

NCCCO Tower Crane Operator Practice Test (Sample)

Study Guide



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SAMPLE

Questions

- 1. What must be done to ensure a tower crane is stable?**
 - A. Increase the load**
 - B. Ensure all legs are properly installed**
 - C. Keep the load close to the ground**
 - D. Limit the swing of the load**
- 2. When should a tagline be used during crane operations?**
 - A. When the load is light**
 - B. When rotation of the load would be dangerous**
 - C. When the load is heavy**
 - D. When it is windy**
- 3. In the tower crane configuration manual, how many B type blocks are needed on layer 2 with a hook radius of 164 feet and 7 tower sections?**
 - A. 2**
 - B. 3**
 - C. 4**
 - D. 5**
- 4. In heavy service conditions, what is the frequency for a frequent inspection according to ASME B30.3?**
 - A. Daily to Weekly**
 - B. Weekly**
 - C. Monthly**
 - D. Annually**
- 5. Who is responsible for determining the correct hoist wire rope to be installed on tower cranes?**
 - A. Operator**
 - B. Manufacturer**
 - C. Inspection authority**
 - D. Site supervisor**

- 6. What must be inspected before each climbing operation in tower crane operations?**
- A. The load only**
 - B. The operator's equipment**
 - C. Load members of the support system**
 - D. Power lines in the area**
- 7. What is the required frequency of a periodic inspection in light service conditions per ASME B30.3?**
- A. Quarterly**
 - B. Semi-annually**
 - C. Monthly**
 - D. Annually**
- 8. Slings must be removed from service if hooks are cracked or have been opened more than what percentage of their normal throat opening?**
- A. 5%**
 - B. 10%**
 - C. 15%**
 - D. 20%**
- 9. What class of fire extinguisher is required to be kept in the cab or on the machinery platform as per ASME B30.3?**
- A. 10BC**
 - B. 5BC**
 - C. 20BC**
 - D. ABC**
- 10. According to ASME B30.3, how many randomly broken wires must there be to remove a running wire rope from service?**
- A. 6**
 - B. 8**
 - C. 10**
 - D. 12**

Answers

SAMPLE

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

SAMPLE

Explanations

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1. What must be done to ensure a tower crane is stable?

- A. Increase the load**
- B. Ensure all legs are properly installed**
- C. Keep the load close to the ground**
- D. Limit the swing of the load**

The stability of a tower crane is critically dependent on the proper installation of its legs. When all legs are correctly installed and secured, they provide a solid base that helps distribute the load evenly and enhances the crane's overall structural integrity. This setup minimizes the risk of tipping or wobbling during operations, ensuring that the crane can safely handle designated loads without risk of equipment failure or accidents. In contrast, increasing the load can introduce additional stresses that may overwhelm the crane's structural capacity, especially if not matched to the crane's specifications. Keeping the load close to the ground does enhance safety and stability in terms of reducing the risk of overturning, but it does not address the foundational stability of the crane itself. Limiting the swing of the load can help in preventing dynamic forces from affecting stability, yet it is still secondary to ensuring that the crane's legs are correctly installed, as this is fundamental for maintaining the crane's overall balance and stability during operation.

2. When should a tagline be used during crane operations?

- A. When the load is light**
- B. When rotation of the load would be dangerous**
- C. When the load is heavy**
- D. When it is windy**

A tagline should be used during crane operations primarily when rotation of the load would pose a danger. This situation often arises when the load is at risk of swinging, making it difficult for the operator to maintain control and increasing the potential for accidents or unintended consequences, such as the load striking nearby personnel or equipment. Using a tagline allows a ground crew member to control the load's orientation while it is being lifted or moved, thus enhancing safety and reducing the chances of accidents associated with load swing. In scenarios where the load is light, heavy, or where wind is present, while these conditions may necessitate additional precautions, the defining factor for using a tagline remains the safety it provides in managing load orientation and stability. Therefore, the most critical use of a tagline occurs specifically to mitigate the risk associated with the load's potential rotation.

3. In the tower crane configuration manual, how many B type blocks are needed on layer 2 with a hook radius of 164 feet and 7 tower sections?

- A. 2
- B. 3
- C. 4**
- D. 5

To determine how many B type blocks are needed on layer 2 with a specific hook radius and number of tower sections, it's crucial to refer to the guidelines provided in the tower crane configuration manual. The number of B type blocks is influenced by factors such as the hook radius, the load being lifted, and the configuration of the crane. In this scenario, a hook radius of 164 feet and 7 tower sections suggest a specific lifting capacity and stability requirements. When the configurations are laid out in the manual, it typically specifies that for larger radii and multiple sections, the number of B type blocks increases to ensure safe and efficient lifting operations. On layer 2, the need for additional B type blocks directly correlates with the increased reach and potential to handle heavier loads that the crane must support at that height. This means that for a hook radius of 164 feet while having 7 tower sections, the manual would indicate that having 4 B type blocks is necessary to maintain stability and functionality during operations. Thus, choosing 4 B type blocks is aligned with safety standards and operational efficiency needed for this configuration.

4. In heavy service conditions, what is the frequency for a frequent inspection according to ASME B30.3?

- A. Daily to Weekly**
- B. Weekly
- C. Monthly
- D. Annually

In heavy service conditions, the requirement for frequent inspections according to ASME B30.3 is set at a frequency of daily to weekly. This recommendation is based on the understanding that heavy service conditions typically involve extensive and rigorous use of tower cranes, which can increase the likelihood of wear, fatigue, and potential failure in components. By conducting frequent inspections daily to weekly, operators can identify any signs of wear or damage early, thus ensuring safety and operational efficiency. These inspections may include checking critical components such as the hoist mechanisms, controls, cables, and structural frames. This high-frequency approach aligns with best practices in crane operation and maintenance to prevent accidents and prolong the lifespan of the equipment. Other options, such as weekly, monthly, or annually, do not fulfill the necessary frequency for heavy service conditions. While they may be suitable for cranes used under lighter service conditions, they do not adequately address the increased risks present in heavy operations. Therefore, adhering to a daily to weekly inspection schedule is essential to maintain safety and compliance with industry standards.

5. Who is responsible for determining the correct hoist wire rope to be installed on tower cranes?

- A. Operator**
- B. Manufacturer**
- C. Inspection authority**
- D. Site supervisor**

The responsibility for determining the correct hoist wire rope to be installed on tower cranes lies with the manufacturer. This is because the manufacturer has the technical expertise and knowledge regarding the specifications required for safe operation. They consider factors such as the crane's design, intended load capacity, and operational guidelines when specifying the appropriate wire rope. Using the correct type and size of wire rope is crucial for maintaining safety and operational efficiency in lifting applications; hence, the manufacturer's guidance ensures that these critical aspects are taken into account. Each crane model is engineered with specific load dynamics, and the wire rope must match those requirements to avoid failures or accidents during operation. While the operator is responsible for the day-to-day functioning of the crane, and the site supervisor oversees operations, neither of them has the specialized knowledge necessary to make the technical recommendations about wire rope specifications. Similarly, the inspection authority focuses on verifying compliance with safety standards rather than determining equipment specifications.

6. What must be inspected before each climbing operation in tower crane operations?

- A. The load only**
- B. The operator's equipment**
- C. Load members of the support system**
- D. Power lines in the area**

Before each climbing operation in tower crane operations, it is essential to inspect the load members of the support system. This inspection is crucial because the load members, including the tower crane's base, mast, and various support elements, must be structurally sound and in good condition to ensure stability and safety during the climbing process. Any defects or weaknesses in these components can directly affect the crane's ability to function safely, particularly when the crane is in a raised position and handling loads. By focusing on inspecting the load members of the support system, operators can ensure that the crane is capable of supporting the necessary loads and that the climbing operation can be conducted safely. While considering other important elements such as the load, operator's equipment, and power lines, they do not specifically pertain to the immediate structural integrity required for safe climbing operations. The load does need to be secure and appropriately managed, the operator's equipment must be functional and protective, and awareness of power lines is indeed a critical safety measure. However, the primary goal of inspecting the load members is to confirm that the crane's climbing operation can be executed without compromising its stability and safety.

7. What is the required frequency of a periodic inspection in light service conditions per ASME B30.3?

- A. Quarterly**
- B. Semi-annually**
- C. Monthly**
- D. Annually**

The required frequency for a periodic inspection in light service conditions, according to ASME B30.3, is annually. This standard outlines that in light service conditions, which typically involve less rigorous and less frequent use of the equipment compared to heavy service conditions, an annual inspection is sufficient to ensure the safe operation and maintenance of the crane. This annual inspection helps to identify any potential safety issues or wear and tear that could compromise the crane's functionality. Operators and inspectors can examine various critical components during this inspection, assessing their condition and performance to ensure compliance with safety standards. By adhering to this annual requirement, operators can maintain operational safety while avoiding unnecessary maintenance costs associated with more frequent inspections that are not warranted under light service conditions.

8. Slings must be removed from service if hooks are cracked or have been opened more than what percentage of their normal throat opening?

- A. 5%**
- B. 10%**
- C. 15%**
- D. 20%**

Slings must be removed from service if hooks are cracked or have been opened more than 15% of their normal throat opening. This is because a hook that is opened excessively or is cracked poses a significant safety risk. The integrity of the hook is critical in maintaining the secure connection between the load and the lifting device. If the hook is deformed, it may not be able to properly support the load, increasing the chance of failure during lifting operations. The 15% threshold is established based on safety standards which aim to prevent accidents and ensure reliable lifting operations. By mandating removal of hooks that are opened beyond this percentage, operators help ensure that only equipment in safe working condition is utilized, thereby protecting both the lift operators and anyone else in the vicinity.

9. What class of fire extinguisher is required to be kept in the cab or on the machinery platform as per ASME B30.3?

A. 10BC

B. 5BC

C. 20BC

D. ABC

The requirement for a fire extinguisher in the cab or on the machinery platform according to ASME B30.3 specifies a 10BC class fire extinguisher. This classification, indicated by "BC," signifies that the extinguisher is suitable for suppressing fires involving flammable liquids (Class B) and electrical fires (Class C). Choosing a 10BC extinguisher ensures that it has a sufficient capacity to effectively combat potential fires that could arise in the work environment of a tower crane operator. The number "10" indicates the size or capability of the extinguisher, denoting that it has a minimum effectiveness and is appropriate for the typical risks associated with construction and crane operation. Other classifications such as 5BC or 20BC do not meet the optimal specification of a 10BC extinguisher for crane operation. A 20BC extinguisher, while effective for larger fire incidents, may not align with the standard guidelines for extinguishers specifically required in crane cabs, which prioritize size and effectiveness. An ABC extinguisher, although versatile, might not be the primary recommendation for the specific hazards present in the crane operation context as outlined by ASME standards. Thus, maintaining a 10BC exting

10. According to ASME B30.3, how many randomly broken wires must there be to remove a running wire rope from service?

A. 6

B. 8

C. 10

D. 12

Under ASME B30.3, the requirement for the number of randomly broken wires that necessitate the removal of a wire rope from service is established to ensure safety and reliability in lifting operations. The standard specifies that if 12 randomly broken wires are found in a single rope lay, this indicates significant wear or damage that compromises the integrity of the wire rope. This threshold is set to prevent accidents caused by the failure of the wire rope during operation, emphasizing the importance of regular inspections and maintenance in ensuring safe lifting practices. The decision to set the limit at 12 wires reflects a conservative approach to safety, ensuring that operators maintain a high standard of vigilance when monitoring the condition of wire ropes in use.