

## Operating Articulating Aerial Equipment

### Terms

Write the definition of the terms below on the blanks provided.

1. Booms (278)
  
2. Anti-Electrocution Platform (284)

### True/False

Write True or False on the blanks provided; if false, write the correct statements on the lines provided.

\_\_\_\_\_ 1. Water towers and aerial platforms are two types of articulating aerial apparatus. (278)

\_\_\_\_\_ 2. Water tower articulating aerial apparatus can be used to lift equipment to assist during fireground operations. (278)

\_\_\_\_\_ 3. The aerial platform must always be operated ahead of the turntable. (286)

\_\_\_\_\_ 4. Wind can cause significant dynamic loads on an articulating aerial device. (289)

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- \_\_\_\_\_ 5. Grease applied to exposed sliding surfaces prevents immediate adhesion when ice formation begins. (290)
- \_\_\_\_\_ 6. Drifting of the aerial device when raised is a sign of mechanical trouble. (292)
- \_\_\_\_\_ 7. When operating an articulating aerial apparatus, a small amount of leaking hydraulic fluid is a normal sign of operation. (292)
- \_\_\_\_\_ 8. The auxiliary hydraulic pump should only be operated at five-minute intervals, followed by a five-minute rest. (292)

## Short Answer

Write the correct answers on the blanks provided.

1. List the step-by-step process for raising the articulating aerial device to its working position. (282-285)

2. List the step-by-step process for lowering the articulating aerial device. (286)
  
  
  
  
  
  
  
  
  
3. List the keys to operating on a grade. (289)
  
  
  
  
  
  
  
  
  
4. List obvious signs of heat damage. (292)
  
  
  
  
  
  
  
  
  
5. List the tenets of safety that may be applied as rules of thumb to all articulating aerial devices. (293)

**Multiple Choice**

Write the correct answers on the blanks provided.

- \_\_\_\_\_ 1. Safe, smooth, and efficient operation of an articulating aerial device is best ensured by: (277)
- A. a certification test.
  - B. a thorough apparatus check.
  - C. an experienced company officer.
  - D. a good, thorough training program.
- \_\_\_\_\_ 2. The booms are \_\_\_ operated by controls located on the turntable pedestal. (278)
- A. manually
  - B. remotely
  - C. hydraulically
  - D. electronically
- \_\_\_\_\_ 3. NFPA® \_\_\_ establishes static load requirements that an aerial apparatus must meet when operating on a grade. (289)
- A. 1001
  - B. 1500
  - C. 1901
  - D. 1941
- \_\_\_\_\_ 4. On an articulating aerial device, the joint between the boom sections is commonly called the \_\_\_ joint. (278)
- A. elbow
  - B. section
  - C. knuckle
  - D. extension
- \_\_\_\_\_ 5. Which of the following is the correct series of motions when raising an aerial device? (280)
- A. Lifting, extending, rotating, and securing to objective
  - B. Elevating, extending, stabilizing, and securing to objective
  - C. Elevating, rotating, securing, and lowering to objective
  - D. Elevating, rotating, extending, and lowering to objective
- \_\_\_\_\_ 6. Which type of controls are designed to efficiently perform simultaneous operations? (281)
- A. Lever
  - B. Joystick
  - C. Push button
  - D. Manual hydraulic valve

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- \_\_\_\_\_ 7. Which of the following is NOT a task that should be completed before deploying the aerial device? (281)
- A. Engage cylinder and/or turntable locks.
  - B. The apparatus should be placed in the proper position for maximum efficiency.
  - C. The selector valve should be switched from the stabilizer position to the aerial device position.
  - D. The apparatus transmission should be in proper gear, and the power take-off (PTO) should be activated.
- \_\_\_\_\_ 8. Operation of the aerial device when the apparatus is parked on a grade greatly complicates the concerns with regard to \_\_\_ stress placed upon the aerial device. (289)
- A. static
  - B. lateral
  - C. vertical
  - D. dynamic
- \_\_\_\_\_ 9. Which of the following is the MOST reliable method of obtaining wind speeds? (290)
- A. Barometer
  - B. Hydrometer
  - C. Wind scale table
  - D. Calibrated wind-measuring equipment
- \_\_\_\_\_ 10. Due to its weight, ice significantly reduces rescue capacity, adversely affects stability, and lessens the \_\_\_ load capacity. (290)
- A. static
  - B. stress
  - C. lateral
  - D. working
- \_\_\_\_\_ 11. Which of the following is a common method of removing ice from an articulating aerial device? (290)
- A. Compressed air
  - B. Butane gas torch
  - C. High-pressure steam
  - D. Corrosive liquid thawing agent
- \_\_\_\_\_ 12. One cubic inch (16.39 cm<sup>3</sup>) of ice is equal to: (291)
- A. 0.03 lb (0.01 kg).
  - B. 0.05 lb (0.02 kg).
  - C. 0.30 lb (0.13 kg).
  - D. 1 lb (0.45 kg).

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## Skill Sheet 9-1

**Objective 4:** Raise and lower an articulating aerial device. (NFPA® 1002, 6.2.3, 6.2.4)

**Student Name:** \_\_\_\_\_ **Date:** \_\_\_\_\_

### Directions

For this skills evaluation checklist, students will raise and lower an articulating aerial device.

### Equipment & Materials

- Two driver/operator candidates
- Two certified driver/operators
- Fire service aerial platform apparatus
- Apparatus operator's manual

## Task Steps

### RAISING THE AERIAL DEVICE

1. Unlock the aerial device from its cradle.
2. Make hose connections, connecting intake fire hose(s) to appropriate fire pump or waterway.
3. Check the intended path of the aerial device for obstructions.
4. Energize the platform controls.
5. Elevate the lower boom, and move the platform to ground level.
6. Allow personnel to board the aerial platform if apparatus is so equipped. Each occupant must connect with an approved safety harness.
7. Elevate the aerial device.
8. Charge the waterway system.
9. Operate the master stream, shutting down stream after one-minute application.
10. Prepare the aerial device for fixed operation if approved by manufacturer.

### LOWERING THE AERIAL DEVICE

11. Disengage the cylinder and/or turntable locks if applicable.
12. Drain the waterway system.
13. Move the aerial device away from its objective.
14. Rotate the aerial device until it is aligned with the boom support travel cradle.
15. If personnel cannot exit platform from stowed position, lower the platform to the ground.
16. Prepare the lower boom hold-down hooks to receive the aerial device.
17. Lower the aerial device onto the boom support travel cradle.
18. Secure the boom.

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19. Allow personnel to exit the platform, if applicable.
  20. Disconnect the hose(s) as applicable.
  21. Raise the stabilizers.
  22. Disengage the PTO.
  23. Disengage the fire pump.