BNSF Air Brake and Train Handling Practice Test (Sample)

Study Guide

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Questions

1. **When comparing the Scheduled HPT of this train with the Actual HPT, what action may be required for compliance with fuel conservation regulations?**
   - **A. Increase speed**
   - **B. Isolate units to 2.0 or below**
   - **C. Decrease weight of the train**
   - **D. Change the schedule**

2. **What is the first step to conduct an air test after adding helpers to the rear of a train?**
   - **A. Increase the brake pipe reduction by at least 8 psi**
   - **B. Release and recharge the brake system**
   - **C. Observe the brakes apply on the helper consist**
   - **D. Determine the brake pipe increase at the rear of the train**

3. **What is the maximum permissible speed for a train if it is operating with known flat spots until reaching its setout destination?**
   - **A. 5 MPH**
   - **B. 15 MPH**
   - **C. 10 MPH**
   - **D. 20 MPH**

4. **What action does the emergency position of the brake valve perform?**
   - **A. Vents brake pipe pressure directly to the atmosphere**
   - **B. Reduces pressure in the equalizing reservoir**
   - **C. Charges the brake pipe**
   - **D. Controls maximum pressure in the brake system**

5. **What is the maximum rated powered axles (RPA) for trains made up entirely of intermodal equipment?**
   - **A. 30 axles**
   - **B. 36 axles**
   - **C. 42 axles**
   - **D. 48 axles**

6. In case of isolation for fuel conservation, what must be ensured to comply with dynamic brake regulations?

A. Maximum speed must not exceed 50 mph

B. All units must be functioning

C. The overall train weight must be reduced

D. Dynamic brake axles must not exceed limits

7. How should the angle cocks be positioned on all but the last car during a pick up?

A. Closed

B. Off

C. In line with pipe

D. At a 45-degree angle

8. What is a key factor to consider after completing a Daily Inspection on a locomotive?

A. Temperature control of the locomotive

B. Speed restrictions if there are any failures

C. Checking the exterior paint condition

D. Availability of crew members

9. What should be done to address an equalizing reservoir leak?

A. Increase the train speed

B. Place the automatic brake valve cutout valve in the passenger position

C. Reduce the amount of cargo

D. Replace the reservoir

10. What is the preferred method for checking brake pipe leakage?

A. Static pressure testing

B. Air Flow Method

C. Visual inspection

D. Acoustic monitoring

Answers

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

Explanations

1. When comparing the Scheduled HPT of this train with the Actual HPT, what action may be required for compliance with fuel conservation regulations?

A. Increase speed

B. Isolate units to 2.0 or below

C. Decrease weight of the train

D. Change the schedule

Isolating units to 2.0 or below is an important action when the Scheduled Horsepower per Ton (HPT) exceeds the Actual HPT, particularly in adherence to fuel conservation regulations. This indicates that the train is operating with more horsepower than is necessary for the weight it is carrying. By isolating units, or reducing the number of active locomotives, the overall horsepower available is decreased. This helps to match the horsepower more closely with the needed output based on the actual load, which can lead to better fuel efficiency and less environmental impact. Maintaining compliance with fuel conservation regulations is essential for efficiency and sustainability in train operations. Proper management of horsepower relative to the train's weight not only conserves fuel but also adheres to regulatory standards that promote reduced emissions and lower fuel consumption.

2. What is the first step to conduct an air test after adding helpers to the rear of a train?

A. Increase the brake pipe reduction by at least 8 psi

B. Release and recharge the brake system

C. Observe the brakes apply on the helper consist

D. Determine the brake pipe increase at the rear of the train

The first step to conduct an air test after adding helpers to the rear of a train is to increase the brake pipe reduction by at least 8 psi. This increase is necessary to ensure that the entire train, including the newly added helper units, is properly engaged in the air brake system. By making this reduction, the engineer ensures that there is a sufficient pressure drop in the brake pipe, which allows the air brakes on the helper locomotives to begin applying effectively. This step is fundamental because it establishes the conditions required for a successful diagnostic test of the air brake system. It allows for confirming that all units in the train are responsive to the changes made in the brake pipe pressure, which is critical for safe train operations, particularly with the additional weight and dynamic behavior introduced by the helpers. While releasing and recharging the brake system is important for ensuring the train's air systems are properly functioning, it typically happens after the initial pressure adjustments. Observing the brake application on the helper consist is a subsequent step that relies on prior conditions being met, and determining the brake pipe increase at the rear of the train comes after the initial pressure reduction is made.

3. What is the maximum permissible speed for a train if it is operating with known flat spots until reaching its setout destination?

A. 5 MPH

B. 15 MPH

C. 10 MPH

D. 20 MPH

The maximum permissible speed for a train operating with known flat spots is established to ensure safety and to minimize the risk of damage to the train and the track. Flat spots can cause vibrations and instability, which may lead to further mechanical issues or derailments if the train is moving too fast. In this case, the correct answer indicates a maximum permissible speed of 10 MPH. This speed is conservative enough to allow for the necessary precautions while still enabling the train to reach its setout destination in a reasonable timeframe. Choosing a higher speed could potentially exacerbate the issues caused by the flat spots, complicating train handling and increasing wear on the train components. Given this context, the other speed options are either too low or too high for the situation. Speeds below 10 MPH could be overly cautious depending on the specific circumstances, while speeds above 10 MPH could compromise safety and train integrity. Thus, 10 MPH represents a balanced approach to manage the risks associated with operating a train with known flat spots.

4. What action does the emergency position of the brake valve perform?

A. Vents brake pipe pressure directly to the atmosphere

B. Reduces pressure in the equalizing reservoir

C. Charges the brake pipe

D. Controls maximum pressure in the brake system

The emergency position of the brake valve is designed to vent brake pipe pressure directly to the atmosphere. This action is crucial in emergency situations as it allows for a rapid decrease in the brake pipe pressure, which subsequently activates the brakes on all the cars in the train almost instantaneously. When brake pipe pressure is released in this manner, the increase in the pressure differential causes the brake cylinders to apply force against the brake shoes, bringing the train to a stop quickly. Other options involve processes that do not pertain specifically to the emergency application. For instance, reducing pressure in the equalizing reservoir or controlling maximum pressure in the brake system are not functions of the emergency position; those actions relate more to normal operations or standard brake applications. Charging the brake pipe is also associated with refilling the brake system rather than activating emergency braking. Thus, the primary purpose of the emergency position is to ensure immediate braking response by venting pressure directly to the atmosphere.

5. What is the maximum rated powered axles (RPA) for trains made up entirely of intermodal equipment?

- A. 30 axles
- B. 36 axles
- C. 42 axles
- D. 48 axles

The maximum rated powered axles (RPA) for trains made up entirely of intermodal equipment is 48 axles. This is because intermodal trains are specifically designed to transport containers and trailers, which allows for a higher number of powered axles compared to other types of freight trains. Intermodal consists benefit from efficient propulsion and braking performance due to the nature of their operations, enabling longer trains with more powered axles. Trains with a greater number of powered axles can efficiently manage the weight and length, thereby improving overall traction and reducing slip when starting or climbing grades. The structure and coupler design in intermodal trains accommodate this configuration, thus allowing them to reach the higher axle ratings set for such operations.

6. In case of isolation for fuel conservation, what must be ensured to comply with dynamic brake regulations?

- A. Maximum speed must not exceed 50 mph
- B. All units must be functioning
- C. The overall train weight must be reduced
- D. Dynamic brake axles must not exceed limits

To ensure compliance with dynamic brake regulations during fuel conservation isolation, it is essential that the dynamic brake axles do not exceed specified limits. This requirement is grounded in safety and operational efficiency; dynamic braking is crucial for controlling the speed of the train, particularly on downhill grades or in emergency situations. Each locomotive is designed to function effectively within specific dynamic braking parameters, and exceeding these limits can compromise the train's braking capability, leading to increased stopping distances and potential safety hazards. Preserving the effectiveness of dynamic brakes ensures that even if some units are isolated to save fuel, the remaining functioning units can still adequately manage the train's braking needs. Maintaining compliance with the design specifications for dynamic braking helps to avoid situations where the train might become difficult to control, thus enhancing overall operational safety.

7. How should the angle cocks be positioned on all but the last car during a pick up?

A. Closed

B. Off

C. In line with pipe

D. At a 45-degree angle

The correct positioning of the angle cocks on all but the last car during a pick up is to have them in line with the pipe. This orientation allows for the proper flow of air through the train line, ensuring that the brakes can function effectively when needed. When angle cocks are in line with the pipe, they facilitate seamless airflow and pressure communication, which is crucial for activating the air brakes on the connected cars. The angle cock should always be aligned to ensure that there is no obstruction in the air lines. This prevents potential issues during the operation of the train, such as brake malfunction or failure. Keeping the angle cocks in line with the pipe also means that all cars will be ready to receive the air pressure necessary for braking when the train is in motion. Other positions, such as closed or at a 45-degree angle, would either restrict the airflow or create an incomplete connection, leading to inconsistent brake performance. The option of being in an 'off' position could completely isolate the car from the braking system, which is not acceptable for safety and operational purposes. Thus, positioning them in line with the pipe is essential for safe and effective train handling.

8. What is a key factor to consider after completing a Daily Inspection on a locomotive?

A. Temperature control of the locomotive

B. Speed restrictions if there are any failures

C. Checking the exterior paint condition

D. Availability of crew members

After completing a Daily Inspection on a locomotive, one of the most critical factors to consider is the speed restrictions that may apply if any failures or defects are identified during the inspection. The purpose of the Daily Inspection is to ensure that the locomotive is safe to operate and meets all required safety standards. If any issues are found, it may be necessary to implement speed restrictions to ensure the safety of the train and its crew while the problems are addressed. This precaution helps prevent further damage or accidents that could arise from operating a locomotive that may not be in optimal working condition. While factors such as temperature control, paint condition, and crew availability are important in their own right, they do not directly relate to the immediate safety implications of proceeding with a train's operation after an inspection. Thus, recognizing and adhering to speed restrictions is paramount in maintaining safety on the railroads.

9. What should be done to address an equalizing reservoir leak?

- A. Increase the train speed
- **B. Place the automatic brake valve cutout valve in the passenger position**
- C. Reduce the amount of cargo
- D. Replace the reservoir

Addressing an equalizing reservoir leak involves ensuring the effective use of the train's braking system. Placing the automatic brake valve cutout valve in the passenger position allows for the system to continue functioning without the effects of a leak affecting the braking capability of the train. This setting redirects the flow of air and aids in maintaining system integrity by isolating the leak, thus allowing for safer and more controlled operations until the issue can be resolved. The other options would not effectively manage the situation at hand. Increasing train speed would potentially exacerbate the problem, making it more difficult to control braking. Reducing the amount of cargo does not directly address the leak issue, and while reducing load can have an effect on braking performance, it is not a direct remedy for the leak itself. Replacing the reservoir may seem like a solution but is not an immediate action that can be taken in response to a leak—it's a more involved process and doesn't assist in the short term.

10. What is the preferred method for checking brake pipe leakage?

- A. Static pressure testing
- **B. Air Flow Method**
- C. Visual inspection
- D. Acoustic monitoring

The preferred method for checking brake pipe leakage is the air flow method. This technique involves assessing the flow of air through the brake pipe to identify any potential leaks. By using this method, train crews can effectively monitor the integrity of the brake system because it allows for real-time assessment of air loss. Unlike some other methods that may only provide a snapshot or indirect indication of leaks, the air flow method offers a direct measure of how well the brake pipe is holding pressure. This is particularly important in ensuring the safety of the train operation, as any leaks in the brake pipe can lead to a reduction in braking effectiveness. Static pressure testing, visual inspection, and acoustic monitoring have their uses in identifying different issues but may not provide the immediate and quantitative results needed to assess brake pipe integrity as effectively as the air flow method does.