



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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DEPARTMENT OF AUTOMOBILE ENGINEERING

AUTOMOTIVE SAFETY & INFOTRONICS

UNIT 3 – SAFETY EQUIPMENTS AND COMFORT SYSTEM

TOPIC 5: TILTABLE STEERING WHEEL



PRESENTATION OUTLINE

- Steering System
- Need of Steering System
- Function of Steering System
- Layout of Steering System
- Turning the Car
- Steering Wheel
- Types of Steering Wheel
- Tilt Steering Wheel
- Working





STEERING SYSTEM



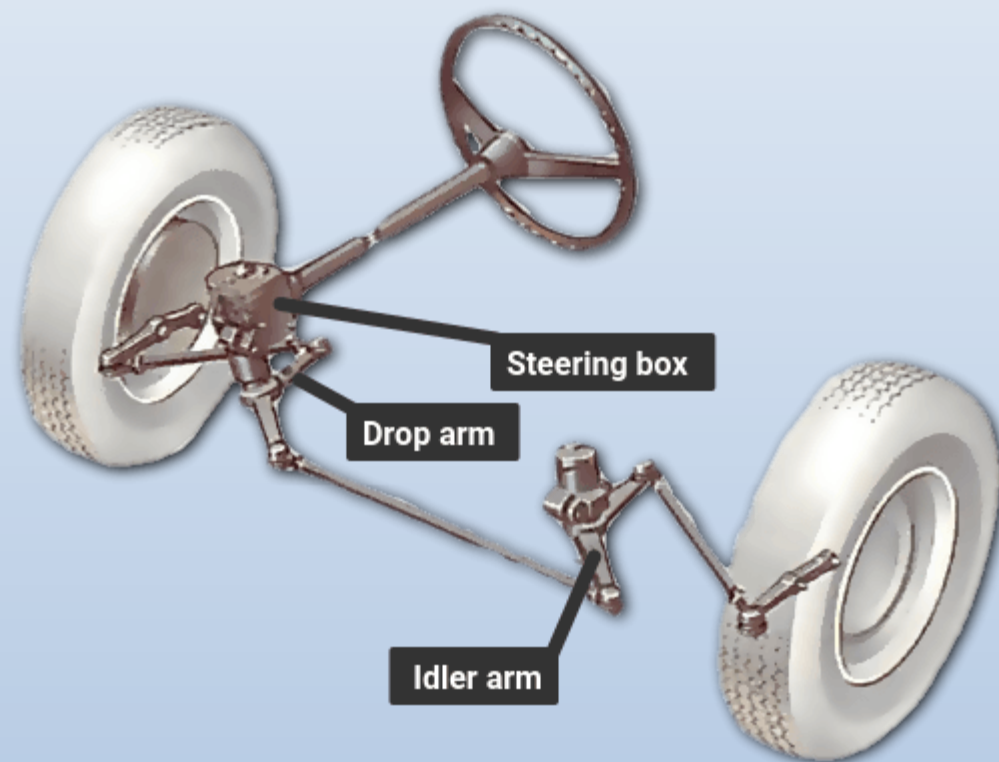
- Steering is the term applied to collection of components, linkages etc. which will allow a vehicle to follow desired direction
- An automobile is steered with the help of steering gears and linkages, which transfer the motion of the hand operated steering wheel to the pivoted front wheel hubs via steering column

Steer system:

1. Steer
2. Steering column
3. Pinion
4. Steer arm
5. Fuse



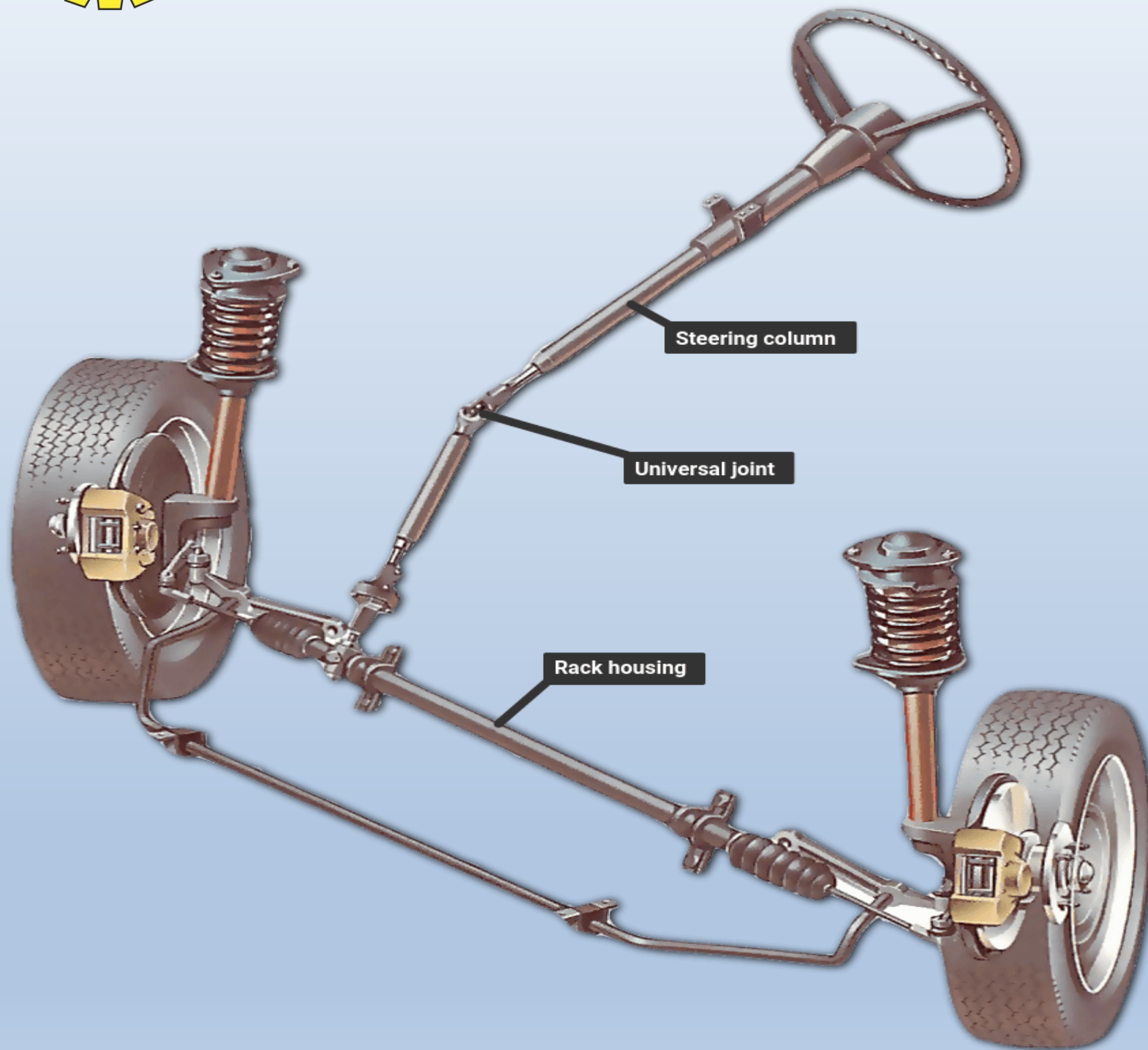
NEED OF STEERING SYSTEM



- It should multiply the turning effort applied by the driver to the steering wheel
- It should be certain extent to be irreversible
- The mechanism should have self rightening effort



FUNCTION OF STEERING SYSTEM

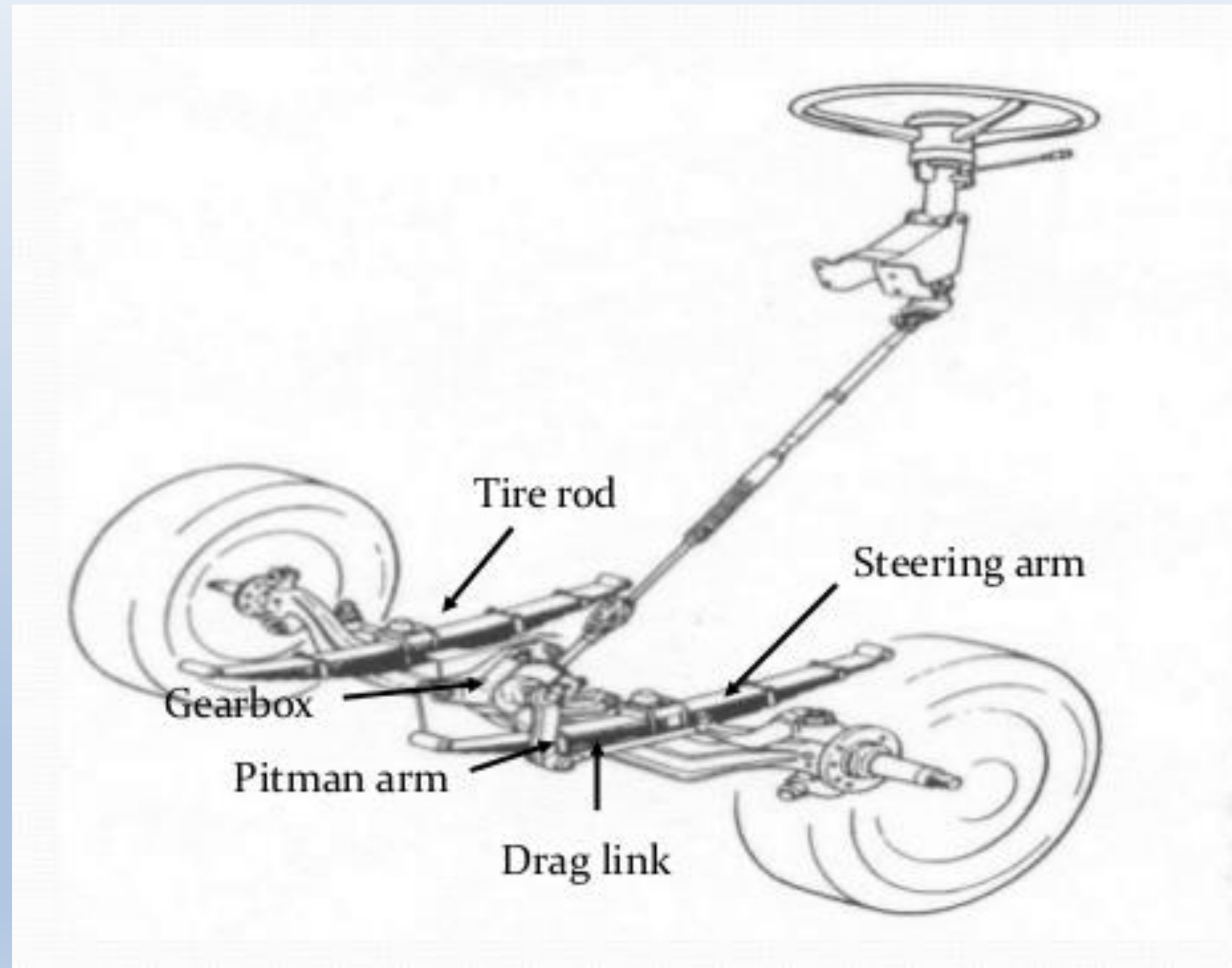


- Control of front wheel direction
- Transmit road feel to the driver's hand
- Maintain correct amount of effort needed to turn the wheel
- Absorb most of the shock going to the steering wheel as the tire hits the hole and bumps in the road
- Allow for suspension system



LAYOUT OF STEERING SYSTEM

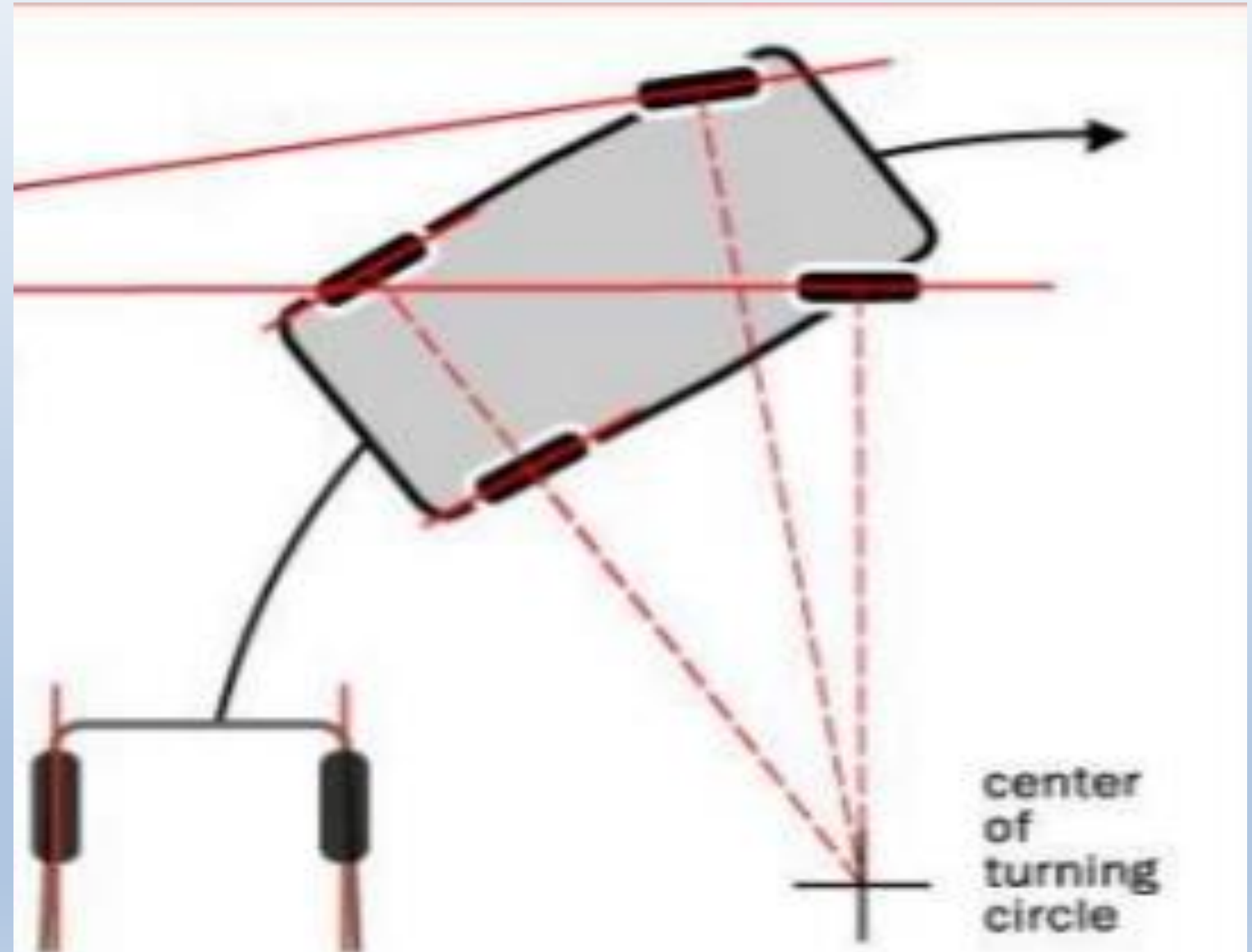
- Steering Wheel
- Steering Shaft
- Steering Gearbox
- Pitman Arm
- Drag Link
- Steering Knuckle Arm
- Tie Rod
- Track Rod Arm





TURNING THE CAR

- When turning, front wheels don't point the same direction
- Inside wheel turns at a smaller radius, hence the inside wheel turns at a steeper angle than the outside wheel





STEERING WHEEL



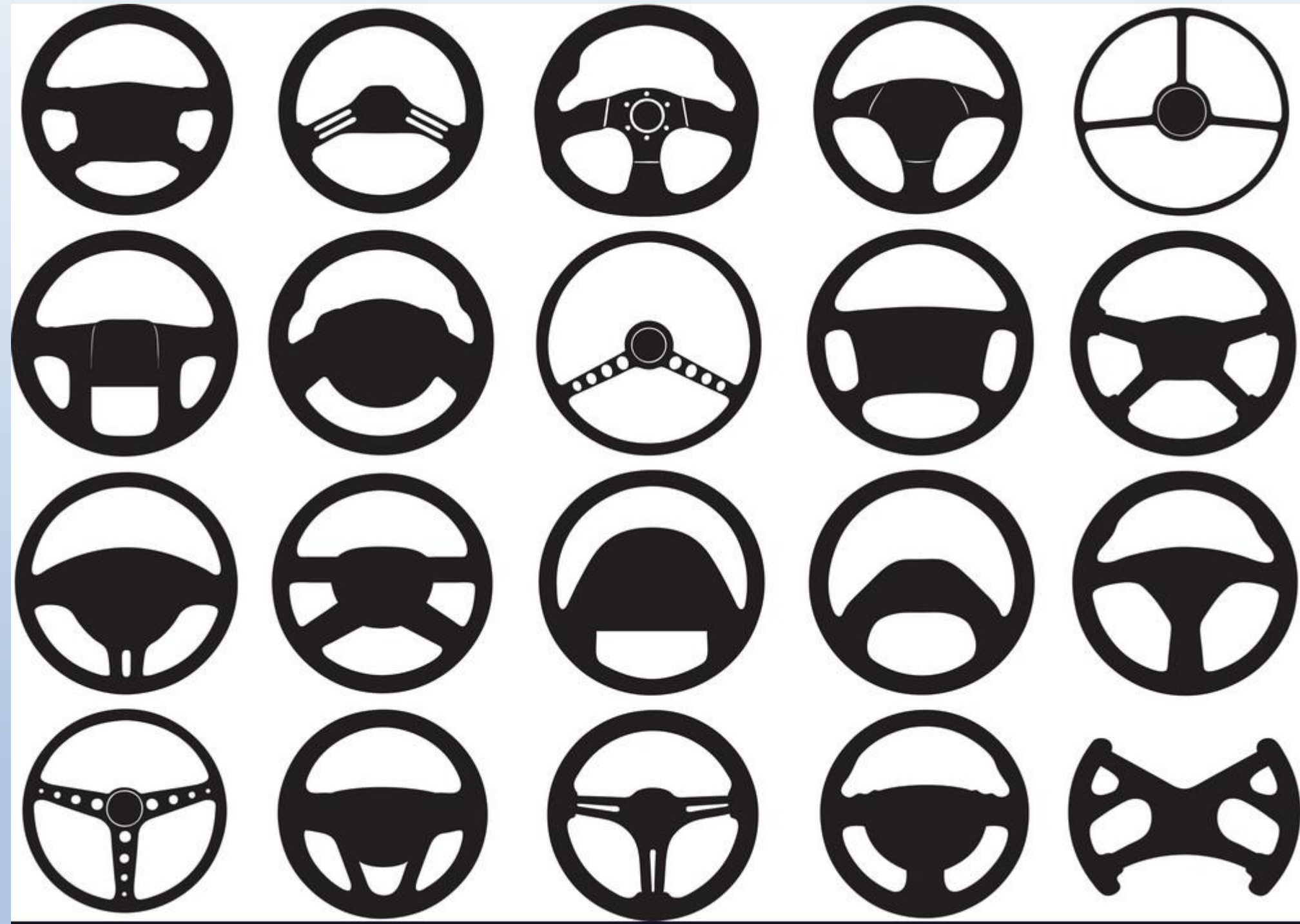
- If the steering wheel is connected directly to the steering linkage it would require a great effort to move the front wheels
- Used by the driver to rotate a steering shaft that passes through the steering column



TYPES OF STEERING WHEEL



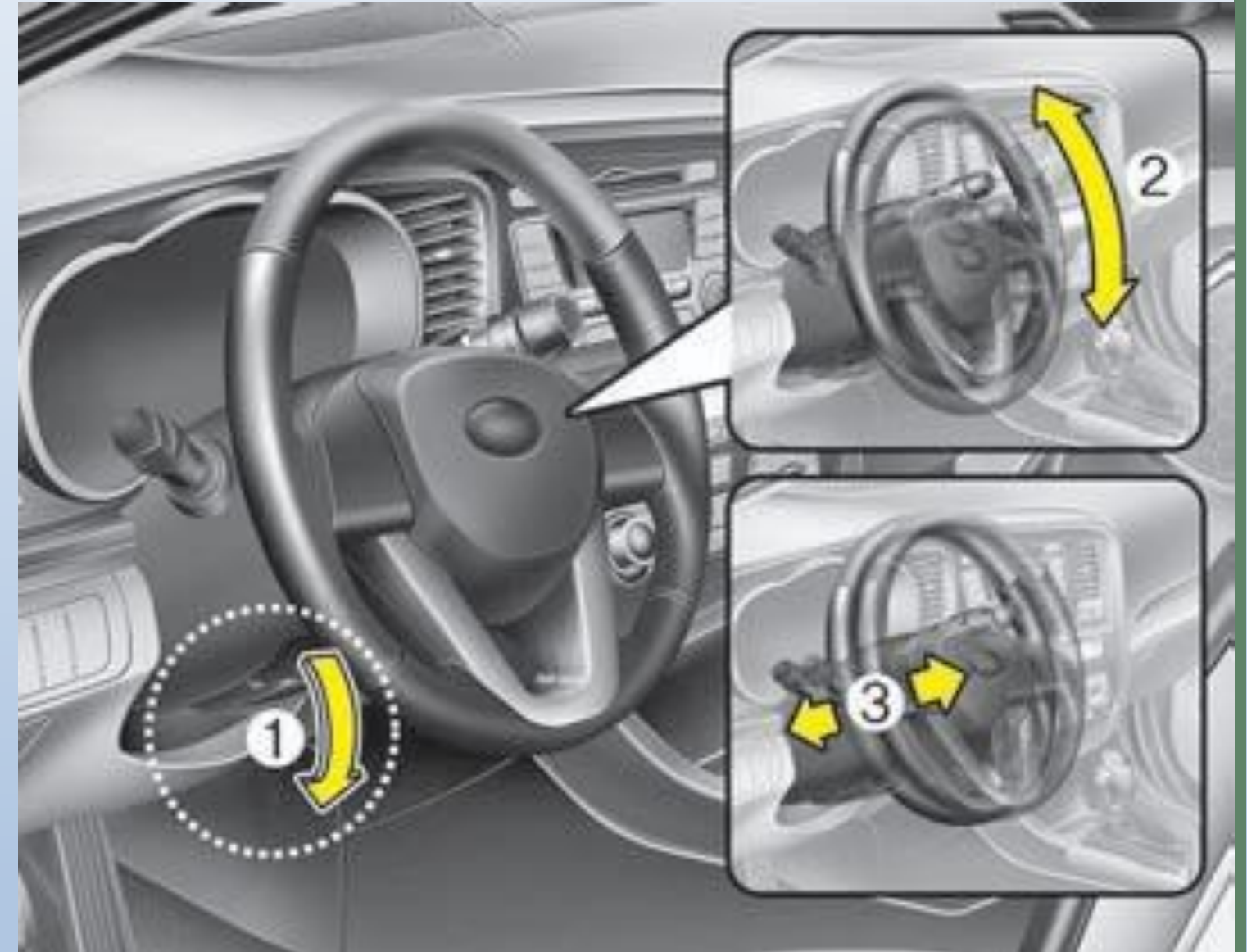
- Tilt Steering Wheels
- Telescope Steering Wheels
- Adjustable Steering Wheels
- Swing-Away Steering Wheels
- Recirculating Ball Steering Wheels
- Rack-and-Pinion Steering Wheels





TILT STEERING WHEELS

- Tilt steering wheels, first introduced by General Motors in 1963, are used most often in luxury vehicles
- They allow different people to operate the vehicle comfortably by making the position of the steering wheel adjustable
- Basically, tilt steering wheels connect to an arc that allows them to change positions by turning up and down
- The wheels' design allows the steering column to remain unaffected by the changes in the wheel's position

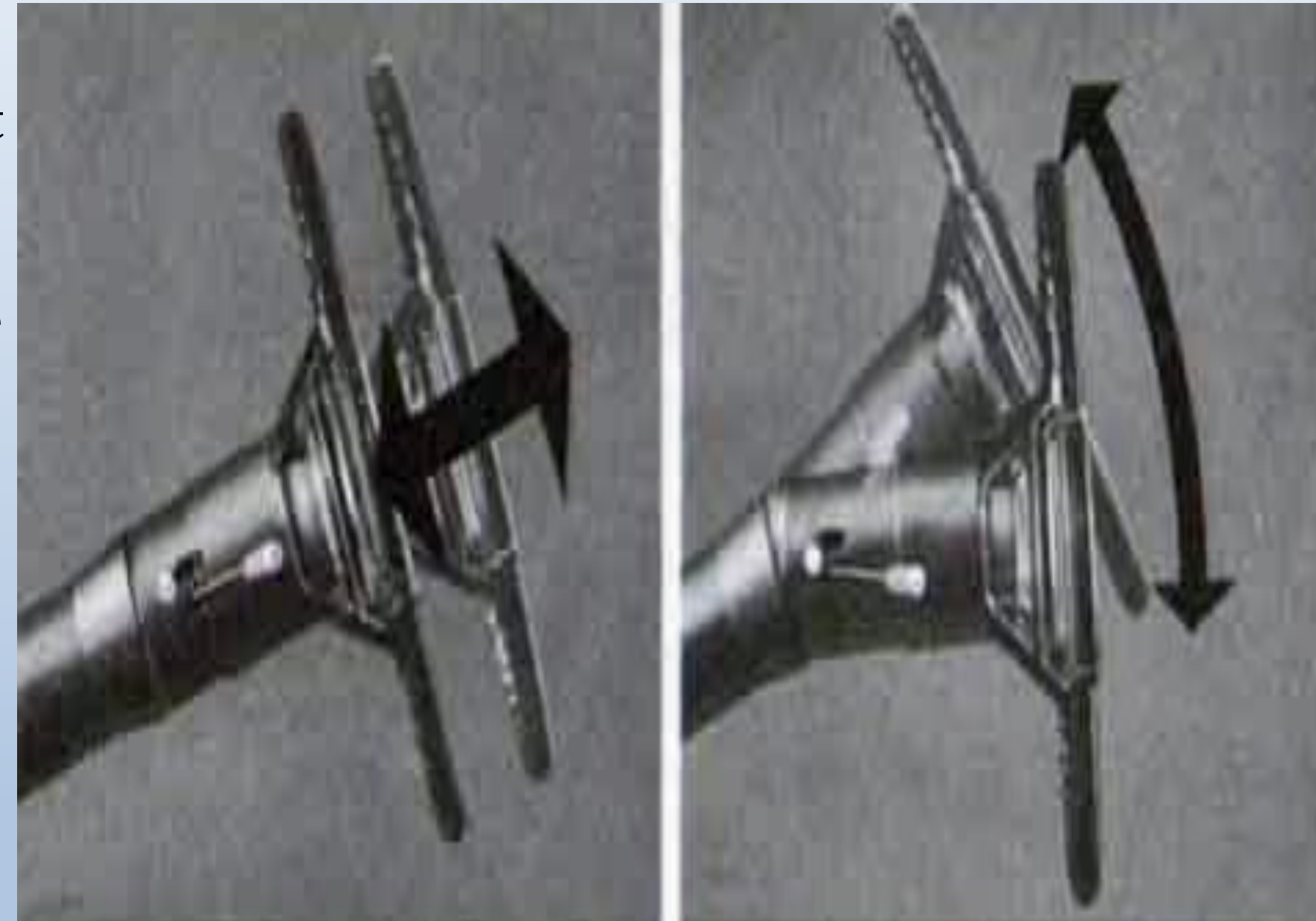




WORKING



- Most steering wheels have a lever on the column that allows you to tilt the steering wheel up or down
- This allows for people of different sizes to adjust the vertical orientation of the wheel





SUMMARY



- Collapsible Steering Column
- Functions
- Steering Lock
- Collapsible Column
- Working
- Regulatory Requirements



REFERENCES



- <https://www.howacarworks.com/basics/how-the-steering-system-works>
- <https://itstillruns.com/types-steering-wheels-7437447.html>

Thank you