# ADO-Aerial Apparatus
# Manipulative Skill Objectives

## *PREVENTIVE MAINTENANCE*

1. **Perform and operate (when necessary to determine operational readiness) routine tests, inspections, and servicing functions on specified systems and components and document results on appropriate forms.**

   **A.** **For a fire department Apparatus**

   **Reference:** NFPA 1002, 2009 Edition, 4.2.1(a)(b), 4.2.2 (a)(b), 4.3.7 (a)(b).

   **Condition:** Given a fire department aerial apparatus, inspection form, or check-off sheet (Sample check-off sheet provided in Appendix B).

   **Competence:**
   - Check batteries for fluid level and corrosion (if **maintenance** free, check indicator for correct color).
   - Check braking system for fluid level/drain air tanks of water.
   - Check coolant system for fluid level, leaks, cleanliness.
   - Check electrical system for corrosion and tight connections.
     - Siren and other warning devices.
     - Headlights, running lights, and turn signal flashers.
     - Emergency warning lights.
   - Check fuel level.
   - Check hydraulic system for fluid level and leaks.
   - Check engine oil for fluid level and leaks.
   - Check transmission fluid level (if applicable).
   - Check other fluid levels as appropriate.
   - Check tires for pressure and wear.
   - Check steering system for range of motion and looseness.
   - Check engine belts for tightness and wear.
   - Check tools, appliances, and equipment, fixed equipment, lighting.
   - Check windshield wiper blades.
   - Start apparatus and monitor gauges and other control devices.
   - Check all items off on department check-off sheet (see Appendix B)
   - Identify, document, and report deficiencies found.

   **Time:** 20:00 minutes.

B. **Fire Department Aerial Device system.**

**Reference:** NFPA 1002, 2009 Edition, 6.1.1 (a)(b)

**Condition:** Given a fire department aerial apparatus, determine readiness of aerial device on an aerial apparatus. Department check sheets may be used. (Sample check-off sheet provided in Appendix B).

**Competence:**
- Check cable system (if applicable).
- Check aerial device hydraulic system(s).
- Check hydraulic fluid level.
- Operate PTO shift.
- Check slides and/or rollers (if applicable).
- Check stabilizing system(s).
- Check aerial device safety systems / interlocks.
- Check leveling gauges.
- Check breathing air system (if applicable).
- Check communication system.
- Check nozzle/waterway.
- Check tools, appliances, and equipment, fixed equipment, lighting.
- Identify, document and report deficiencies found.

**Time:** 20:00 minutes.

# DRIVING OPERATIONS

**NOTICE: The driving skills in this standard are used to determine participant's qualifications to become certified by the Utah Fire Service Certification Council at the level of ADO-Aerial Apparatus. The passing of these skills does not qualify a participant for any other certification or licenser, such as a Commercial Drivers License (CDL) and is not intended to certify, verify or approve an individual's ability to drive fire apparatus on state or federal highways. The responsibility to determine who will drive fire apparatus resides with the local fire department or the authority having jurisdiction.**

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2. **Operate a fire department aerial apparatus so that the vehicle is safely operated in compliance with all applicable state and local laws, departmental rules and regulations.**

**Reference:** NFPA 1002, 2009 Edition, 4.3.1(a)(b), 4.3.6(a)(b), 6.1.3 (a)(b)
NFPA 1500, 1992 Edition, 4-2.
Utah Criminal and Traffic Code 1993 Edition, Chapter 41-6.

**Condition:** Given a fire department aerial apparatus and a predetermined route on a public way that incorporates the maneuvers and features specified below, and that the driver/operator is expected to encounter during normal operations:

NFPA 1002 4.3.1

4.3.1(1) Four left turns and four right turns
4.3.1(2) A straight section of urban business street or a two-lane rural road at least 1.6 km (1 mile) in length.
4.3.1 (3) One through-intersection and two intersections where a stop has to be made.
4.3.1(4) One railroad crossing
4.3.1(5) One curve, either left or right
4.3.1(6) A section of limited-access highway that includes a conventional ramp entrance and exit and a section of road long enough to allow two lane changes.
4.3.1(7) A downgrade steep enough and long enough to require down-shifting and braking.
4.3.1(8) An upgrade steep enough and long enough to require gear changing to maintain speed
4.3.1(9) One underpass or a low clearance or bridge.

**Note: Conditions 1 – 9 may be modified if the jurisdiction does not have a means to train on the skill due to geographic limitations, manufacture's recommendations. In the absence of these limitations and prohibitions, all of the skills should be trained on and certified to.**

**Competence:**
- Adjust and use mirrors.
- Use seat belts for all occupants.
- Observe all posted speed limits.
- Maintain safe following distances.
- Maintain control of the vehicle while accelerating, decelerating, and turning.
- Stop fully at all stop signs or stop lights.
- Use turn signals.
- Keep apparatus in correct lane of travel.
- Monitor all gauges so vehicle is operated within manufactures specifications.

**Time:** **As determined by route**

SPOTTER INSTRUCTIONS: Skills 3 through 6 will be tested on a controlled and unobstructed training ground. Duties of the spotter for testing purposes may be different from the spotter's duties during normal operations. The purpose of having a spotter assist while backing an apparatus is to protect life and property. The spotter should alert the driver if property damage could occur or damage the apparatus. Because the training ground is a controlled and unobstructed environment, the spotter will NOT be allowed to assist in directing the driver when to stop the apparatus during the test unless damage may occur. It is the intent of certification to assess whether the driver is aware of the dimensions of the apparatus.

3. Back a vehicle from a roadway into restricted spaces on both the right and/or left sides of the vehicle. (Alley Dock)

**Reference:** NFPA 1002, 2009 Edition, 4.3.2(a)(b), 6.1.2 (a)(b).
*** See Appendix C for diagram of course and instructions.**

**Condition:** Given a fire department aerial apparatus, spotter, cones, and a restricted space 12 ft. in width, requiring 90-degree right or left-hand turns from the roadway, so that the vehicle is parked within the restricted area without having to stop, and adjust travel and without striking cones. A marker should be placed on the ground, on the left side of the apparatus, to mark where the front left tire should be spotted, and where to stop the apparatus and park.

**Competence:**
- Adjust and use mirrors for backing.
- Driver/passengers wearing seat belts.
- Spotter used to back apparatus for safety only.
- Stop apparatus by aligning center of left tire within 6" of the center of the mark on the ground indicating where the apparatus should be stopped and parked.
- Completed skill correctly without striking cones.

**Time:** 5:00 minutes

4. **Maneuver vehicle around obstructions on a roadway while moving forward and in reverse. (Serpentine)**

**Reference:** NFPA 1002, 2009 Edition, 4.3.3(a)(b), 6.1.2 (a)(b).
*** See Appendix C for diagram of course and instructions.**

**Condition:** Given a fire department aerial apparatus, spotter, cones, a roadway with obstructions, so that the vehicle is maneuvered through the obstructions without stopping and without striking cones.

**Competence:**
- Adjust and use mirrors for backing.
- Driver/passengers wearing seat belts.
- Spotter used to back apparatus for safety only.
- Completed skill correctly without striking cones.

**Time:** 5:00 minutes

5. **Turn a vehicle around 180 degrees within a confined space. (Confined Space Turnaround)**

**Reference:** NFPA 1002, 2009 Edition, 4.3.4(a)(b), 6.1.2 (a)(b).
*** See Appendix C for diagram of course and instructions.**

**Condition:** Given a fire department aerial apparatus, spotter, cones, area where vehicle cannot make a U-turn without stopping and backing up, so that the vehicle is turned 180 degrees without passing over or striking cones.

**Competence:**
- Adjust and use mirrors for backing.
- Driver/passengers wearing seat belts.
- Spotter used to back apparatus for safety only.
- Completed skill correctly without striking cones.

**Time:** 5:00 minutes

6. **Maneuver a vehicle in restricted horizontal clearances. (Diminishing Clearance)**

**Reference:** NFPA 1002, 2009 Edition, 4.3.5(a)(b), 4.3.6(a)(b), 6.1.2 (a)(b).
*** See Appendix C for diagram of course and instructions.**

**Condition:** Given a fire department aerial apparatus, cones, course that requires the operator to move through areas of restricted horizontal clearances, so that the operator accurately judges the ability of the vehicle to pass through the openings without striking cones.

*** Width measurements for this skill may be modified due to the varying widths of apparatus. Modification should be based on the track width of the apparatus being used for training. To obtain a final width, measure the apparatus being used and add 2 inches on each side the track width and that will be the final width for training and testing purposes.**

**Competence:**
- Adjust and use mirrors.
- Driver/passengers wearing seat belts.
- Completed skill correctly without stopping or striking cones.
- Place the apparatus bumper within 18 inches of the cone at the finish line without crossing over it.

**Time:** 5:00 minutes

# AERIAL OPERATIONS

7. **Maneuver and position an aerial apparatus so that the apparatus is properly positioned for safe aerial device (PLATFORM or LADDER) deployment for rescue and ventilation activities. Each skill shall be operated from a different control station on the apparatus (Turntable, Panel, Rear Bumper, or Remote wire or wireless controls). The operator will be able to successfully position an aerial device to a:**

**A. Window.**

**Reference:** NFPA 1002, 2009 Edition, 6.2.1 (a)(b), 6.2.2 (a)(b), 6.2.3 (a)(b).

**Condition:** Given an aerial apparatus, an incident location, an assignment, and 2-firefighter team (Operator and Spotter)

**Competence:**
- Position aerial apparatus for operation, (upwind, out of collapse zone, correct position for grade/terrain).
- Assess overhead hazards for deployment of aerial device, i.e. overhead wires, powerlines, and trees (must verbalize).
- Set park brake, engage PTO, (chock wheels if applicable).
- Verbalize assessment of surface conditions for stabilization purposes.
- Stabilize apparatus using stabilizing devices, use leveling gauge.
- Switch selector valve to aerial device – if not automatic
- Verbalize weight restrictions while operating aerial device.
- Elevate, rotate, extend and lower aerial device (AERIAL LADDER or PLATFORM device) level with windowsill for RESCUE operations.
- Elevate, rotate, extend and lower aerial device (AERIAL LADDER or PLATFORM) to side of window frame for VENTILATION operations.

**Time:** 7:00 minutes

**B. Roof.**

**Reference:** NFPA 1002, 2009 Edition, 6.2.1 (a)(b), 6.2.2 (a)(b), 6.2.3 (a)(b).

**Condition:** Given an aerial apparatus, an incident location, an assignment, and 2-firefighter team (Operator and Spotter)

**Competence:**
- Position aerial apparatus for operation, (upwind, out of collapse zone, correct position for grade/terrain).
- Assess overhead hazards for deployment of aerial device, i.e. overhead wires, powerlines, and trees (must verbalize).
- Set park brake, engage PTO, (chock wheels if applicable).
- Verbalize assessment of surface conditions for stabilization purposes.
- Stabilize apparatus using stabilizing devices, use leveling gauge.
- Switch selector valve to aerial device – if not automatic.
- Verbalize weight restrictions while operating aerial device.
- **AERIAL LADDER**: elevate, rotate, extend device and lower to target area, extended 6 feet above roof (following manufactures recommendation for supported and unsupported positions), for RESCUE or VENTILATION operations.
- **PLATFORM**: elevate, rotate, extend and lower platform level with roof for RESCUE or VENTILATION operations.

**Time:** 7:00 minutes

C. **Elevated Master stream.**

**Reference:** NFPA 1002, 2009 Edition, 6.2.1 (a)(b), 6.2.2 (a)(b), 6.2.3 (a)(b) 6.2.5 (a)(b)

**Condition:** Given an aerial apparatus, an incident location, an assignment, pre-established water supply not connected to the inlet and 2-firefighter team (Operator and Spotter).

**Competence:**
- Position aerial apparatus for operation, (upwind, out of collapse zone, correct position for grade/terrain).
- Assess overhead hazards for deployment of aerial device, i.e. overhead wires, powerlines, and trees (must verbalize).
- Set park brake, engage PTO, (chock wheels if applicable).
- Verbalize assessment of surface conditions for stabilization purposes.
- Stabilize apparatus using stabilizing devices, use leveling gauge.
- Switch selector valve to aerial device – if not automatic.
- Verbalize weight restrictions while operating aerial device.
- Make water supply connection to apparatus/calls for water – spotter may assist.
- Activate water flow to nozzle
- Establish and verbalize correct PDP (within +/- 10 psi) and the method used to determine PDP (if equipped with a pump)
- Flow effective water stream for 1 minute, adjust nozzle (pattern or position).
- Verbalize correct intake pressure required (within +/- 10 psi) and method used to determine intake pressure (if not equipped with a pump).

**Time:** 7:00 minutes

8. **Lower an aerial device using the emergency operating system so that the aerial device is safely lowered to its bedded position. (Simulated emergency)**

**Reference:** NFPA 1002, 2009 Edition, 6.2.4

**Condition:** Given an aerial apparatus and a situation that would require emergency action (i.e., loss of power, engine failure), 2-firefighter team (operator and assistant). Apparatus engine should be off.

**Competence:**
- Verbalize notifying Incident Command of situation, loss of apparatus power.
- Demonstrate activation of auxiliary system as per manufacture recommendations.
- Verbalize procedure to raise, retract, rotate, and lower aerial device to bedded position using auxiliary system.
- Verbalize procedure to lift outriggers using auxiliary system.

**Time:** 15:00 minutes

## APPENDIX - A
## TRAINING RECORD

*ADO - AERIAL*
*TRAINING RECORD / IN-HOUSE COMPREHENSIVE EXAM*

**NAME:** _____ **DEPARTMENT:** _____

| SECTION | TRAINING RECORD | | IN-HOUSE COMP EXAM | | | MANIPULATIVE SKILL DEMONSTRATE |
|---|---|---|---|---|---|---|
| | DATE | INST | DATE | INST | PASS | |
| PREVENTIVE MAINTENACE | | | | | | 1A- Perform and document routine tests, inspections, and servicing functions for a fire department apparatus. |
| | | | | | | 1B- Perform and document routine tests, inspections, and servicing functions for the Aerial device of apparatus. |
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| DRIVING OPERATIONS | | | | | | 2- Operate a fire department pumper so that the vehicle is safely operated in compliance with all state and local laws, department rules and regulations. |
| | | | | | | 3- Back a vehicle from a roadway into restricted spaces on both right and left sides of the vehicle. **(Alley Dock)** |
| | | | | | | 4- Maneuver vehicle around obstructions on a roadway while moving forward and in reverse. **(Serpentine)** |
| | | | | | | 5- Turn a vehicle around 180 degrees within a confined space. **(Confined Space Turnaround)** |
| | | | | | | 6- Maneuver a vehicle in restricted horizontal clearances. **(Diminishing Clearance)** |
| | | | | | | |
| AERIAL OPERATIONS | | | | | | 7A- Positioning aerial device at **Window** for rescue or ventilation activities. |
| | | | | | | 7B- Positioning aerial device at **Roof** for rescue or ventilation activities. |
| | | | | | | 7C- Positioning aerial device for **Elevated Master Stream** operations. |
| | | | | | | 8- Lower aerial device using **Emergency Operation** system. |