General Motors Automotive Service Educational Program (GM ASEP) Steering and Suspension Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. What sound might indicate that wheel bearings need replacement?

A. A squeaking noise

B. A grinding noise

C. A hissing noise

D. A clunking noise

2. The grease fitting in a steering linkage is also called a(n) _____ fitting.

A. pitman

B. zerk

C. adaptive

D. compression

3. What impact does lowering a car's suspension typically have?

A. Increases ground clearance

B. Improves handling but may cause a harsher ride

C. Decreases fuel efficiency

D. Reduces tire traction

4. What component is primarily responsible for absorbing shocks from road irregularities in a suspension system?

A. Strut

B. Spring

C. Sway bar

D. Control arm

5. For a vehicle to track straight, the thrust angle should be what?

A. Negative

B. Plus or minus 10 degrees

C. Positive

D. Zero

6. Most vehicle and tire manufacturers recommend that no more than _____ ounces of balance weight be added to a wheel/tire assembly.

A. 2.5

B. 3.5

C. 4.5

D. 5.5

7. How does aging affect power steering fluid?

A. It becomes thicker and less effective

B. It can lead to reduced effectiveness and may cause system failure if contaminated

C. It starts to smell and changes color

D. It evaporates faster than fresh fluid

8. Which of the following road tests is most likely performed to find possible defective outer constant velocity (CV) joints used on the drive axle shaft of front-wheel-drive vehicles?

A. Driving on a bumpy road

B. Driving slowly into a driveway with a curb

C. Driving in reverse while turning

D. Driving beside parked vehicles

9. What type of steering system uses a belt-driven pump to assist steering?

A. Electric power steering

B. Hydraulic power steering

C. Manual steering

D. Variable ratio steering

10. What can be a consequence of excessively worn ball joints?

A. Improved steering response

B. Increased fuel efficiency

C. Steering wander and tire wear

D. Enhanced ride comfort

Answers

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

Explanations

1. What sound might indicate that wheel bearings need replacement?

A. A squeaking noise

B. A grinding noise

C. A hissing noise

D. A clunking noise

A grinding noise is commonly associated with worn or damaged wheel bearings. When the bearings begin to fail, the metal surfaces inside can become rough and uneven, causing friction and creating a grinding sound as the wheel rotates. This noise is typically more noticeable when turning or when weight is applied to the vehicle, which changes the load on the bearings. In contrast, other sounds such as squeaking, hissing, or clunking usually relate to different components or issues in the vehicle. Squeaking noises often indicate a lack of lubrication or can be linked to suspension components, while hissing may suggest a fluid leak, and clunking usually points to loose or damaged parts elsewhere in the suspension system. Recognizing the specific sound of grinding is vital for identifying wheel bearing failure and addressing it promptly to prevent further damage to the vehicle's hub assembly and associated components.

2. The grease fitting in a steering linkage is also called a(n) _____ fitting.

A. pitman

B. zerk

C. adaptive

D. compression

The correct answer is that the grease fitting in a steering linkage is commonly referred to as a zerk fitting. Zerk fittings are specialized components designed to allow for the easy addition of grease to lubricate parts within a steering and suspension system, ensuring smooth operation and reducing wear over time. These fittings are used in various automotive applications, including ball joints, tie rod ends, and steering components. Zerk fittings typically feature a small, cylindrical design with a ball check valve that prevents the grease from escaping after being injected, which helps maintain the lubrication within the component. Proper lubrication is essential in steering and suspension systems to prevent friction and excessive wear that could lead to component failure. In contrast, the other terms like pitman, adaptive, and compression do not accurately describe grease fittings. A pitman arm is a specific component of the steering mechanism itself, while adaptive and compression usually refer to different concepts unrelated to lubrication fittings. Understanding these terms is crucial for recognizing the components and their functions within automotive systems.

3. What impact does lowering a car's suspension typically have?

A. Increases ground clearance

B. Improves handling but may cause a harsher ride

C. Decreases fuel efficiency

D. Reduces tire traction

Lowering a car's suspension typically improves handling due to the lower center of gravity achieved by bringing the chassis closer to the ground. This reduction can minimize the body roll during cornering, allowing for better stability and responsiveness when making turns. However, this alteration often results in a harsher ride quality. When the suspension is lowered, there is less vertical travel, which can lead to a stiffer ride as the suspension components have to absorb bumps on the road with less room for movement. The other choices do not accurately reflect the impacts of lowering a suspension. Ground clearance would be decreased rather than increased, and while lowering can sometimes lead to marginal improvements in fuel efficiency due to reduced aerodynamic drag, it is not directly associated with drastically decreasing fuel efficiency. Additionally, while there may be some effects on traction due to changes in weight distribution, lowering a vehicle mainly enhances handling rather than reducing tire traction, assuming the appropriate tires are used for the lowered setup.

4. What component is primarily responsible for absorbing shocks from road irregularities in a suspension system?

A. Strut

B. Spring

C. Sway bar

D. Control arm

The correct response identifies the spring as the primary component responsible for absorbing shocks from road irregularities within a suspension system. Springs play a critical role in maintaining vehicle stability and comfort by allowing the wheels to move up and down over bumps and dips in the road while keeping the body of the vehicle relatively stable. When the vehicle encounters uneven surfaces, the springs compress and expand, effectively mitigating the impact of these irregularities. This action not only helps to improve ride quality but also ensures that the tires maintain better contact with the road surface, enhancing overall handling and safety. Other components like struts and control arms also play important roles but are not primarily shock absorbers. Struts can incorporate a spring and are involved in providing structural support to the suspension while also serving as a shock absorber. However, when discussing shock absorption specifically, the spring is the key component. Meanwhile, sway bars are designed to reduce body roll during cornering and do not have a primary role in absorbing shocks from vertical motion on the road.

5. For a vehicle to track straight, the thrust angle should be what?

A. Negative

B. Plus or minus 10 degrees

C. Positive

D. Zero

For a vehicle to track straight, the thrust angle should be zero. The thrust angle is the angle formed between the vehicle's centerline and the rear axle's centerline. When the thrust angle is zero, it means that the rear axle is aligned with the centerline of the vehicle, allowing the wheels to move in parallel as the vehicle travels down the road. A zero thrust angle ensures that the vehicle's chassis is aligned properly, which helps in maintaining straight-line stability. If the thrust angle deviates from zero, it can lead to conditions where the vehicle drifts to one side or the other, making it difficult for the driver to maintain control. This misalignment often indicates problems in the rear suspension or issues with the alignment itself. Keeping the thrust angle at zero is crucial for optimal performance and safety of the vehicle, as it allows for even tire wear and better handling characteristics.

6. Most vehicle and tire manufacturers recommend that no more than _____ ounces of balance weight be added to a wheel/tire assembly.

A. 2.5

B. 3.5

C. 4.5

D. 5.5

The recommendation for the maximum amount of balance weight that can be added to a wheel/tire assembly stems from the need to achieve optimal performance and safety in handling. When a wheel requires significant balancing weight, it may indicate underlying issues with the tire or wheel itself, such as irregularities that could lead to uneven wear or vibrations during driving. Adding excessive weight, particularly beyond the recommended limit, can lead to complications such as increased stress on suspension components, altered driving dynamics, and potential impacts on vehicle safety and comfort. The figure of 4.5 ounces is generally recognized as a cautionary threshold that aims to maintain effective balance while minimizing potential negative effects on the vehicle's performance. Thus, the acceptance of 4.5 ounces as the upper limit for balance weight reflects industry standards designed to ensure reliability and safety in vehicle handling.

7. How does aging affect power steering fluid?

A. It becomes thicker and less effective

B. It can lead to reduced effectiveness and may cause system failure if contaminated

C. It starts to smell and changes color

D. It evaporates faster than fresh fluid

The correct answer focuses on the fact that aging in power steering fluid can lead to reduced effectiveness and can potentially cause system failure if the fluid becomes contaminated. Over time, power steering fluid can break down due to exposure to heat, air, and contaminants such as metal shavings or rubber debris from the seals and hoses within the system. As the fluid ages, its ability to lubricate and protect the power steering components diminishes. This can lead to increased wear on the pump, rack, and pinion, and other associated parts, ultimately resulting in failure of the power steering system. Furthermore, if this fluid becomes contaminated with dirt or other foreign materials, the risk of system failure increases significantly. Understanding this characteristic of aging power steering fluid is crucial for proper vehicle maintenance and ensuring optimal performance of the steering system. Regular checks and fluid replacement can help prevent issues related to fluid degradation and contamination.

8. Which of the following road tests is most likely performed to find possible defective outer constant velocity (CV) joints used on the drive axle shaft of front-wheel-drive vehicles?

A. Driving on a bumpy road

B. Driving slowly into a driveway with a curb

C. Driving in reverse while turning

D. Driving beside parked vehicles

The reason driving in reverse while turning is the most effective road test for identifying defective outer constant velocity (CV) joints has to do with the operational conditions that CV joints endure during such movements. When a vehicle moves in reverse while turning, it places significant strain on the outer CV joints, as these joints are responsible for accommodating the changes in angle and maintaining torque from the drive axle to the wheels. Under these circumstances, if the outer CV joint is defective, the driver may notice symptoms such as clicking or popping sounds, vibrations, or a lack of smooth operation in the vehicle's motion. These symptoms arise because a faulty CV joint cannot properly handle the angular displacement required when turning, especially when the vehicle is in reverse. This specific test effectively replicates the stresses and angles that the CV joints experience during typical driving scenarios, making it easier to diagnose issues. Other road tests, while valuable for checking overall vehicle performance and stability, do not specifically target the typical operational challenges faced by outer CV joints in the same manner. For example, driving on a bumpy road may indicate suspension issues but is less effective for CV joint diagnosis. Similarly, driving slowly into a driveway with a curb may not sufficiently engage the CV joints at the necessary angles, and driving beside parked

9. What type of steering system uses a belt-driven pump to assist steering?

A. Electric power steering

B. Hydraulic power steering

C. Manual steering

D. Variable ratio steering

Hydraulic power steering is a type of steering system that utilizes a belt-driven pump to assist the driver in steering the vehicle. In this system, the engine drives the pump, which circulates hydraulic fluid through a series of hoses to a steering gear. When the driver turns the steering wheel, the hydraulic fluid pressure helps to move the steering mechanism, significantly easing the effort required to turn the wheel. This type of assist provides smooth and responsive steering, particularly beneficial for larger vehicles or during low-speed maneuvers. In contrast, electric power steering relies on an electric motor rather than a hydraulic system to provide steering assistance. Manual steering systems do not use any form of power assistance; the driver must rely entirely on their own strength to turn the wheel. Variable ratio steering refers to a design that changes the ratio between the steering wheel movement and the wheel movement based on the angle; it may employ either mechanical or hydraulic systems but does not specifically indicate the use of a belt-driven pump. Therefore, hydraulic power steering is distinct in its reliance on hydraulic fluid pressure generated by a belt-driven pump for steering assistance.

10. What can be a consequence of excessively worn ball joints?

A. Improved steering response

B. Increased fuel efficiency

C. Steering wander and tire wear

D. Enhanced ride comfort

Excessively worn ball joints can lead to steering wander and tire wear due to their critical role in maintaining the alignment and stability of the steering system. When ball joints are worn, they can become loose or allow excessive play, which means the steering may not respond accurately to driver inputs. This lack of precision can cause the vehicle to drift or wander on the road, making it more challenging to control the vehicle effectively. Additionally, because the suspension system relies on properly functioning ball joints to keep the wheels positioned correctly, excessive play can result in uneven tire wear. This increased wear can shorten the lifespan of the tires and negatively impact overall handling and safety. Thus, maintaining ball joints in good condition is essential for proper steering response, stable ride quality, and tire longevity.