

ASE Suspension and Steering (T5) Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

- 1. What is the ideal camber angle for most vehicles?**
 - A. Zero degrees**
 - B. Positive 1 degree**
 - C. Negative 1 to negative 2 degrees**
 - D. It varies by vehicle design**
- 2. What does the toe-in specification indicate?**
 - A. The angle of the steering wheel**
 - B. The distance the front of wheels are closer together**
 - C. The rear axle position relative to front**
 - D. The suspension height adjustment**
- 3. What are tie rods used for in a vehicle's steering system?**
 - A. To control the angle of the wheels**
 - B. To connect the steering rack to the steering knuckles, allowing for wheel movement**
 - C. To stabilize the vehicle during acceleration**
 - D. To dampen vibrations in the steering wheel**
- 4. What could indicate a problem with a truck's power steering system?**
 - A. Excessive steering fluid leaks**
 - B. Frequent noise from the steering column**
 - C. Difficulty in maintaining a straight line**
 - D. All of the above**
- 5. What does a fifth wheel stop do?**
 - A. Prevents the trailer from disconnecting during transit**
 - B. Keeps the fifth wheel from sliding in the mounting bracket**
 - C. Secures the load within the trailer**
 - D. Facilitates easier maneuvering of the trailer**

- 6. What is the least likely cause of difficulty maintaining a straight line while driving?**
- A. Lack of lubrication in the steering gear**
 - B. Steering gear loose at the frame mounting**
 - C. Excessive air pressure in the tires**
 - D. Loose pitman arm at the steering gear**
- 7. What problem might be indicated by the steering wheel becoming difficult to turn?**
- A. High tire pressure**
 - B. Pitman arm being too tight**
 - C. Low lubricant in the steering system**
 - D. Camber misalignment**
- 8. What could be the cause of steering binding in a medium duty truck after U-joint replacement?**
- A. Incorrect U-joint phasing**
 - B. Improper steering geometry**
 - C. Worn steering components**
 - D. Improved turning radius**
- 9. When should all wheel studs be replaced?**
- A. Only when one is cracked**
 - B. When indicated by vehicle manufacturer**
 - C. Only during a full vehicle inspection**
 - D. When any stud is damaged**
- 10. How does a strut differ from a shock absorber?**
- A. A strut dampens motion, while a shock absorber provides structural support**
 - B. A strut includes a coil spring and provides structural support, while a shock absorber only dampens motion**
 - C. A strut is only for rear suspension, while shock absorbers are for the front**
 - D. A strut connects directly to the wheel, while shock absorbers do not**

Answers

SAMPLE

1. D
2. B
3. B
4. D
5. B
6. C
7. C
8. A
9. B
10. B

SAMPLE

Explanations

1. What is the ideal camber angle for most vehicles?

- A. Zero degrees
- B. Positive 1 degree
- C. Negative 1 to negative 2 degrees
- D. It varies by vehicle design**

The ideal camber angle indeed varies by vehicle design. Different vehicles, such as sedans, sports cars, SUVs, and trucks, have unique suspension systems and intended uses that influence their optimal camber settings. For instance, a sports car might benefit from a slightly negative camber to enhance cornering stability and grip, while a heavy-duty truck might have a different ideal range to accommodate load and stability under varied conditions. Additionally, factors like tire wear, steering response, and the type of road surfaces a vehicle is likely to encounter also play critical roles in determining the appropriate camber angle. This means that while some vehicles might perform best with a zero degree or even a specific positive or negative angle, the best answer acknowledges that there isn't a one-size-fits-all solution, highlighting the importance of consulting the manufacturer's specifications for each vehicle type.

2. What does the toe-in specification indicate?

- A. The angle of the steering wheel
- B. The distance the front of wheels are closer together**
- C. The rear axle position relative to front
- D. The suspension height adjustment

The toe-in specification refers to the alignment of the front wheels of a vehicle in relation to each other when viewed from above. Specifically, it indicates that the front edges of the wheels are closer together than the rear edges. This configuration can help improve the vehicle's handling, straight-line stability, and overall tire wear. Proper toe settings contribute to ensuring that the wheels work in unison when the vehicle is in motion, optimizing performance and promoting even tire wear. While the angle of the steering wheel is important for vehicle control, it does not directly relate to toe-in measurements. Additionally, the rear axle's position relative to the front and suspension height adjustments pertain to different aspects of vehicle alignment and suspension setups, not specifically to toe-in adjustments. Therefore, understanding that toe-in measures the distance at which the front of the wheels are closer together is essential for proper wheel alignment and maintenance.

3. What are tie rods used for in a vehicle's steering system?

- A. To control the angle of the wheels
- B. To connect the steering rack to the steering knuckles, allowing for wheel movement**
- C. To stabilize the vehicle during acceleration
- D. To dampen vibrations in the steering wheel

Tie rods play a crucial role in the vehicle's steering system by connecting the steering rack to the steering knuckles. This connection is essential because it allows the wheels to respond to the driver's input through the steering wheel. When the steering wheel is turned, the motion is transmitted through the steering rack and then to the tie rods, which in turn move the steering knuckles and the wheels in the desired direction. This movement is vital for effective steering, as it translates the rotational motion of the steering wheel into lateral motion of the wheels. The design of the tie rod system also allows for the adjustment of wheel alignment, ensuring that the wheels are positioned correctly for optimal handling and tire wear. Other options, while related to vehicle dynamics, do not accurately describe the primary function of tie rods in the steering system. For instance, controlling the angle of the wheels is influenced by tie rods, but it is not their primary role. Stabilizing the vehicle during acceleration and dampening vibrations in the steering wheel are functions addressed by other components of the vehicle, such as the suspension system and steering dampers. Therefore, recognizing the specific function of tie rods in facilitating wheel movement is essential for understanding their importance in vehicle steering systems.

4. What could indicate a problem with a truck's power steering system?

- A. Excessive steering fluid leaks
- B. Frequent noise from the steering column
- C. Difficulty in maintaining a straight line
- D. All of the above**

A problem with a truck's power steering system can be indicated by a variety of symptoms, each of which points to possible underlying issues. Excessive steering fluid leaks can suggest that there is a failure in the power steering system components, such as hoses, seals, or the pump. When the fluid level drops, it can lead to decreased power assist, causing increased effort needed to steer the vehicle. Frequent noise from the steering column, such as whining or groaning sounds, typically indicates that the power steering pump may be struggling. This could be due to low fluid levels or a failing pump, both of which are critical for providing the hydraulic assist necessary for smooth steering. Difficulty in maintaining a straight line while driving is another clear sign of potential power steering issues. This can manifest as a pull to one side, which may signal problems with steering alignment or worn components. The power steering system's failure to provide adequate assist can also contribute to this issue by making it harder to control the steering. When all these symptoms are present—fluid leaks, unusual noises, and handling difficulties—they provide a comprehensive indication of potential problems with the power steering system, emphasizing the need for inspection and possible repair. Therefore, recognizing any of these indicators is crucial for maintaining

5. What does a fifth wheel stop do?

- A. Prevents the trailer from disconnecting during transit
- B. Keeps the fifth wheel from sliding in the mounting bracket**
- C. Secures the load within the trailer
- D. Facilitates easier maneuvering of the trailer

A fifth wheel stop is designed specifically to prevent the fifth wheel from sliding in its mounting bracket. This function is crucial because it stabilizes the connection between the truck and the trailer, ensuring that the fifth wheel remains securely attached during operation. Without this stop, the movement and force produced during driving could allow the fifth wheel to shift, potentially leading to misalignment or disconnection from the trailer, which is unsafe for both the vehicle and other road users. The other options highlight important aspects of trailer towing but do not accurately describe the primary function of a fifth wheel stop. For instance, preventing the trailer from disconnecting focuses more on the hitch mechanism itself rather than the stabilizing stop. Securing the load within the trailer pertains more to cargo management rather than the function of the fifth wheel stop. Similarly, while facilitating easier maneuvering of the trailer is beneficial, it is not the main role of the fifth wheel stop. Thus, understanding that the fifth wheel stop's primary purpose is to keep the fifth wheel fixed in place reinforces the importance of this component in maintaining safety and performance during towing operations.

6. What is the least likely cause of difficulty maintaining a straight line while driving?

- A. Lack of lubrication in the steering gear
- B. Steering gear loose at the frame mounting
- C. Excessive air pressure in the tires**
- D. Loose pitman arm at the steering gear

Maintaining a straight line while driving relies heavily on the proper alignment and function of the vehicle's steering components. Among the options presented, excessive air pressure in the tires is the least likely cause of difficulty in maintaining steering control. While tire pressure does affect tire performance and can lead to uneven wear, excessive pressure typically results in a harsher ride and reduces tire contact with the road surface, leading to challenges with traction rather than direct steering control issues. In contrast, lack of lubrication in the steering gear can create increased friction, making the steering less responsive and harder to control. A loose steering gear at the frame mounting would result in play in the steering system, causing significant difficulty in keeping the vehicle straight. Similarly, a loose pitman arm at the steering gear could result in a disconnected feeling or a delayed response when steering, which would directly prevent maintaining a straight line effectively. Therefore, while all factors can influence driving performance, excessive air pressure in the tires does not have the same direct impact on steering control as the other mechanical issues listed.

7. What problem might be indicated by the steering wheel becoming difficult to turn?

- A. High tire pressure**
- B. Pitman arm being too tight**
- C. Low lubricant in the steering system**
- D. Camber misalignment**

When the steering wheel becomes difficult to turn, one of the primary reasons could be low lubricant levels in the steering system. The steering system typically relies on fluid to operate smoothly, especially in power steering systems. Low lubricant can lead to increased friction and resistance within the steering components, making it harder for the driver to maneuver the steering wheel. In power steering systems, for example, the loss of fluid not only impacts the hydraulic assist but can also lead to increased wear and tear on the steering gear and pump. Consequently, this can result in poor steering response and significant difficulty in turning the wheel. While other options might relate to steering issues, they do not directly cause the same immediate and noticeable effect on steering effort as low lubricant does. High tire pressure generally impacts ride quality and grip rather than steering effort directly. A tight pitman arm would typically suggest issues with the linkage or steering gear, but it isn't commonly linked to the overall fluid dynamics that directly affect steering effort. Camber misalignment affects tire wear and handling but does not change the mechanical advantage provided by the steering system's lubricant.

8. What could be the cause of steering binding in a medium duty truck after U-joint replacement?

- A. Incorrect U-joint phasing**
- B. Improper steering geometry**
- C. Worn steering components**
- D. Improved turning radius**

Steering binding in a medium duty truck following U-joint replacement can often be attributed to incorrect U-joint phasing. U-joint phasing refers to the alignment of the U-joints within the drive shaft; if they are not properly aligned, it can create angular misalignment. This misalignment results in excessive friction and binding during steering maneuvers, especially when the steering is turned to its extremes. Proper U-joint phasing ensures that the angles of the U-joints match correctly, allowing for smooth operation and no binding. The other options relate to different aspects of steering performance but do not directly address the issue of steering binding following a U-joint replacement. Improper steering geometry might affect handling but wouldn't typically result from U-joint work. Worn steering components could be a general cause of steering issues, but this would likely present symptoms independent of recent U-joint replacement. Improved turning radius is generally a desirable outcome and not related to steering binding, as it suggests enhanced maneuverability rather than the presence of a problem.

9. When should all wheel studs be replaced?

- A. Only when one is cracked
- B. When indicated by vehicle manufacturer**
- C. Only during a full vehicle inspection
- D. When any stud is damaged

The recommendation to replace all wheel studs when indicated by the vehicle manufacturer is based on the importance of adhering to the specific guidelines provided by the vehicle's design and safety standards. Vehicle manufacturers conduct rigorous testing and derive conclusions regarding the longevity and safety of their components, including wheel studs. Replacing all wheel studs as directed ensures that they maintain structural integrity, proper load distribution, and safe vehicle operation. Manufacturer guidelines may take into account various factors such as the type of materials used, the application of forces during regular use, and the lifespan of the components under different conditions. While replacing only a damaged or cracked stud may seem practical, it could lead to a situation where the remaining studs are compromised or do not match in strength, which could affect the performance and safety of the vehicle. Thus, following the manufacturer's advice provides a comprehensive and safety-focused approach to maintenance.

10. How does a strut differ from a shock absorber?

- A. A strut dampens motion, while a shock absorber provides structural support
- B. A strut includes a coil spring and provides structural support, while a shock absorber only dampens motion**
- C. A strut is only for rear suspension, while shock absorbers are for the front
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A strut differs from a shock absorber primarily in its construction and function within the vehicle's suspension system. A strut is a structural component that not only serves the role of damping motion through a built-in shock absorber but also supports the weight of the vehicle. It often includes a coil spring, which helps absorb the impact from road irregularities and supports the vehicle's weight, thereby contributing to the overall structural integrity of the suspension system. In contrast, a shock absorber, while it performs the vital function of damping the oscillations that occur due to road conditions, does not provide structural support. It works in conjunction with other components, such as springs, to manage the vehicle's ride quality and handling but lacks the integrated support that a strut offers. Understanding this distinction is crucial for anyone studying suspension systems, as it highlights the specific roles each component plays in vehicle dynamics.