



# Suspension and Steering Technical Terms

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## Technical Terminology

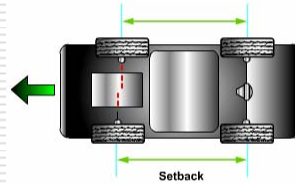
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|-------------------------------------------|----------------------------------------------|
| <input type="checkbox"/> Set back         | <input type="checkbox"/> Side-to-Side Lean   |
| <input type="checkbox"/> Jounce           | <input type="checkbox"/> Weight distribution |
| <input type="checkbox"/> Rebound          | <input type="checkbox"/> Center of Gravity   |
| <input type="checkbox"/> Sprung weight    | <input type="checkbox"/> Body Roll & Pitch   |
| <input type="checkbox"/> Un-sprung weight |                                              |
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## Setback

- ❑ The difference in side to side wheel base.
- ❑ May be characteristic of a specific model.
- ❑ If out of specifications the vehicle may have frame or sub-frame damage.

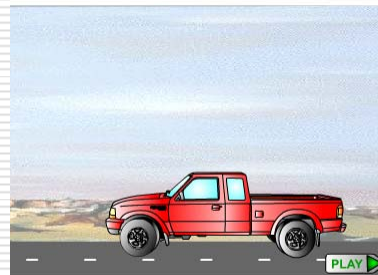


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## Jounce

- ❑ The compression of the suspension.
- ❑ This is only the upward movement of the suspension and tire components

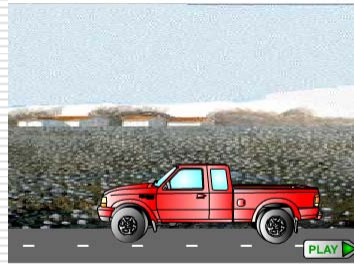


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## Rebound

- The decompression of the suspension
- This only the downward movement of the suspension/tire assembly

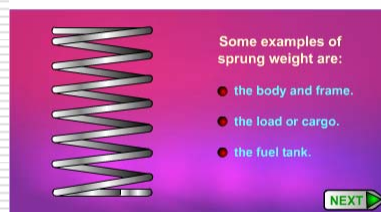


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## Sprung/Un-sprung Weight

- Sprung weight:
  - The weight of the vehicle carried by the suspension springs.
  - Components:
    - Driver/passenger
    - Load/cargo
    - Fuel
- Un-sprung weight:
  - The not carried by the suspension springs
  - Components
    - Wheel/tires
    - Bearings/hubs
    - Axles knuckles

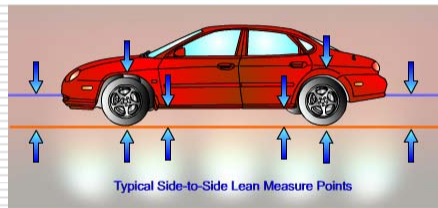


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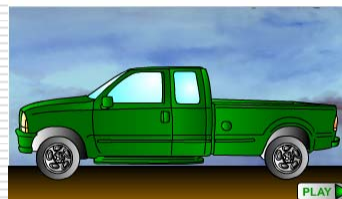
## Side to Side Lean

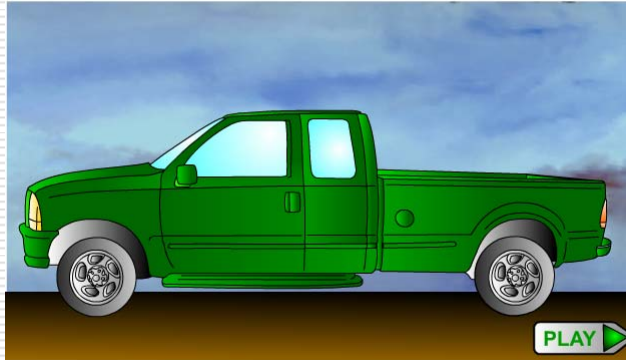
- ❑ Difference in the height of the body from driver's side to passenger's side.
- ❑ May be suspension, frame, or body related.
- ❑ Any symmetric points on the car can be used for measurement.



## Weight Distribution

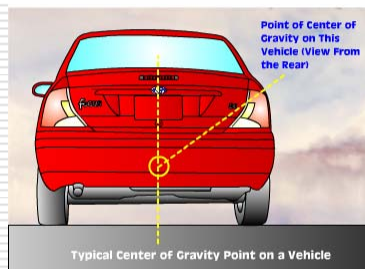
- ❑ The placement of the load on the vehicle.
- ❑ Very important for ride quality and directional control.
- ❑ What would be change if the rear of the truck caused the front to elevate?





## Center of Gravity

- ☐ The point at which all vehicle weight is centered.
- ☐ Weight distribution greatly changes the CG
- ☐ A change in CG will affect:
  - Braking
  - Handling
  - Steering





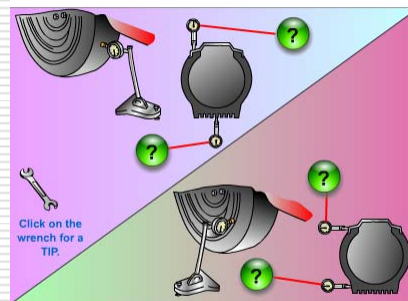
## Body Roll & Pitch

- Body Roll:
  - How much a vehicle leans to one side in a turn.
  - Controlled by Sway Bars
- Body Pitch:
  - The motion of a vehicle upon acceleration or deceleration.
  - Controlled by suspension. Softer suspensions will have more pitch movement.



## Tire Measurement

- Tire:
  - Radial performed along the center of the tread.
  - Lateral performed along the side of the tread.
- Wheel
  - Radial along the inside circumference of the tire seat
  - Lateral along the side of the tire seat
- If any wheel measurements are excessive the wheel must be replaced.
- What if all of the measurements are in spec and the vehicle still shakes???





## Tie Rod Measurements

- ☐ Have assistant turn steering wheel while you monitor for excessive ball to socket movement.
- ☐ Grasp the tie rods and move it around
- ☐ Is there another method???

