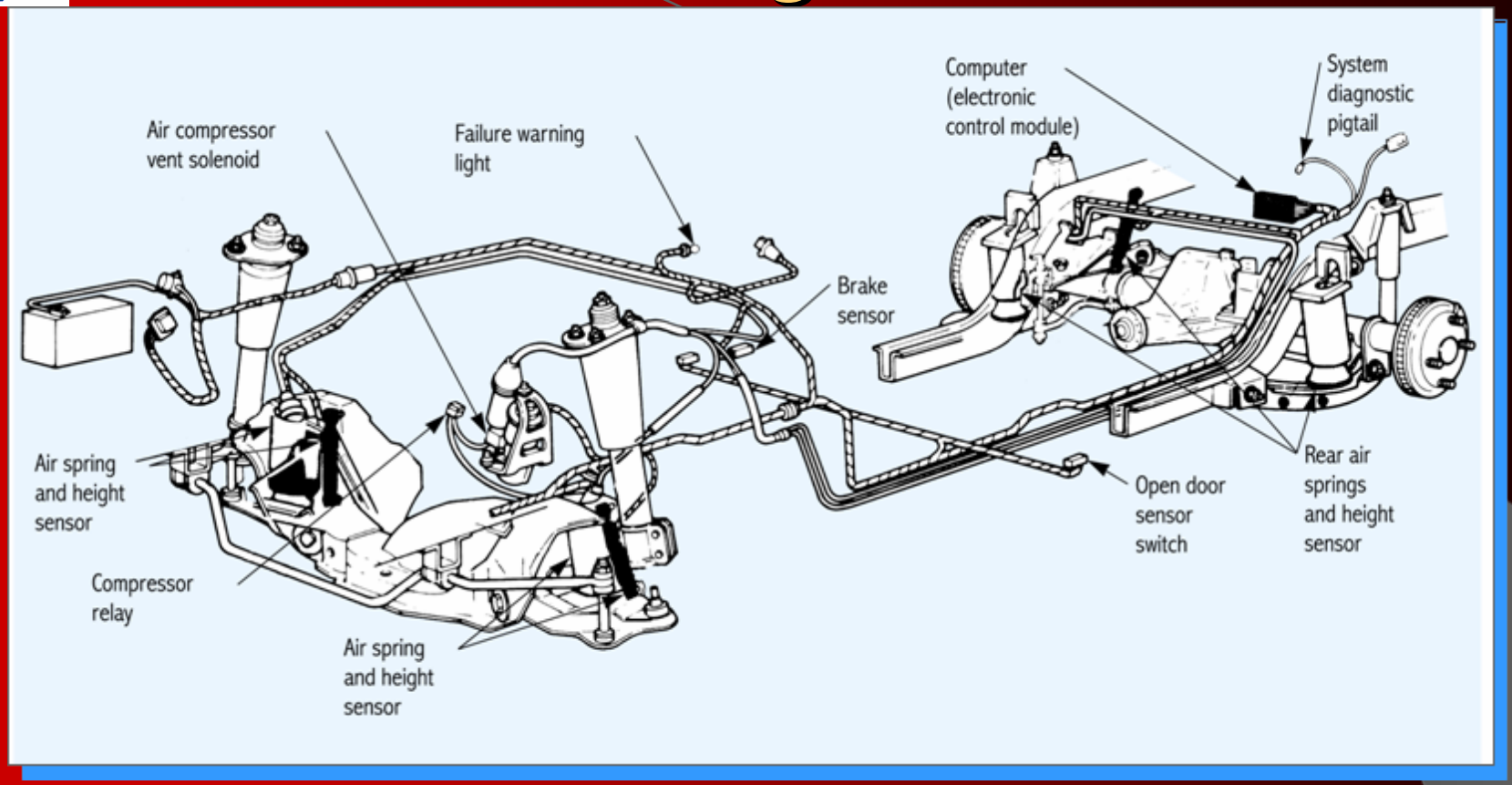
The sway bar links connect the Sway bar to the control arms

Control Arm



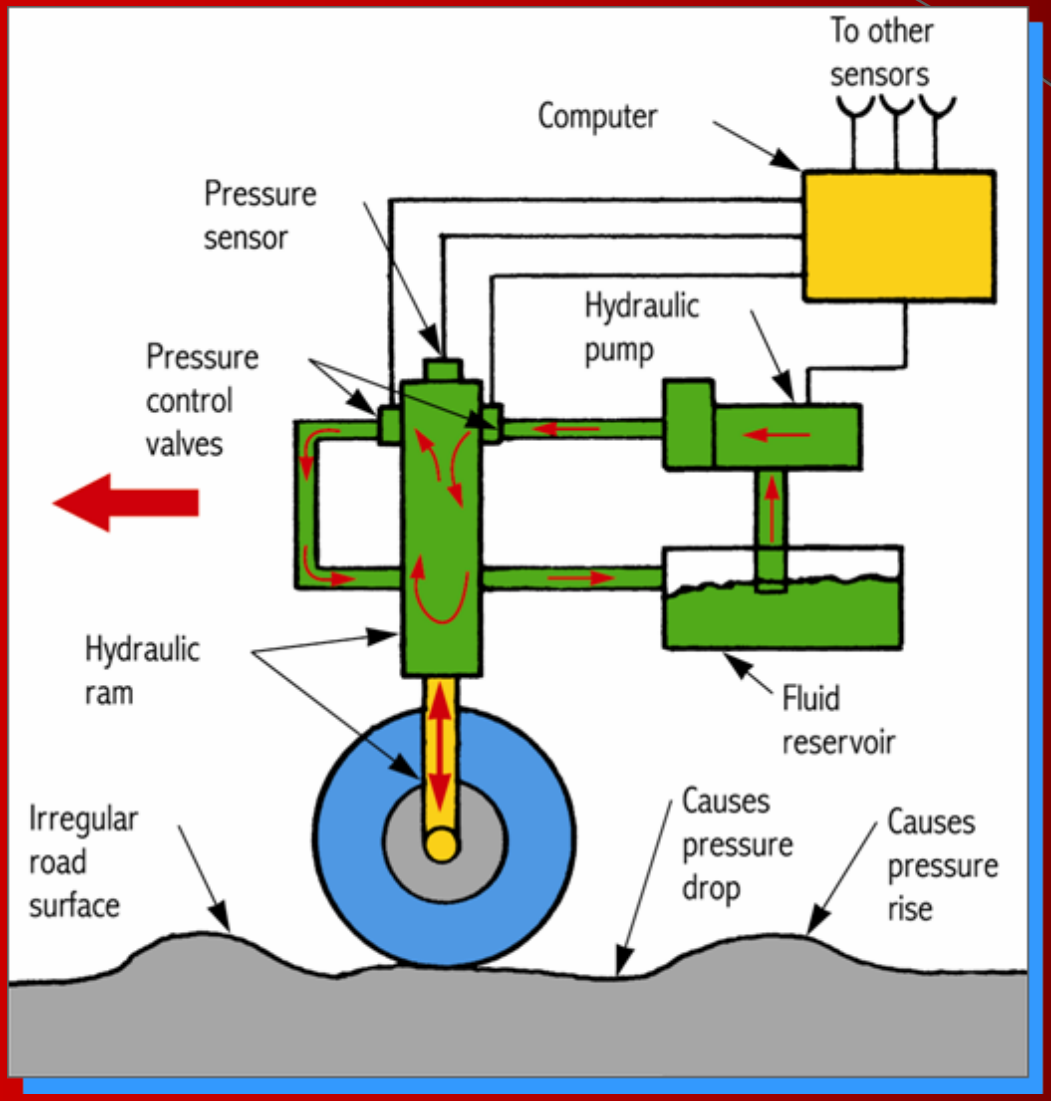
The separate parts that make up the control arm assembly.

Electric Height Control



An Electric Height Control system uses height sensors and an electronic control module to control the operation of a small electric air compressor, which maintains the correct ride height

Active Control Suspension



An Active Suspension System uses a hydraulic pump provides pressure to operate the rams

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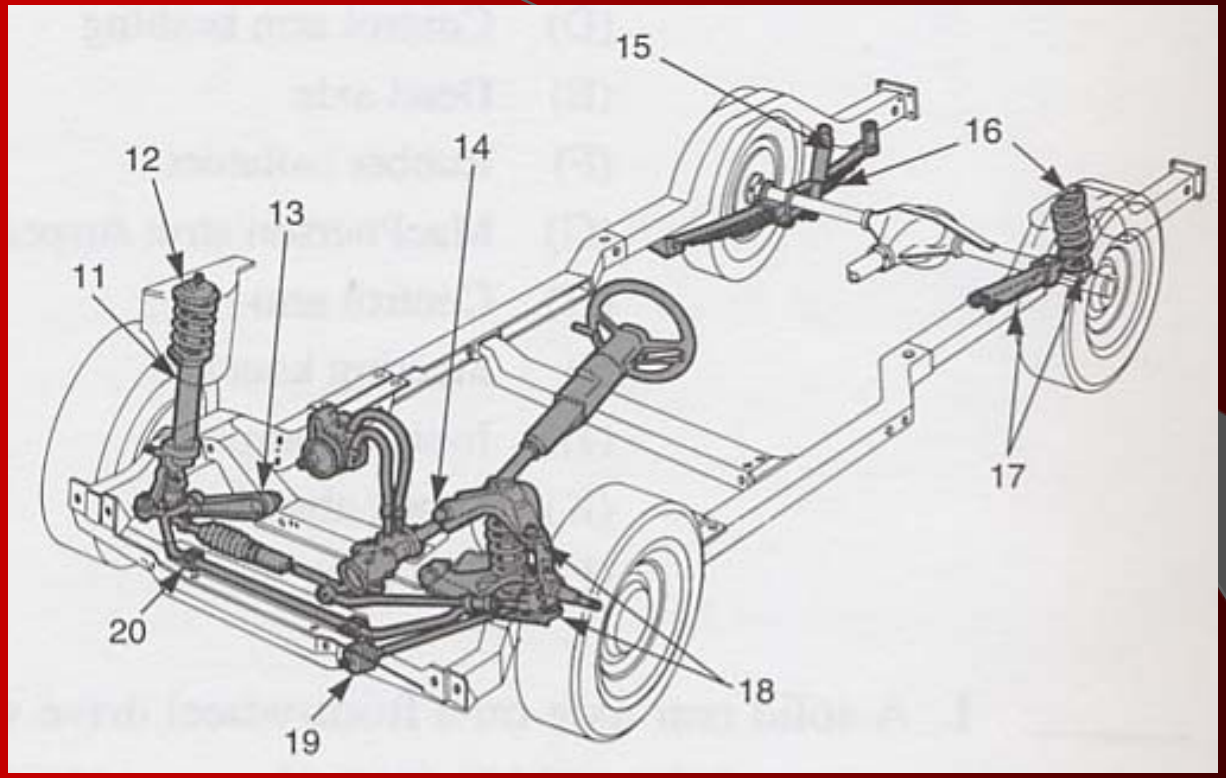

11. Bad strut shock 12. Worn upper strut mount 13. Bad control arm bushings 14. Worn upper control arm bushings 15. Bad shock absorber 16. Weak springs 17. Worn rear control arm bushings 18. Bad ball joints 19. Strut rod bushings worn 20. Sway arm bushings loose

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