North Carolina CDL Air Brakes Practice Test (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. When should parking brakes be used in air brake vehicles?

A. Whenever the vehicle is in motion

B. Only when parked on level ground

C. Whenever you leave the vehicle unattended

D. During high-speed travel

2. When testing the air service brakes, what is the recommended action?

A. Brake sharply while stationary

B. Brake softly while moving forward

C. Brake firmly while slowly moving forward

D. Brake while reversing

3. What common braking issue occurs when brakes are applied too frequently on steep grades?

A. Brake freezing

B. Brake overheating

C. Brake noise

D. Brake locking

4. Why should a driver avoid applying brakes too lightly in an emergency?

A. It may cause skidding

B. It reduces braking power

C. It can lead to tire blowouts

D. It increases stopping distance

5. What may happen if you repeatedly press and release (fan) the brake pedal?

A. Increase brake efficiency

B. Deplete brake fluid

C. Loss of brake air pressure

D. Shorten stopping distance

6. What is the difference between service brakes and parking brakes?

- **A. Service brakes are activated by the foot, parking brakes are hand-operated**
- **B. Service brakes are always automatic, parking brakes are manual**
- **C. Service brakes are used during driving, while parking brakes hold the vehicle stationary**
- **D. Service brakes are hydraulic, parking brakes are pneumatic**

7. What is the primary function of the foot valve in air brake systems?

- **A. To increase air pressure in the system**
- **B. To control the amount of air sent to the brakes when the pedal is pressed**
- **C. To release air from the brake system**
- **D. To monitor air pressure levels**

8. What should you do if you notice a drop in air pressure while driving?

- **A. Continue driving as normal**
- **B. Pull over safely and inspect the system**
- **C. Increase speed to maintain pressure**
- **D. Check the fuel gauge**

9. What can excessive air pressure cause in an air brake system?

- **A. Improved brake performance**
- **B. Damage to brake components and possible system failure**
- **C. Reduced fuel consumption**
- **D. Increased tire wear**

10. During a brake adjustment, what is the purpose of checking the push rod?

- **A. To ensure it is lubricated**
- **B. To verify it has the correct length**
- **C. To make sure it is free of rust**
- **D. To test for air leaks**

Answers

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

Explanations

1. When should parking brakes be used in air brake vehicles?

A. Whenever the vehicle is in motion

B. Only when parked on level ground

C. Whenever you leave the vehicle unattended

D. During high-speed travel

Parking brakes should be used whenever the vehicle is unattended because they are specifically designed to hold the vehicle in place, preventing it from rolling away when the driver is not present. In air brake systems, the parking brake is critical for maintaining safety by ensuring that the vehicle remains stationary even on a slope or inclined surface. Engaging the parking brake when leaving the vehicle helps to protect against potential accidents or hazards that could arise if the vehicle were allowed to roll freely. Using parking brakes when the vehicle is in motion, on level ground alone, or during high-speed travel is not appropriate. In those scenarios, the vehicle is actively being controlled by the driver, and the service brakes are engaged for stopping and controlling speed. Therefore, the proper use of parking brakes is key to the safety and stability of air brake vehicles, particularly when they are parked or left unattended.

2. When testing the air service brakes, what is the recommended action?

A. Brake sharply while stationary

B. Brake softly while moving forward

C. Brake firmly while slowly moving forward

D. Brake while reversing

When testing the air service brakes, the recommended action is to brake firmly while slowly moving forward. This method allows the driver to effectively assess the response of the braking system under actual driving conditions, helping to check for proper function and feel of the brakes. During this testing process, a firm application of the brakes is necessary to gauge their effectiveness, ensuring that they engage properly and bring the vehicle to a controlled stop without any delay or unusual behavior. Soft braking while moving forward might not provide a clear indication of how well the brakes are functioning, as a lack of sufficient pressure can mask any issues. Braking sharply while stationary does not simulate real driving conditions and may not reveal potential problems with the braking system. Meanwhile, braking while reversing can be misleading and potentially unsafe, as it does not account for the dynamics involved when a vehicle is moving forward.

3. What common braking issue occurs when brakes are applied too frequently on steep grades?

A. Brake freezing

B. Brake overheating

C. Brake noise

D. Brake locking

Frequent application of brakes on steep grades can lead to brake overheating, which is a common issue that drivers need to be wary of. When brakes are used continuously or excessively, especially when descending a steep slope, the friction between the brake pads and the rotors generates a significant amount of heat. If the brakes are not given sufficient time to cool down, this heat can build up, leading to reduced braking effectiveness, brake fade, or, in severe cases, complete brake failure. Overheated brakes can also cause damage to brake components, such as warping rotors and degrading brake linings, ultimately compromising the vehicle's safety. This is why it is essential for drivers, particularly those operating heavy vehicles, to implement proper braking techniques, such as using engine braking, to reduce reliance on the brake system under these conditions.

4. Why should a driver avoid applying brakes too lightly in an emergency?

A. It may cause skidding

B. It reduces braking power

C. It can lead to tire blowouts

D. It increases stopping distance

In emergency situations, applying brakes too lightly can significantly reduce braking power, leading to ineffective stops. When encountering a critical moment, the driver must exert sufficient braking force to bring the vehicle to a stop safely and promptly. Light braking does not engage the brakes fully, which may prevent the vehicle from decelerating quickly enough to avoid an accident. In contrast, heavier braking allows for more effective use of the vehicle's braking system, ensuring the maximum available stopping power is utilized. Understanding the mechanics of braking is essential, as this ensures that when the driver applies the brakes, they are doing so effectively to minimize stopping distance and maximize safety. This is particularly vital when driving larger vehicles that may require more time and distance to stop.

5. What may happen if you repeatedly press and release (fan) the brake pedal?

A. Increase brake efficiency

B. Deplete brake fluid

C. Loss of brake air pressure

D. Shorten stopping distance

Pressing and releasing the brake pedal repeatedly, a practice known as "fanning" the brake, can lead to a loss of air pressure in the brake system. Air brake systems rely on a certain level of pressure to function effectively. Each time the brake pedal is pressed, air is drawn from the system to engage the brakes. If this process is repeated excessively, it can exhaust the air reserves available, resulting in a drop in air pressure. When the air pressure is reduced, the brakes may become less effective or may fail to engage properly, increasing the risk of an accident. Maintaining adequate air pressure is crucial for the reliable operation of air brakes, so understanding the implications of fanning the brakes is essential for all drivers, particularly those operating commercial vehicles with air braking systems.

6. What is the difference between service brakes and parking brakes?

A. Service brakes are activated by the foot, parking brakes are hand-operated

B. Service brakes are always automatic, parking brakes are manual

C. Service brakes are used during driving, while parking brakes hold the vehicle stationary

D. Service brakes are hydraulic, parking brakes are pneumatic

The distinction between service brakes and parking brakes lies fundamentally in their function and operation. Service brakes are the primary braking system used when the vehicle is in operation; they are engaged through the foot pedal to slow down or stop the vehicle while driving. This system is designed for performance and responsiveness, allowing the driver to control the vehicle's speed effectively in various situations. On the other hand, parking brakes are utilized to keep the vehicle stationary when it is parked. They are meant to prevent the vehicle from rolling when parked on an incline or during a stop. While service brakes are actively used during transit, parking brakes are an essential safety feature ensuring that the vehicle remains secure and immobile in a stationary position. This clear functional difference highlights why the correct answer focuses on the roles of each braking system during driving versus parking.

7. What is the primary function of the foot valve in air brake systems?

A. To increase air pressure in the system

B. To control the amount of air sent to the brakes when the pedal is pressed

C. To release air from the brake system

D. To monitor air pressure levels

The primary function of the foot valve in air brake systems is to control the amount of air sent to the brakes when the pedal is pressed. When a driver presses the brake pedal, the foot valve regulates the flow of compressed air from the storage tanks to the brake chambers. It ensures that the correct amount of air is released, which activates the brakes according to the pressure applied to the pedal. This role is crucial for effective braking performance, allowing for smooth and controlled deceleration of the vehicle. Without this regulation, the brakes could either be too sensitive or insufficiently responsive, leading to unsafe driving conditions. Other options describe functions that do not accurately represent the purpose of the foot valve. For example, increasing air pressure in the system is typically the role of the air compressor, while releasing air is done through different components like the brake chambers or safety valves. Monitoring air pressure levels is managed by pressure gauges and sensing devices, not the foot valve.

8. What should you do if you notice a drop in air pressure while driving?

A. Continue driving as normal

B. Pull over safely and inspect the system

C. Increase speed to maintain pressure

D. Check the fuel gauge

If you notice a drop in air pressure while driving, pulling over safely and inspecting the system is the appropriate action to take. A drop in air pressure can indicate a serious issue within the air brake system that may compromise the effectiveness of your brakes. The air brake system relies on a specific pressure range to function correctly; insufficient pressure can result in brake failure or reduced braking power, leading to potentially dangerous situations. By pulling over, you allow for a thorough inspection of the air pressure gauge, air lines, and connections to identify any leaks or malfunctions. This proactive measure helps ensure that the vehicle remains safe to drive and prevents further complications that could arise from continuing to operate the vehicle with compromised braking ability. Addressing the situation immediately helps protect not only the driver and passengers but also others on the road.

9. What can excessive air pressure cause in an air brake system?

A. Improved brake performance

B. Damage to brake components and possible system failure

C. Reduced fuel consumption

D. Increased tire wear

Excessive air pressure in an air brake system can lead to damage to brake components and potential system failure. Air brake systems operate within specific pressure limits, and exceeding those limits can cause parts such as brake chambers, hoses, and valves to fail. Increased pressure can lead to overheating and distortion of these components, which may ultimately result in brake malfunctions and unsafe driving conditions. In typical air brake operations, the components are designed to function efficiently within a certain pressure range. When that range is exceeded, it can adversely affect the integrity of the entire system, leading to decreased safety and reliability. This is why maintaining the correct air pressure is crucial for the proper functioning of air brakes, helping to ensure safety and prevent breakdowns on the road.

10. During a brake adjustment, what is the purpose of checking the push rod?

A. To ensure it is lubricated

B. To verify it has the correct length

C. To make sure it is free of rust

D. To test for air leaks

The purpose of checking the push rod during a brake adjustment is to verify it has the correct length. The push rod is a critical component in the air brake system, as it connects the brake chamber to the braking mechanism. When the push rod is adjusted correctly, it ensures that the brakes engage properly and effectively when the air pressure is applied. If the push rod is too long or too short, it can lead to improper brake operation. A push rod that is too long may prevent the brakes from fully releasing, which can cause excessive wear or overheating, whereas a push rod that is too short may not engage the brakes adequately, leading to reduced braking power and safety issues. Therefore, maintaining the correct length of the push rod is essential for ensuring the functionality and safety of the air brake system in commercial vehicles.