ASE Suspension and Steering (A4) Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

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Questions

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1. What is the likely outcome of improper toe settings?

A. Uneven tire wear

B. No impact on driving

C. Improved fuel efficiency

D. Decreased engine performance

2. Which component is most likely to cause noise during turning when worn?

A. Worn ball joint

B. Worn power steering pump

C. Worn tie rod end

D. Worn pitman arm

3. Which component, when replaced, will change the ride height of a vehicle?

A. Shocks

B. Struts

C. Springs

D. Sway bars

4. What is the most likely cause of a leaking power steering pump hose?

A. Separated motor mounts

B. Loose drive belt

C. Air in the fluid

D. Broken pump mounts

5. What is a common symptom of low power steering fluid?

A. Increased steering response

B. Whining noise when steering

C. Improved fuel efficiency

D. Harder braking

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6. What alignment angle needs to be checked after replacing an idler arm?

A. Caster

B. Toe

C. Camber

D. Thrust line

7. The center link is unlevel on a vehicle with parallelogram steering. What can be the cause?

A. Incorrect idler arm height adjustment

B. Incorrect worm bearing adjustment

C. Incorrect sector shaft adjustment

D. Incorrect caster adjustment

8. A customer says that the steering wheel turns more turns to the left than the right. Which of the following is the LEAST LIKELY cause?

A. Incorrectly timed steering gear

B. Bent pitman arm

C. Faulty power steering pump

D. Bent tie rod

9. In a typical suspension system, what is the primary purpose of shock absorbers?

A. To support the weight of the vehicle

B. To reduce vehicle body roll during cornering

C. To provide feedback to the driver

D. To control the rebound of springs

10. Which statement is true about tapered roller wheel bearings during service?

A. The cup is always replaced

B. The hub must be held still while the bearing is adjusted

C. The seal is always replaced

D. The bearing should be adjusted with the tire on the ground

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Answers

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

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Explanations

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1. What is the likely outcome of improper toe settings?

A. Uneven tire wear

B. No impact on driving

C. Improved fuel efficiency

D. Decreased engine performance

Improper toe settings can lead to uneven tire wear, which is the primary reason why maintaining correct alignment is crucial. Toe alignment refers to the angle at which the tires point relative to the centerline of the vehicle. When the toe settings are not within specifications, it can cause the tires to scrub against the road instead of rolling freely. This scrubbing effect results in excessive wear on the tire edges, leading to a shorter lifespan for the tires and potentially affecting vehicle handling and safety. The other options do not accurately reflect the impact of improper toe settings. There is no scenario where incorrect toe would result in no impact on driving; in fact, it often compromises vehicle stability and control. Additionally, incorrect toe settings are unlikely to improve fuel efficiency, as they can create more resistance and drag, leading to increased fuel consumption. Finally, while improper toe settings do not directly affect engine performance, they can contribute to overall vehicle inefficiency, which may indirectly influence fuel usage and driveability. Therefore, the outcome of uneven tire wear is the most relevant consequence of improper toe settings.

2. Which component is most likely to cause noise during turning when worn?

A. Worn ball joint

B. Worn power steering pump

C. Worn tie rod end

D. Worn pitman arm

The noise during turning is most commonly associated with a worn power steering pump. When the power steering pump is functioning properly, it helps provide the necessary hydraulic pressure to assist in steering more effortlessly. If the pump becomes worn, it can produce whining or grinding noises, particularly when under load, such as during turns. As the pump ages or if it develops internal wear, the pressure may not be sufficient to assist the steering, leading to increased friction and noise. This symptom becomes particularly noticeable when turning, as the demand for hydraulic assistance is greater in that situation. While other components like the ball joint, tie rod end, or pitman arm can also make noise due to wear, these noises are often characterized by clunking or popping sounds rather than the whining noises associated with steering assistance issues from a power steering pump. Thus, it's the characteristics of the sound and the context of the operation that identify the power steering pump as the most likely source of the noise when turning.

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3. Which component, when replaced, will change the ride height of a vehicle?

A. Shocks

B. Struts

C. Springs

D. Sway bars

The component that will change the ride height of a vehicle when replaced is the springs. Springs are responsible for supporting the weight of the vehicle, absorbing shocks from the road, and determining the overall ride height. When springs are replaced with new ones that have different stiffness or dimensions, or if they are heavy-duty or lowered versions, this directly affects how high or low the vehicle sits in relation to the ground. Shocks and struts, while essential for controlling the vehicle's motion and providing stability and comfort, do not alter the ride height on their own. They primarily dampen the oscillations caused by springs and keep the vehicle balanced during movement. Sway bars, or anti-roll bars, are designed to reduce body roll during cornering and do not have any impact on ride height. Therefore, replacing the springs is the action that will result in a measurable change in the vehicle's ride height, making this the correct choice.

4. What is the most likely cause of a leaking power steering pump hose?

A. Separated motor mounts

B. Loose drive belt

C. Air in the fluid

D. Broken pump mounts

A leaking power steering pump hose is often caused by physical stress or vibration in the vehicle's engine and steering system. Separated motor mounts can cause excessive movement and misalignment of the engine and related components. When motor mounts are not holding the engine securely, the resultant vibration and movement can lead to the deterioration or failure of hoses connected to the power steering pump, causing them to crack or leak. This scenario highlights the importance of understanding how different vehicle components interact. Properly functioning motor mounts help maintain the alignment and stability of the engine, ensuring that hoses are not subjected to undue stress that could lead to leaks. In contrast, other options like a loose drive belt, air in the fluid, or broken pump mounts may involve different aspects of the power steering system but do not directly correlate with leakage from the hoses in the same way. Each of these conditions could cause other issues, but when focusing specifically on the leak in the hose, issues stemming from separated motor mounts are the most likely cause.

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5. What is a common symptom of low power steering fluid?

A. Increased steering response

B. Whining noise when steering

C. Improved fuel efficiency

D. Harder braking

A common symptom of low power steering fluid is a whining noise when steering. This noise occurs because the power steering pump is struggling to generate the necessary pressure to assist with steering. As the fluid level drops, the pump may have to work harder, which can lead to a faint or pronounced whining or screeching sound, especially when the steering wheel is turned. This is a clear indication that the fluid needs to be replenished to ensure proper function of the power steering system. Recognizing this symptom is crucial for vehicle maintenance, as ignoring it can lead to more severe issues, such as pump failure, which can be both costly and dangerous while driving. Understanding how the power steering system operates helps diagnose the problem accurately, emphasizing the importance of monitoring fluid levels for optimal performance.

6. What alignment angle needs to be checked after replacing an idler arm?

A. Caster

B. Toe

C. Camber

D. Thrust line

After replacing an idler arm, it is essential to check the toe alignment angle. The idler arm is a crucial component of the steering linkage that helps to maintain the proper geometry of the steering system. When it is replaced, it can alter the relationship between the vehicle's wheels, particularly affecting the toe, which is the angle at which the wheels point in relation to the centerline of the vehicle. Checking the toe alignment ensures that both front wheels are parallel or properly angled towards or away from each other. If the toe is not correctly adjusted following the installation of a new idler arm, it could lead to uneven tire wear, poor handling, and potential safety issues. Therefore, ensuring that toe is within specification after such a replacement is crucial for maintaining proper vehicle performance and safety.

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7. The center link is unlevel on a vehicle with parallelogram steering. What can be the cause?

A. Incorrect idler arm height adjustment

B. Incorrect worm bearing adjustment

C. Incorrect sector shaft adjustment

D. Incorrect caster adjustment

In a vehicle with parallelogram steering, the center link connects the steering components and plays a critical role in ensuring proper alignment and function of the steering system. If the center link is unlevel, it can lead to various handling and steering issues. The most direct reason for an unlevel center link is likely due to improper adjustment of the idler arm height. The idler arm, which supports the center link on one side, must be properly adjusted to maintain the correct angle and level of the center link. If the idler arm height is incorrectly set, it can lead to an uneven positioning of the center link relative to the vehicle's chassis and tie rods. This can cause the steering action to feel imprecise or lead to premature wear of steering components due to misalignment. Other choices pertain to different aspects of steering adjustments. For instance, worm bearing adjustment and sector shaft adjustment relate more to the specific inner mechanisms of the steering gear and do not directly affect the overall leveling of the center link. Similarly, caster adjustment concerns the angle of the steering axis and primarily impacts handling and stability rather than the vertical alignment or leveling of the center link itself. Thus, an improper adjustment of the idler arm combination directly influences the center link

8. A customer says that the steering wheel turns more turns to the left than the right. Which of the following is the LEAST LIKELY cause?

A. Incorrectly timed steering gear

B. Bent pitman arm

C. Faulty power steering pump

D. Bent tie rod

When evaluating the scenario where a customer reports that the steering wheel turns more to the left than the right, it's essential to consider the mechanics of the steering system. A faulty power steering pump is the least likely cause of this issue because a malfunctioning pump would generally lead to problems such as difficulty in steering or a lack of assist, but it would not typically result in an asymmetrical turning ratio. The power steering pump's role is to provide hydraulic pressure to assist in steering. If the pump were defective, it would not cause an imbalance in the number of turns required to steer left versus right; rather, it would affect the overall ease of steering operation. On the other hand, issues like an incorrectly timed steering gear, a bent pitman arm, or a bent tie rod could all directly cause an uneven steering response by altering the geometry or relationship of components in the steering system, leading to the described condition. Thus, while other mechanical failures can create the problem of unequal steering effort between left and right turns, a faulty power steering pump is unlikely to directly cause this specific symptom, making it the least likely cause in this situation.

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9. In a typical suspension system, what is the primary purpose of shock absorbers?

A. To support the weight of the vehicle

B. To reduce vehicle body roll during cornering

C. To provide feedback to the driver

D. To control the rebound of springs

The primary purpose of shock absorbers in a typical suspension system is to control the rebound of springs. When a vehicle encounters bumps or irregularities in the road, the springs compress to absorb the impact. However, after compression, the springs want to return to their original position, which can lead to excessive bouncing or oscillation. Shock absorbers are designed to dampen this rebound motion, ensuring that the vehicle's body remains stable and controlled. By doing so, shock absorbers enhance ride comfort and maintain tire contact with the road, improving vehicle handling and safety. The other options revolve around different aspects of suspension functionality. While shock absorbers do contribute to vehicle stability and cornering performance, their main function is specifically to manage the motion of the springs rather than directly reducing body roll or providing driver feedback.

10. Which statement is true about tapered roller wheel bearings during service?

A. The cup is always replaced

B. The hub must be held still while the bearing is adjusted

C. The seal is always replaced

D. The bearing should be adjusted with the tire on the ground

In the context of tapered roller wheel bearings during service, it is indeed common practice to replace the seal whenever the bearings are serviced. This is because the seal plays an essential role in preventing contamination from dirt, moisture, and other debris while also retaining lubrication within the bearing assembly. A worn or damaged seal can lead to premature bearing failure, as contaminants can enter the bearing and ultimately cause damage or increased wear. Replacing the seal ensures that the newly serviced bearings are adequately protected and that the assembly operates smoothly and efficiently. This practice contributes to the longevity of the bearings and promotes optimal performance of the wheel assembly as a whole. It's crucial to maintain the integrity of the bearing setup, and a fresh seal is a vital part of that maintenance process.

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