

# TEST YOUR AUTOMOTIVE TECHNICAL KNOWLEDGE

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This self-test can help you determine how much you really know about this subject. Questions are written in the ASE style format and are multiple choice.

The answer key is on the last page.

There are also links to related articles on the <https://www.AA1Car.com> website. Good luck!

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## STEERING & SUSPENSION SELF-TEST

1. How many ball joints are in a short-long arm (SLA) front suspension?
  - a. Two upper ball joints
  - b. Two lower ball joints
  - c. Two upper and two lower ball joints
  - d. No ball joints
  
2. How many ball joints are in a FWD MacPherson strut front suspension?
  - a. Two upper ball joints
  - b. Two lower ball joints
  - c. Two upper and two lower ball joints
  - d. No ball joints
  
3. Offset aftermarket ball joints can be used to do what?
  - a. Change camber on trucks that don't have factory adjustments
  - b. Change caster on trucks that don't have factory adjustments
  - c. Change camber and caster on trucks that do not have factory adjustments
  - d. Change ride height on trucks that don't have factory adjustments
  
4. Technician A says "low friction" ball joints with polymer bushings and polished ball studs are used in most late model vehicles to reduce friction and steering effort. Technician B says if the "wear indicator" on a ball joint is flush with the housing, it means the joint is new. Who is right?
  - a. Technician A only
  - b. Technician B only
  - c. Both Technician A and B
  - d. Neither Technician A nor B
  
5. Which of the following components should be replaced if a vehicle's ride height is below specifications?
  - a. Tie rod ends
  - b. Ball joints
  - c. Control arm bushings
  - d. Springs

6. Which of the following will typically cause the MOST tire wear if worn?
- Worn Tie rod ends
  - Worn Ball joints
  - Worn Control arm bushings
  - Worn Shocks absorbers or struts
7. An "idler arm" is used in what type of steering system?
- Power steering only
  - Manual steering only
  - Rack & pinion only
  - Parallelogram/recirculating ball only
8. Technician A says gas charged shocks contain high pressure gas to help support the weight of the vehicle.  
Technician B says gas charging helps struts resist fading on rough roads for better ride control.  
Who is right?
- Technician A only
  - Technician B only
  - Both Technician A and B
  - Neither one
9. What type of fluid should be used in the power steering system?
- Universal power steering fluid
  - Automatic transmission fluid
  - Special OEM power steering fluid
  - It depends on the vehicle application
10. A leaky power steering hose can cause what?
- Loss of power steering fluid
  - Loss of power steering assist
  - Damage to the pump or steering rack or gear
  - Any of the above
11. Air in a Power Steering pump can cause what?
- Noise
  - Reduced steering effort
  - Premature pump failure
  - All of the above
12. Technician A says cycling the steering wheel back and forth is necessary to purge air from the power steering fluid after a pump, hose or rack has been replaced.  
Technician B says a Variable Assist Power Steering system typically increases power assist at higher speeds for better stability.  
Who is right?
- Technician A only
  - Technician B only
  - Both Technician A and B
  - Neither Technician A nor B

13. Which of the following is NOT a component in an Electronic Power Steering system?
- Steering angle sensor
  - Electric motor
  - Control Module
  - Variable assist control solenoid

14. Where is the Steering Angle Sensor typically located?
- On the steering rack
  - On the steering tie rod linkage
  - Behind the steering wheel
  - At the base of the steering column

15. Which of the following can cause poor steering return after turning?
- Bad Steering Angle Sensor
  - Worn tie rod ends
  - Worn upper strut mounts
  - Bad power steering pump

16. Worn or overly compliant control arm bushings can cause what?
- Camber wear on the front tires
  - Camber wear on the rear tires (with independent rear suspension)
  - Toe wear on front or rear tires (with independent rear suspension)
  - ANY of the above

17. Technician A says if the ball joint on a “Unitized” control arm is worn out, you usually have to replace the entire control arm.

Technician B says worn ball joints should usually be replaced in pairs or sets (both uppers, both lowers, or all four depending on the application).

Who is right?

- Technician A only
  - Technician B only
  - Both Technician A and B
  - Neither Technician A nor B
18. If the steering wheel has play or feels loose, ANY of the following might be the cause EXCEPT:
- Worn tie rod ends
  - Worn power steering pump
  - Worn steering column coupling
  - Worn or loose steering rack mounts

19. Which of the following would NOT cause a vehicle with an electronic air suspension to go flat or collapse?
- Bad Air Compressor
  - Bad Ride height sensor
  - Leaky Air Spring or Strut
  - Leaky Air Hose

20. Technician A says the air compressor often burns out when there is an air leak in an electronic air suspension.

Technician B says electronic shocks will NOT change their dampening characteristics when a vehicle is accelerating or braking, but only when driving on rough roads.

Who is right?

- a. Technician A only
- b. Technician B only
- c. Both Technician A and B
- d. Neither Technician A nor B

21. A bent front strut may affect what?

- a. Camber alignment only
- b. Caster alignment only
- c. Camber and/or Caster alignment
- d. Toe alignment

22. Technician A says if a vehicle's ride height is below specifications, it needs new shocks.

Technician B says changes in ride height can change wheel alignment.

Who is right?

- a. Technician A only
- b. Technician B only
- c. Both Technician A and B
- d. Neither Technician A nor B

23. Which of the following can INCREASE a vehicle's load carrying capacity?

- a. Overload springs
- b. Air shocks
- c. Variable Rate springs
- d. ANY of the above

24. A BENT tie rod may affect what?

- a. Toe alignment
- b. Camber alignment
- c. Caster alignment
- d. ALL of the above

25. Power steering fluid in the end bellows of a power steering rack indicates what?

- a. Worn bellows
- b. Excessive power steering pressure
- c. Worn rack end seals
- d. worn rack input shaft seals

(Answer Key on Next Page)

## ANSWER KEY

1C, 2B, 3C, 4A, 5D, 6A, 7D, 8B, 9D, 10D, 11A, 12A, 13D, 14C, 15C, 16D, 17C, 18B, 19B, 20A, 21C, 22B, 23D, 24A, 25C

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## Steering & Suspension Articles on AA1Car.com:

[Electric Power Steering](#)

[Variable-Assist Power Steering Systems](#)

[Troubleshooting Rack & Pinion Steering](#)

[Power Steering Fluid](#)

[Rack & Pinion Steering Inner Tie Rod Sockets](#)

[Correcting Steering Pulls](#)

[How To Inspect Your Car's Suspension](#)

[Diagnosing Shocks & Struts](#)

[Strut Suspensions](#)

[Servicing Air Ride Suspensions](#)

[How Spring Sag Affects Chassis Ride Height](#)

[Ball Joints: Inspection & Replacement Tips](#)

[Diagnosing Tire Problems](#)

[Tire Wear \(What to look for, how to reduce it\)](#)