



SNS COLLEGE OF TECHNOLOGY

**Coimbatore-35
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DEPARTMENT OF AUTOMOBILE ENGINEERING

AUTOMOTIVE SAFETY & INFOTRONICS

UNIT 3 – SAFETY EQUIPMENTS AND COMFORT SYSTEM

TOPIC 4: COLLAPSIBLE STEERING COLUMN



PRESENTATION OUTLINE

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





COLLAPSIBLE STEERING COLUMN



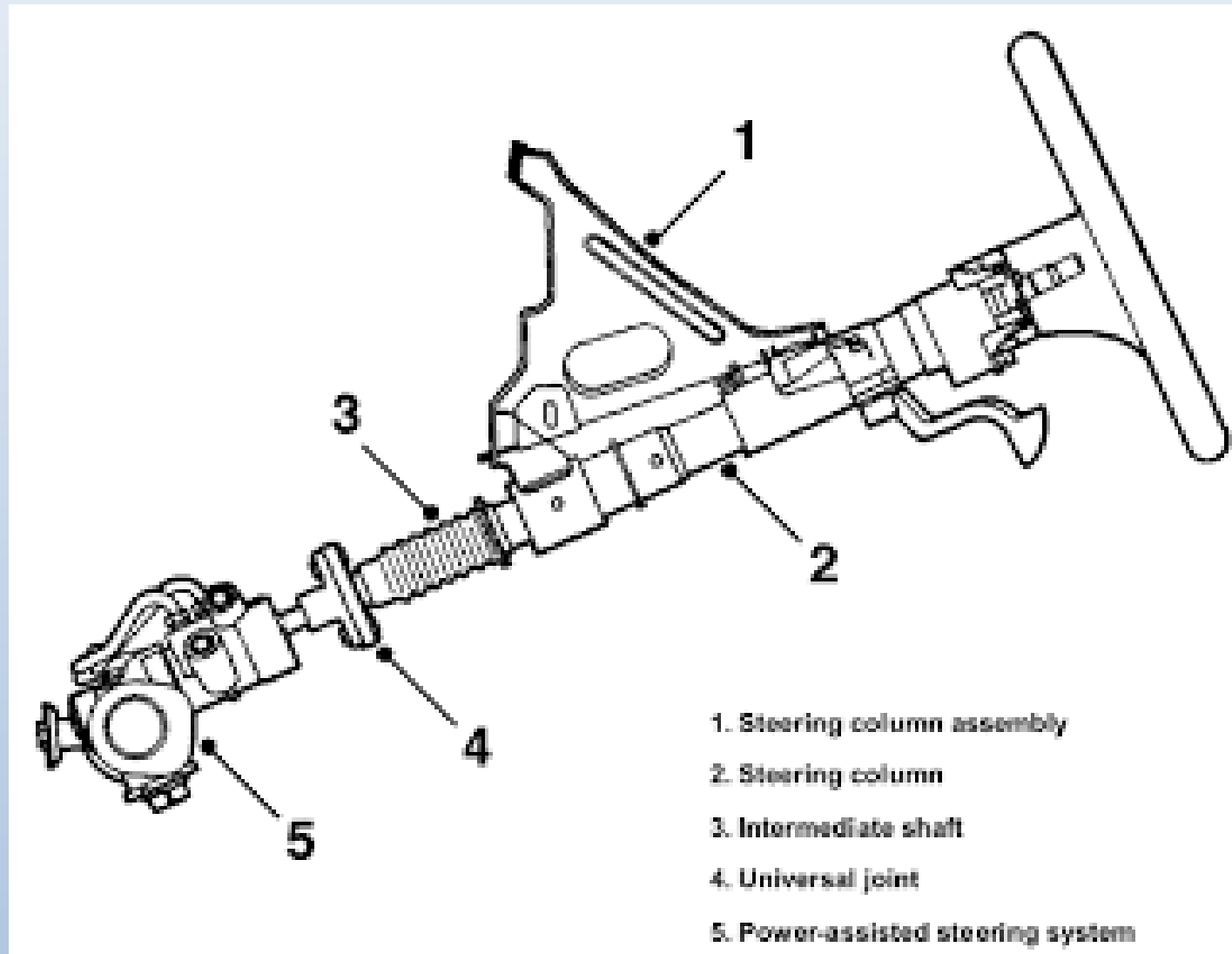
The automotive steering column is a device intended primarily for connecting the steering wheel to the steering mechanism by transferring the driver's input torque from the steering wheel

Steer system:

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



FUNCTIONS



- Energy dissipation management in the event of a frontal collision
- provide mounting for: the multi-function switch, column lock, column wiring, column shroud(s), transmission gear selector
- Offer (height and/or length) adjustment to suit driver preference



STEERING LOCK



- Modern vehicles are fitted with a steering lock which is an anti-theft device. It is fitted to the steering column usually below the steering wheel
- The lock is combined with the ignition switch and engaged and disengaged either by a mechanical ignition key or electronically from the vehicles electronic control unit
- These locks were introduced on many General Motor products in 1969 drastically reducing thefts of these GM models, and on Ford, Chrysler, and AMC products in 1970



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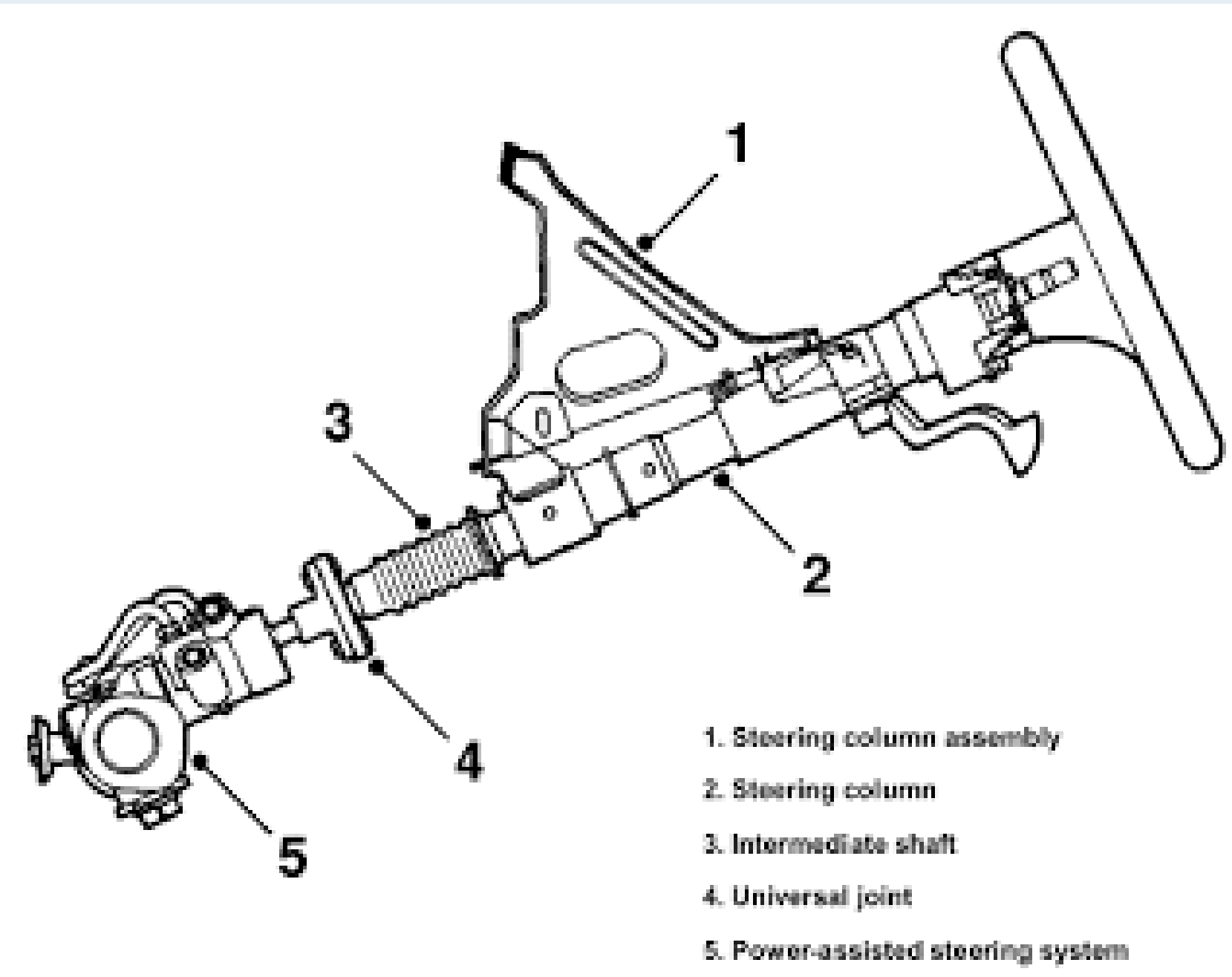


COLLAPSIBLE COLUMN





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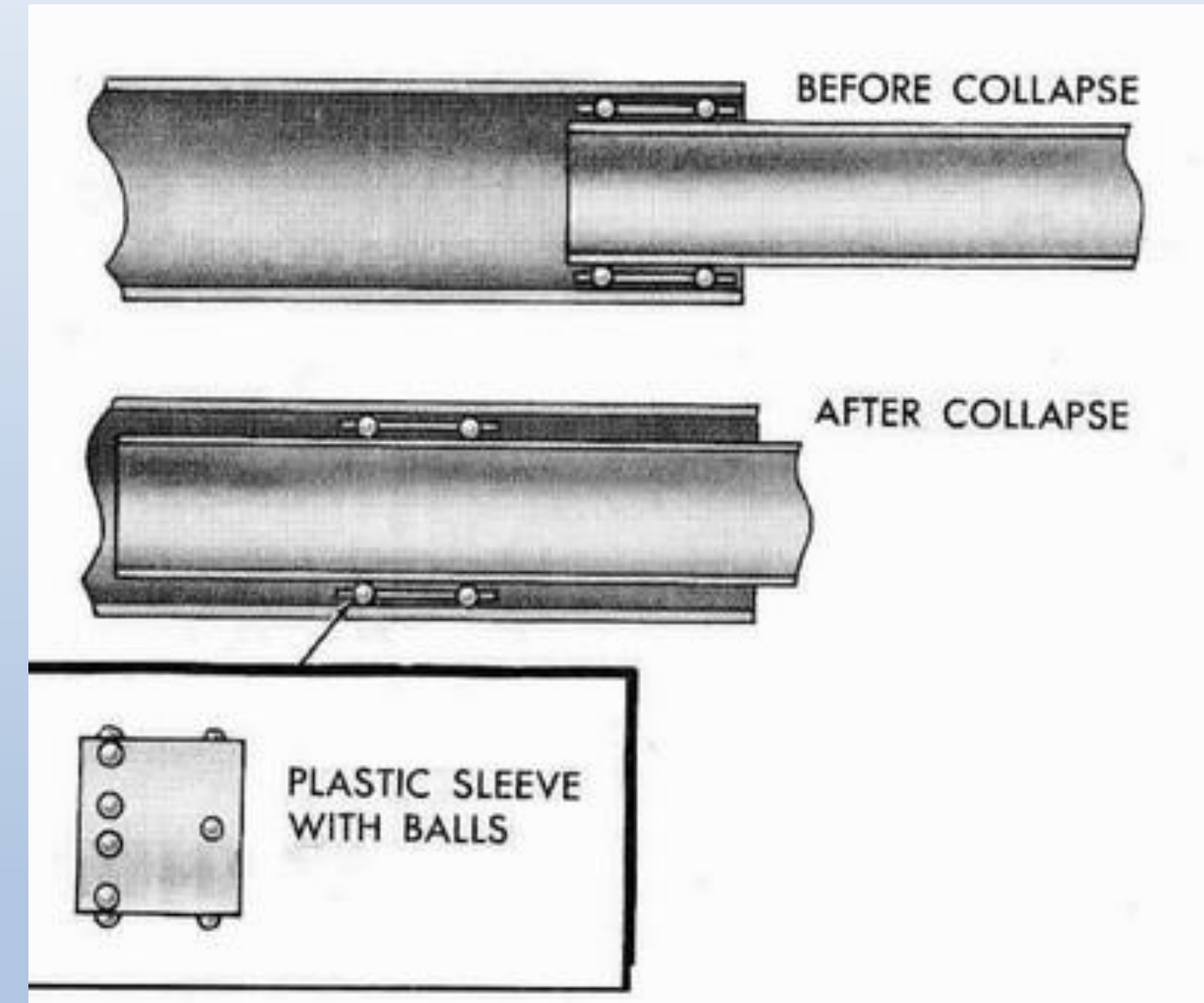
- At its most basic level, the design of the steering column has remained unchanged since its inception
- The column still consists of a long shaft connecting the steering wheel to the vehicle's gearbox.
- The 'collapsible' design introduced an 'inner' and 'outer' sleeve to the shaft, with a number of steel bearings pressed in between each sleeve
- A strong 'safety resin' is used to bond the bearings to the sleeves
- Once a specific level of pressure is exceeded, the special resin shatters, allowing the sleeves to compress telescopically



REGULATORY REQUIREMENTS



- Steering columns are governed by several federal regulatory requirements, notably FMVSS 108, 114 and 208
- The Chinese directive GB15740- 2006 obligates Chinese car manufacturers to incorporate anti-theft mechanisms in their vehicles
- European Union Commission Directive 95/56/EC (1995) mandates all cars exported to European markets must be fitted with anti-theft security devices





ASSESSMENT



- Differentiate Normal Steering Column with Collapsible steering column
- List the benefits of Collapsible Steering Column



ACTIVITY – CHARADES



- Select a student to stand at the front of the room and act out a word from your list (no speaking allowed)
- The rest of the class must then guess what the student is attempting to portray
- Other students can shout out their guesses or put their hands up – depending on your teaching preference!
- Whoever guesses correctly can act out the next word





SUMMARY



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



REFERENCES



- <https://sites.google.com/site/uavjw861/collapsible-steering-columns/how-does-a-collapsible-steering-column-work>
- https://en.wikipedia.org/wiki/Steering_column

Thank you