



# Tillered Apparatus Operations (2024)

## Course Plan

### Course Details

- Certification:** Tillered Apparatus Driver/Operator (2024)
- CTS Guide:** Fire Apparatus Driver/Operator (2024)
- Description:** This course provides the knowledge and skills needed to operate a fire department aerial apparatus equipped with a tiller. Topics include practical driving exercises and operating, positioning, and stabilizing the apparatus from both the tractor and tiller positions.
- Designed For:** Personnel who drive and operate a tillered apparatus
- Course Prerequisites:** OSFM certified Fire Fighter 1 or certified Fire Fighter 2 tenured path (Appointment to the rank of Officer (Lieutenant or higher) waives this prerequisite. Appointment to the CAL FIRE rank of Fire Apparatus Engineer is equivalent to Officer level. Performing in an “acting” capacity does not fulfill this requirement.)
- FADO 1A: Fire Apparatus Driver/Operator (2017 or newer)
- FADO 1B: Pumping Apparatus Operations (2017 or newer)
- One of the following driver’s licenses: Class C fire fighter endorsed, Commercial A, or Commercial B
- Experience driving a tillered aerial apparatus (recommended)
- Standard:** Complete all skills, activities, and tests
- Complete the summative test with a minimum score of 80%
- Hours (Total):** 40 hours (10.5 lecture / 28.5 application / 1 testing)
- Maximum Class Size:** 30
- Instructor Level:** SFT Registered Instructor for both Tillered Apparatus Driver/Operator and Aerial Apparatus Driver/Operator
- Instructor/Student Ratio:** 1:30 (lecture) / 1:8 (application)
- Restrictions:** Sufficient fire apparatus and space to accommodate classroom and skills training
- SFT Designation:** CFSTES

## Table of Contents

Course Details .....	1
Required Resources .....	3
Instructor Resources .....	3
Online Instructor Resources .....	3
Student Resources .....	3
Facilities, Equipment, and Personnel .....	3
Timetable .....	5
Timetable Key .....	5
Unit 1: Introduction .....	7
Topic 1-1: Orientation and Administration .....	7
Topic 1-2: Tillered Apparatus Driver/Operator Certification .....	8
Unit 2: Preventative Maintenance .....	10
Topic 2-1: Performing and Documenting Visual and Operational Checks .....	10
Unit 3: Operations .....	12
Topic 3-1: Performing Practical Driving Exercises .....	12
Topic 3-2: Operate a Tillered Apparatus .....	14
Topic 3-3: Position and Stabilize a Tillered Apparatus .....	16
How to Read a Course Plan .....	17

## Required Resources

### Instructor Resources

To teach this course, instructors need:

- One of the following textbooks
  - *Fire Apparatus Driver/Operator: Pump, Aerial, Tiller, and Mobile Water Supply* (Jones & Bartlett, current edition)
  - *Pumping and Aerial Apparatus Driver/Operator Handbook* (IFSTA, current edition)
- Maintenance and inspection forms
- Manufacturer's specifications and requirements
- Applicable state and local laws

### Online Instructor Resources

The following instructor resources are available online at <https://osfm.fire.ca.gov/what-we-do/state-fire-training/professional-certifications>:

- Tillered Apparatus Operations required activities
  - Activity 3-1(a): Serpentine
  - Activity 3-1(b): Cul-de-sac Turnaround
  - Activity 3-1(c): Station Parking
  - Activity 3-1(d): Diminishing Clearance
  - Activity 3-3: Position and Stabilize a Tillered Apparatus

### Student Resources

To participate in this course, students need:

- Textbook selected by the instructor
- Personal protective equipment (minimum = long pants, wildland jacket, gloves, helmet, footwear with toe protection)

### Facilities, Equipment, and Personnel

The following facilities, equipment, or personnel are required to deliver this course:

- Standard learning environment or facility
  - Writing board or paper conference pads
  - Markers, erasers
  - Computer or tablet with presentation or other viewing software
  - Amplification devices
  - Projector and screen
- Sufficient aerial apparatus equipped with a tiller to accommodate the students in the class
  - Recommend at least 30 minutes of drive time per student across Topics 3-1 through 3-3

- Skills Coaches who have already completed FADO 1C (Aerial) and 1D (Tiller) to support application activities (Based on class size, apparatus numbers, and student experience levels. Skills Coaches are in addition to and may not replace Registered Instructors)
- Spotters
- Adequate space to accommodate the required skills
- Tools and equipment for inspection and testing
- Tape measure
- Traffic cones
- Delineators
- Left front tire marker
- Optional straight line marker
- Vertical obstacle
- Personal protective equipment (students)

## Timetable

Segment	Lecture	Application	Unit Total
<b>Unit 1: Introduction</b>			
Topic 1-1: Orientation and Administration	0.5	0.0	
Topic 1-2: Tillered Apparatus Driver/Operator Certification	0.5	0.0	
<b>Unit 1 Totals</b>	<b>1.0</b>	<b>0.0</b>	<b>1.0</b>
<b>Unit 2: Preventative Maintenance</b>			
Topic 2-1: Performing and Documenting Visual and Operation Checks	0.5	0.5	
<b>Unit 2 Totals</b>	<b>0.5</b>	<b>0.5</b>	<b>1.0</b>
<b>Unit 3: Operations</b>			
Topic 3-1: Performing Practical Driving Exercises	7.0	*	
Topic 3-2: Operating a Tillered Apparatus	1.0	1.0	
Topic 3-3: Positioning and Stabilizing a Tillered Apparatus	1.0	*	
<b>Unit 2 Totals</b>	<b>9.0</b>	<b>28.0</b>	<b>37.0</b>
<b>Summative Assessment</b>			
Determined by AHJ or educational institution	<b>0.0</b>	<b>1.0</b>	<b>1.0</b>
<b>Skills Practice (Lab / Sets and Reps)</b>			
Determined by AHJ or educational institution	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>
<b>Course Totals</b>	<b>10.5</b>	<b>29.5</b>	<b>40.0</b>

\* Individual application time determined by instructor for a total of 28 hours for Unit 3. Recommend at least 30 minutes of drive time per student across Topics 3-1 through 3-3.

### Timetable Key

- The Timetable documents the amount of time required to deliver the content included in the course plan.
- Time is documented using the quarter system:
  - 15 min. = 0.25 hours
  - 30 min. = 0.50 hours
  - 45 min. = 0.75 hours
  - 60 min. = 1.00 hours
- The Course Totals do not reflect time for lunch (1 hour) or breaks (10 minutes per each 50 minutes of instruction or assessment). It is the instructor's responsibility to add this time based on the course delivery schedule.

4. Application (activities, skills exercises, and formative testing) time will vary depending on the number of students enrolled. The Application time documented is based on the maximum class size identified in the Course Details section.
5. Summative Assessments are determined and scheduled by the authority having jurisdiction. These are not the written or psychomotor State Fire Training certification exams. These are in-class assessments to evaluate student progress and calculate course grades.

## Unit 1: Introduction

### Topic 1-1: Orientation and Administration

#### Terminal Learning Objective

At the end of this topic a student will be able to identify facility and classroom requirements and identify course objectives, events, requirements, assignments, activities, skills exercises, resources, evaluation methods, and participation requirements in the course syllabus.

#### Enabling Learning Objectives

1. Identify facility requirements
  - Restroom locations
  - Food locations
  - Smoking locations
  - Emergency procedures
2. Identify classroom requirements
  - Start and end times
  - Breaks
  - Electronic device policies
  - Special needs and accommodations
  - Other requirements as applicable
3. Review course syllabus
  - Course objectives
  - Calendar of events
  - Course requirements
  - Student evaluation process
  - Assignments
  - Activities and skills exercises
  - Required student resources
  - Class participation requirements

#### Discussion Questions

1. Determined by instructor

#### Application

1. Determined by instructor

#### Instructor Notes

1. None

## Topic 1-2: Tillered Apparatus Driver/Operator Certification

### Terminal Learning Objective

At the end of this topic a student will be able to identify the requirements for Tillered Apparatus Driver/Operator certification and be able to describe the certification task book and examination process.

### Enabling Learning Objectives

1. Identify different levels of certification in the Fire Apparatus Driver/Operator certification track
  - Pumping Apparatus
  - Aerial Apparatus
  - Tillered Apparatus
  - Wildland Fire Apparatus
  - Water Tender
2. Identify the prerequisites for certification
  - One of the following:
    - OSFM Fire Fighter 1 certification **or**
    - Appointment to the rank of Officer (Lieutenant or higher) or CAL FIRE rank of Fire Apparatus Engineer (Performing in an “acting” capacity does not fulfill this requirement.) **and**
  - Valid Class C Firefighter Endorsed **or** Commercial A **or** Commercial B driver’s license (per California Vehicle Code, Section 12804.11)
3. Identify the courses required for certification
  - FADO 1A: Fire Apparatus Driver/Operator (2015 or newer)
  - FADO 1B: Pumping Apparatus Operations (2015 or newer)
  - FADO 1D: Tillered Apparatus Operations (2015 or newer)
4. Identify the exams required for certification
  - No exams outside of class formative and summative testing
5. Identify the task book requirements for certification
  - Pumping Apparatus Certification Task Book (2024)
  - Tillered Apparatus Certification Task Book (2024)
6. Identify the experience requirements for certification (both required)
  - A minimum of one year full-time paid or two years’ volunteer or part-time paid experience in a recognized California fire agency with the primary responsibility as a Pumping Apparatus Driver/Operator **and**
  - A minimum of one year full-time paid or two years’ volunteer or part-time paid experience in a recognized California fire agency with the primary responsibility as a driver/operator on the apparatus for which the candidate seeks certification
7. Identify the position requirements for certification
  - The position requirement is met when the applicant fulfills the role of the specific duties as defined by the fire chief
8. Describe the certification task book process
9. Describe the certification testing process

- Not applicable

**Discussion Questions**

1. Determined by instructor

**Application**

1. Determined by instructor

**Instructor Notes**

1. None

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## Unit 2: Preventative Maintenance

### Topic 2-1: Performing and Documenting Visual and Operational Checks

#### Terminal Learning Objective

At the end of this topic a student, given a tillered apparatus, tools and equipment, maintenance and inspection forms, manufacturer specifications and requirements, and AHJ policies and procedures, will be able to perform and document the visual and operational checks on the system and components unique to a tillered apparatus so that the operational readiness of the tillered apparatus is verified.

#### Enabling Learning Objectives

1. Identify manufacturer specifications and requirements
2. Identify AHJ policies and procedures including documentation requirements
3. Identify vehicle systems and components
  - Battery(ies)
  - Braking system
  - Coolant system
  - Electrical system
  - Fuel
  - Hydraulic fluids
  - Oil
  - Tires
  - Steering systems (front and rear)
  - Belts
  - Tools, appliances, and equipment
  - Built-in safety features
4. Describe systems and components unique to a tillered apparatus
  - Electrical systems
  - Hydraulic systems
  - Emergency power unit (EPU)
  - Safety systems
  - Ladder (if applicable)
  - Waterway (if applicable)
  - 5<sup>th</sup>-wheel connection (if applicable)
  - Breathing air systems
  - Cable systems (if applicable)
  - Communication systems
  - Slides and rollers
  - Stabilizing systems
  - Tiller box (safety features and components)
5. Use hand tools and equipment
6. Inspect tillered apparatus and components
7. Recognize system problems and out-of-service criteria

8. Correct any deficiency noted according to policies and procedures and/or manufacturer specifications and requirements

**Discussion Questions**

1. How often should you perform maintenance on a tillered apparatus?
2. What backup systems do tillers have if communication systems go down?
3. What powers the tillered power steering system?
4. What issues will take a tillered apparatus out of service?

**Application**

1. Given a tillered apparatus and inspection forms, divide students into small groups, have each group perform a tillered apparatus inspection, and present their findings.

**Instructor Notes**

1. Bring materials for the Application.

**CTS Guide Reference:** CTS 9-1

## Unit 3: Operations

### Topic 3-1: Performing Practical Driving Exercises

#### Terminal Learning Objective

At the end of this topic a student, given an aerial apparatus equipped with a tiller, a qualified tillered apparatus driver/operator, a spotter for backing up, manufacturer's specifications and requirements, and AHJ policies and procedures, will be able to perform the practical driving exercises specified in 11.3.2 through 11.3.5 in NFPA 1010 (2024) from the tractor and the tiller position so that each exercise is performed without striking the apparatus or obstructions.

#### Enabling Learning Objectives

1. Describe tiller operator's responsibilities
  - Defensive driving
  - Following traffic laws
  - Rear spotting
  - Clear communication
2. Identify methods of communication with the apparatus driver/operator
  - Verbal
  - Electronic (beeps)
  - Radio/cell phone
3. Explain effects of general steering reactions on tiller control
  - From tractor position
  - From tiller box position
4. Explain effects of general steering reactions on tractor control
  - From tractor position
  - From tiller box position
5. Explain the effects on tiller control on:
  - General steering reactions
  - Night driving
  - Negotiating intersections
6. Describe manufacturer's driving limitations
7. Communicate with apparatus driver/operator
8. Avoid obstacles to operations
9. Operate passenger restraint devices
10. Maintain control of the tillered apparatus while accelerating, decelerating, and turning
11. Operate the tiller during nonemergency conditions
12. Operate under adverse environmental or driving surface conditions

#### Discussion Questions

1. What is your objective when steering as the apparatus driver/operator and as the tiller operator?
2. How does the responsibility of the tiller operator differ from the apparatus driver/operator?

3. How do the tiller operator's movements impact the driver/operator's control of the apparatus?
4. How many rotations of the tiller steering wheel to the left or right are required before reaching the stop?
5. Who is responsible for backing?
6. While backing, where should you position your hands on the steering wheel?
7. When should the two driver/operators communicate?

**Application**

1. Activity 3-1(a): Serpentine
2. Activity 3-1(b): Cul-de-sac Turnaround
3. Activity 3-1(c): Station Parking
4. Activity 3-1(d): Diminishing Clearance

**Instructor Notes**

1. All personnel will complete the activities from the tractor (aerial) and trailer (tiller) position.

**CTS Guide Reference:** CTS 10-1

## Topic 3-2: Operate a Tillered Apparatus

### Terminal Learning Objective

At the end of this topic a student, given an aerial apparatus equipped with a tiller and another driver/operator, will be able to operate an aerial apparatus equipped with a tiller from the tiller position and the tractor position over a predetermined route on a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations (NFPA 1010, Paragraph 11.3.1) so that the apparatus is operated in compliance with all applicable state and local laws and department policies and procedures, and the requirements of NFPA 1500, Section 4.2.

### Enabling Learning Objectives

1. Describe principles of tiller operation
2. Describe methods of communication with the driver
3. Describe manufacturer operation limitations
4. Describe the capabilities and limitations of tiller aerial device related to:
  - Reach
  - Tip load
  - Angle of inclination
  - Angle from chassis axis
  - Manufacturer specifications for jackknifing
5. Identify effects of topography, ground, and weather conditions on safe deployment
6. Describe how to use a tiller aerial device
  - From tractor position
  - From tiller box position
7. Describe manufacturer's operation limitations
8. Determine a correct spotting position for the tractor during aerial operations
9. Operate the communication systems between the tiller operator's position and the driver's compartment
10. Maneuver tiller into correct position for spotting
  - Ventilation
  - Rescue
  - High point
  - Water tower
11. Operate aerial ladder

### Discussion Questions

1. What should you consider when operating on a roadway?
2. What tasks are associated with the tiller position during aerial operations?
3. What tasks are associated with the aerial position during aerial operations?
4. How do you align the tractor and trailer when operating at night?

### Application

1. Given tillered apparatus accident reports related to operations, divide students into small groups and have each group review an accident and develop recommendations for preventing a recurrence. Have each group present their findings.

**Instructor Notes**

1. None

**CTS Guide Reference:** CTS 10-2

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### **Topic 3-3: Position and Stabilize a Tillered Apparatus**

#### **Terminal Learning Objective**

At the end of this topic a student, given an aerial apparatus equipped with a tiller, another driver/operator, the apparatus operating instructions, an incident location, a situation description, and an assignment, will be able to position and stabilize an aerial apparatus equipped with a tiller from the tiller position and the tractor position so that the aerial device is positioned and stabilized to accomplish the assignment.

#### **Enabling Learning Objectives**

1. Explain principles of positioning and stabilizing an aerial apparatus
  - From the tiller position
  - From the tractor position
2. Determine a correct position for the tiller
3. Maneuver tiller into the correct position
  - From the tiller position
  - From the tractor position
4. Avoid obstacles to operations

#### **Discussion Questions**

1. When would you angle the trailer out?
2. When do you leave the tiller box after arriving on scene?
3. What responsibility does the tiller operator have for stabilizing the apparatus?

#### **Application**

1. Activity 3-3: Position and Stabilize a Tillered Apparatus

#### **Instructor Notes**

1. None

**CTS Guide Reference:** CTS 10-3

## How to Read a Course Plan

A course plan identifies the details, logistics, resources, and training and education content for an individual course. Whenever possible, course content is directly tied to a national or state standard. SFT uses the course plan as the training and education standard for an individual course. Individuals at fire agencies, academies, and community colleges use course plans to obtain their institution's consent to offer course and provide credit for their completion. Instructors use course plans to develop syllabi and lesson plans for course delivery.

### Course Details

The Course Details segment identifies the logistical information required for planning, scheduling, and delivering a course.

### Required Resources

The Required Resources segment identifies the resources, equipment, facilities, and personnel required to deliver the course.

### Unit

Each Unit represents a collection of aligned topics. Unit 1 is the same for all SFT courses. An instructor is not required to repeat Unit 1 when teaching multiple courses within a single instructional period or academy.

### Topics

Each Topic documents a single Terminal Learning Objective and the instructional activities that support it.

### Terminal Learning Objective

A Terminal Learning Objective (TLO) states the instructor's expectations of student performance at the end of a specific lesson or unit. Each TLO includes a task (what the student must be able to do), a condition (the setting and supplies needed), and a standard (how well or to whose specifications the task must be performed). TLOs target the performance required when students are evaluated, not what they will do as part of the course.

### Enabling Learning Objectives

The Enabling Learning Objectives (ELO) specify a detailed sequence of student activities that make up the instructional content of a lesson plan. ELOs cover the cognitive, affective, and psychomotor skills students must master in order to complete the TLO.

### Discussion Questions

The Discussion Questions are designed to guide students into a topic or to enhance their understanding of a topic. Instructors may add to or adjust the questions to suit their students.

**Application**

The Application segment documents experiences that enable students to apply lecture content through cognitive and psychomotor activities, skills exercises, and formative testing. Application experiences included in the course plan are required. Instructors may add additional application experiences to suit their student population if time permits.

**Instructor Notes**

The Instructor Notes segment documents suggestions and resources to enhance an instructor's ability to teach a specific topic.

**CTS Guide Reference**

The CTS Guide Reference segment documents the standard(s) from the corresponding Certification Training Standard Guide upon which each topic within the course is based. This segment is eliminated if the course is not based on a standard.

**Skill Sheet**

The Skill Sheet segment documents the skill sheet that tests the content contained within the topic. This segment is eliminated if the course does not have skill sheets.

## Serpentine

### Activity 3-1(a)

**Format:** Individual

**Time Frame:** Open (based on a total of 28 hours for skills practice and completion)

#### Description

This exercise measures a driver/operator's ability to maneuver a vehicle around obstructions on a roadway while moving forward and in reverse without stopping to change the direction of travel and without striking the obstructions.

#### Standard of Completion

Maneuver a tillered apparatus around obstructions on a roadway while moving forward and in reverse from the tractor and the tiller position, given a tillered apparatus, a spotter where the spotter assists the driver in performing the maneuver, and a roadway with obstructions, so that the tillered apparatus is maneuvered through the obstructions without stopping to change the direction of travel and without striking the obstructions. (NFPA 1010 (2024) / Paragraph 14.2.1 – referencing paragraph 11.3.3)

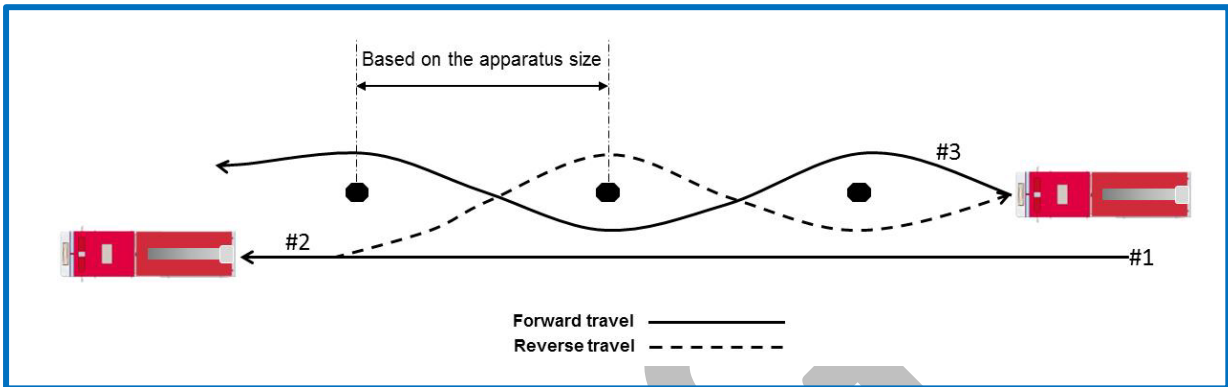
#### Materials

- Tillered apparatus
- Another driver/operator
- Tape measure
- Three (3) delineators
- PPE (including gloves and helmet)

#### Instructor Notes

1. Establish the course or path of travel for this exercise by placing a minimum of three (3) delineators in a straight line.
  - The spacing of the delineators (cones) is the length of the tillered apparatus being used.
2. Provide adequate space on each side of the delineators for the apparatus to move freely.
3. The driver/operator and tiller operator drive the apparatus along the left side of the markers in a straight line and the driver/operator stops when the rear of the apparatus is just beyond the last delineator.
4. The driver/operator and tiller operator then begin the exercise by backing the apparatus between the delineators, by passing to the left of delineator #1, to the right of delineator #2, and to the left of delineator #3.
5. The driver/operator stops the apparatus when the front of the apparatus is just beyond delineator #3.
6. Demonstrate the skill for the students before they practice and complete each skill.

**Activity Illustration**



## Cul-de-sac Turnaround

### Activity 3-1(b)

**Format:** Individual

**Time Frame:** Open (based on a total of 28 hours for skills practice and completion)

### Description

This exercise measures the tiller operator's ability to turn the apparatus around in a cul-de-sac (in which the apparatus cannot perform a U-turn without stopping and backing up) without striking obstacles.

### Standard of Completion

Turn a tillered apparatus 180 degrees within a confined space from the tiller and the tractor position, given a tillered apparatus, a spotter for backing up, another driver/operator, manufacturer requirements and specifications, and AHJ policies and procedures, so that the apparatus is turned 180 degrees without striking obstructions within the given space. (NFPA 1010 (2024) / Paragraph 14.2.1 – referencing paragraph 11.3.4)

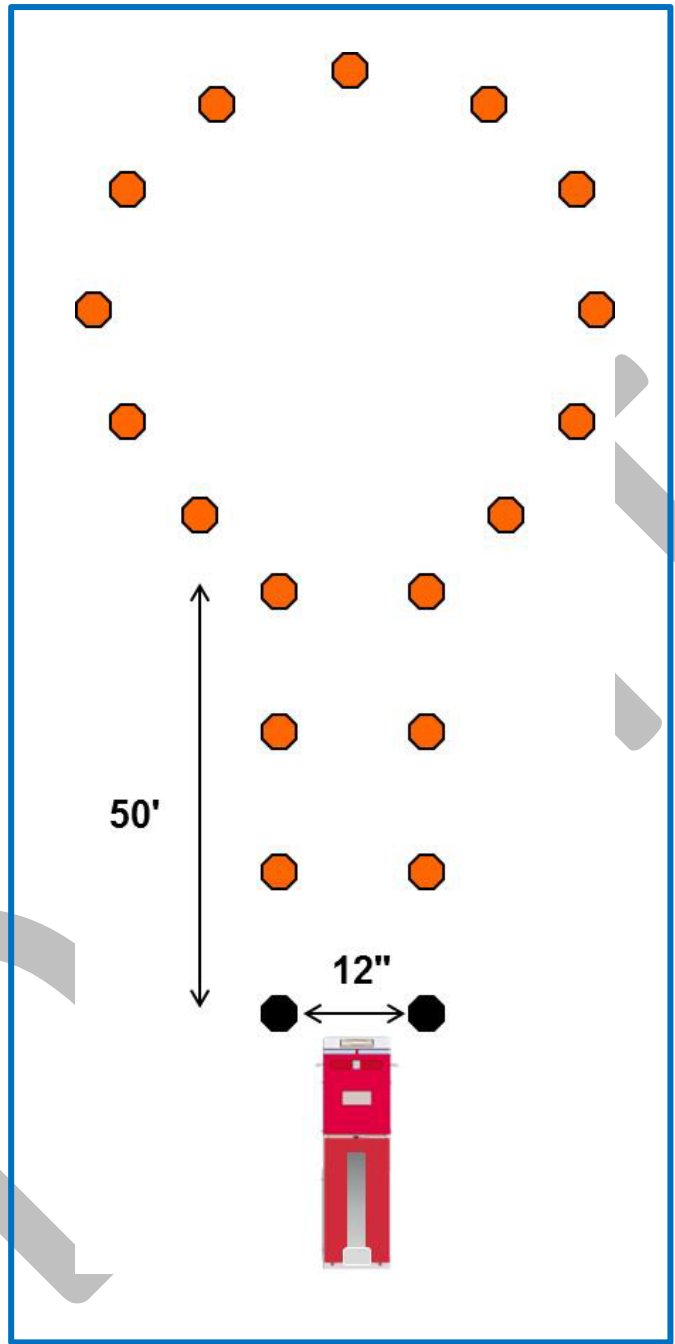
### Materials

- Tillered apparatus
- Another apparatus driver/operator
- Tape measure
- Two (2) delineators
- Traffic cones
- PPE (including gloves and helmet)

### Instructor Notes

1. Establish a 50-foot lane, 12-feet wide.
2. Establish a cul-de-sac at one end with a diameter that is the length of the apparatus being used plus two times the width.
3. The driver/operator and tiller operator enter the cul-de-sac through the 12-foot lane, turn the apparatus 180 degrees, and return through the lane in one continuous maneuver.
4. Demonstrate the skill for the students before they practice and complete each skill.

**Activity Illustration**



## Station Parking

### Activity 3-1(c)

**Format:** Individual

**Time Frame:** Open (based on a total of 28 hours for skills practice and completion)

### Description

This exercise measures the driver/operator's and tiller operator's ability to back an apparatus into an apparatus bay (restricted spaces on both the right and left sides of the vehicle) without having to stop and pull forward and without striking obstructions.

### Standard of Completion

Back a tillered apparatus from a roadway into restricted spaces on both the right and left sides of the vehicle from the tractor and the tiller position, given another driver/operator, a fire department aerial apparatus equipped with a tiller, manufacturer requirements and specifications, AHJ policies and procedures, and restricted spaces of 12 ft (3.7 m) in width, requiring 90-degree right-hand and left-hand turns from the roadway, so that the apparatus is parked within the restricted areas without needing to stop and pull forward and without striking obstructions. (NFPA 1010 (2024) / Paragraph 14.2.1 – referencing 11.3.2)

### Materials

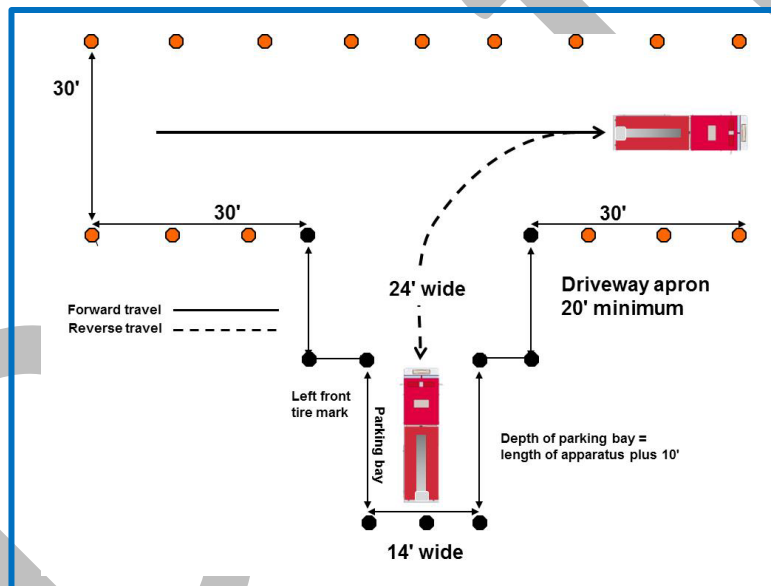
- Tillered apparatus
- Another apparatus driver/operator
- Tape measure
- Traffic cones
- Nine (9) delineators
- Left front tire marker
- Optional straight line marker
- Extra traffic cones and delineators available
- PPE (including gloves and helmet)

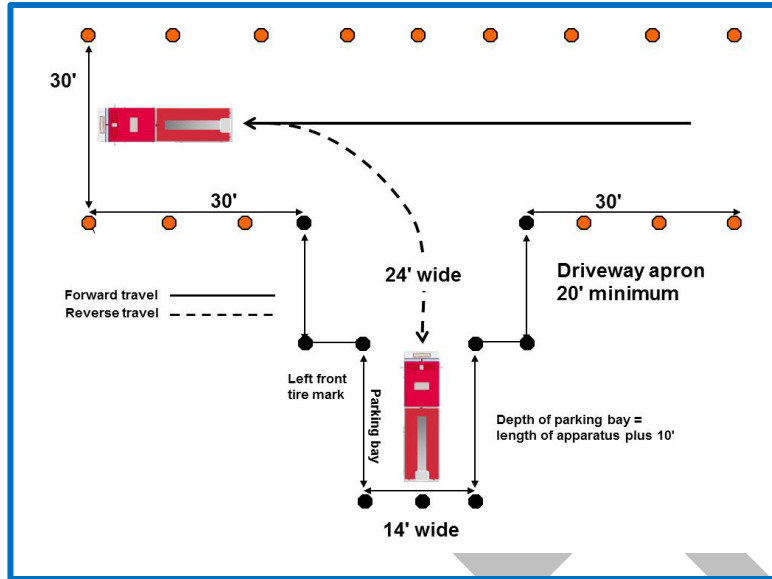
### Instructions

1. Establish two boundary lines 30 feet apart using traffic cones to simulate a street.
2. Simulate a driveway apron by arranging four (4) delineators off one boundary line, 24 feet wide, and a minimum of 20 feet long.
  - Increase or decrease the size of the driveway apron based on the needs of the jurisdiction.
3. Place traffic cones on each side of the driveway apron between the delineators.
4. Simulate the entrance to the apparatus bay by placing two (2) delineators 12-14 feet apart.
  - Space delineators based on AHJ entrance-bay width.

5. Place three (3) delineators at the back of the apparatus bay. This depth is determined by the length of the tillered aerial apparatus plus 10 feet.
6. Place traffic cones on each side of the apparatus bay between the delineators.
7. Place a marker on the ground to indicate to the driver/operator the proper position of the left front tire of the apparatus once stopped and parked.
8. An optional straight line can be placed on the floor of the apparatus bay to assist the driver/operator while backing the apparatus, facilitating the use of apparatus mirrors.
9. The driver/operator and tiller operator pass the delineators identifying the driveway apron on the left and then back the apparatus, using a left turn, into the apparatus bay.
10. Repeat the exercise with the driveway apron on the right side, using a right turn.
11. Activity is complete when the apparatus has backed into the bay from both directions and driven onto the roadway in both directions.
12. Demonstrate the skill for the students before they practice and complete each skill.

### Activity Illustrations





## Diminishing Clearance

### Activity 3-1(d)

**Format:** Individual

**Time Frame:** Open (based on a total of 28 hours for skills practice and completion)

#### Description

This exercise measures a driver/operator's and tiller operator's ability to maneuver an apparatus in a straight line in areas with restricted horizontal and vertical clearances, judge distances from wheel to object, and stop at a finish line without striking obstacles. The driver/operator's speed should be great enough to necessitate quick judgment.

#### Standard of Completion

Maneuver a fire apparatus in areas with restricted horizontal and vertical clearances from the tiller and the tractor position, given another driver/operator, a fire department aerial apparatus equipped with a tiller, manufacturer requirements and specifications, AHJ policies and procedures, and a course that requires the operator to move through areas of restricted horizontal and vertical clearances, so that the operator judges the ability of the apparatus to pass through openings, using continual motion and so that no obstructions are struck. (NFPA 1010 (2024) / Paragraph 14.2.1 – referencing 11.3.5)

#### Materials

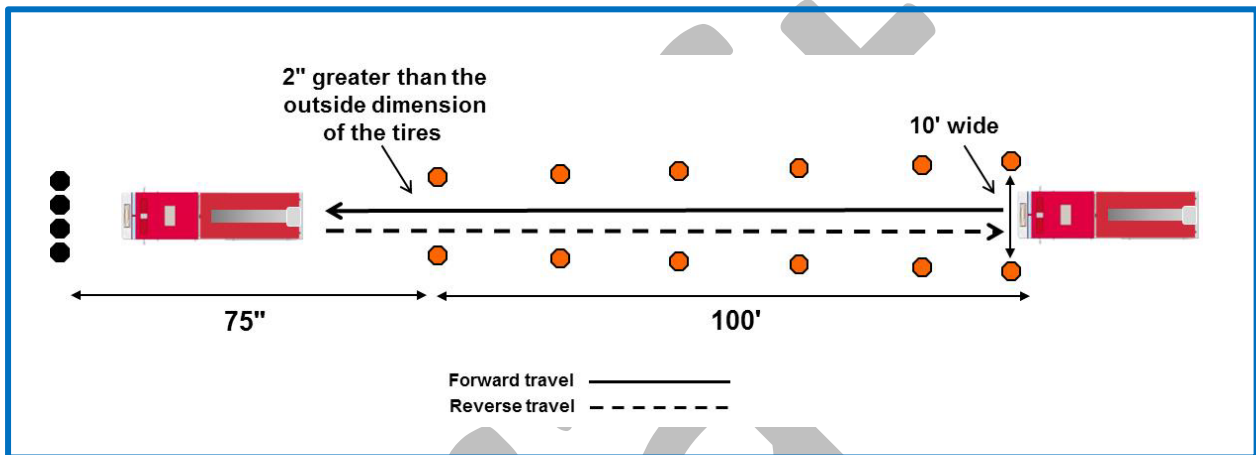
- Tillered apparatus
- Another driver/operator
- Tape measure
- Traffic cones
- Four (4) delineators
- Vertical obstacle
- PPE (including gloves and helmet)

#### Instructor Notes

1. Establish a 100-foot lane using traffic cones.
2. The lane varies in width from 10 feet to a diminishing clearance that is 2 inches greater than the outside dimension of the tires on the apparatus being used.
3. Establish a finish line 75 feet past the end of the lane using traffic cones and at least one (1) delineator.
4. Establish at least one (1) adjustable vertical obstacle in the lane.
5. The driver/operator and tiller operator maneuver the apparatus through this lane.
  - If the tiller operator determines the apparatus cannot clear the vertical obstacle, they should communicate to the driver/operator to stop the apparatus.

6. The driver/operator stops the apparatus at the finish line with no portion of the apparatus protruding beyond the finish line.
7. The driver/operator and tiller operator drives back through the lane.
  - If the tiller operator determines the apparatus cannot clear the vertical obstacle, they should communicate to the driver/operator to stop the apparatus.
8. The driver/operator stops after the front of the apparatus passes the last traffic cone.
9. Demonstrate the skill for the students before they practice and complete each skill.

### Activity Illustration



## Position and Stabilize a Tillered Apparatus

### Activity 3-3

**Format:** Individual

**Time Frame:** Open (based on a total of 28 hours for skills practice and completion)

#### Description

This activity provides students with an opportunity to practice positioning and stabilizing a tillered apparatus.

#### Standard of Completion

Position an aerial apparatus equipped with a tiller from the tiller position and the tractor position, given an aerial apparatus equipped with a tiller, another driver/operator, the apparatus operating instructions, an incident location, a situation description, and an assignment, so that the aerial device is positioned and stabilized to accomplish the assignment. (NFPA 1010 (2024) / Paragraph 14.2.3)

#### Materials

- Tillered apparatus
- Another driver/operator
- Facility and/or location with space sufficient to accommodate operating the apparatus
- PPE (including gloves and helmet)

#### Instructor Notes

- Demonstrate the skill for the students before they practice and complete each skill.

# Tillered Apparatus Driver/Operator

(NFPA 1010: Standard on Professional  
Qualifications for Firefighters)

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## Certification Task Book (2024)



California Department of Forestry and Fire Protection  
Office of the State Fire Marshal  
State Fire Training

## Overview

### Authority

This certification task book includes the certification training standards set forth in the Fire Apparatus Driver/Operator Certification Training Standards Guide (2024) which is based on NFPA 1010: Standard on Professional Qualifications for Firefighters (2024).

Published: **Month** **Year**

Published by: State Fire Training, PO Box 944246, Sacramento, CA 94244-2460

Cover photo courtesy of **Name**, **Job Title**, **Organization**.

### Purpose

The State Fire Training certification task book is a performance-based document that identifies the minimum requirements necessary to perform the duties of that certification. Completion of a certification task book verifies that the candidate has the required experience, holds the required position, and has demonstrated the job performance requirements to obtain that certification.

### Assumptions

Except for the Fire Fighter and Emergency Vehicle Technician (EVT) certifications, a candidate may begin the task book initiation process upon completion of all required education components (courses).

Each job performance requirement (JPR) shall be evaluated after the candidate's fire chief initiates the task book.

An evaluator may verify satisfactory execution of a job performance requirement (JPR) through the following methods:

- First-hand observation
- Review of documentation that verifies prior satisfactory execution

State Fire Training task books do not count towards the NWCG task book limit. There is no limit to the number of State Fire Training task books a candidate may pursue at one time as long as the candidate meets the initiation requirements of each.

It is the candidate's responsibility to routinely check the State Fire Training website for updates to an initiated task book. All State Fire Training issued updates to an initiated task book are required for task book completion.

A candidate must complete a task book within five years its initiation date. Otherwise, a candidate must initiate a new task book using the certification's current published version.

Draft

## Roles and Responsibilities

### Candidate

The candidate is the individual pursuing certification.

#### Initiation

The candidate shall:

1. Complete all Initiation Requirements.
  - Please print or type.
2. Obtain their fire chief's signature as approval to open the task book.
  - A candidate may not obtain evaluation signatures prior to the fire chief's initiation approval date.

#### Completion

The candidate shall:

1. Complete all Job Performance Requirements.
  - Ensure that an evaluator initials, signs, and dates each task to verify completion.
2. Complete all Completion Requirements.
3. Sign and date the candidate verification statement under **Review and Approval** with a handwritten signature.
4. Obtain their fire chief's handwritten (not stamped) signature on the fire chief verification section.
5. Create and retain a physical or high-resolution digital copy of the completed task book.

#### Submission

The candidate shall:

1. Submit a copy (physical or digital) of the completed task book and any supporting documentation to State Fire Training.
  - See Submission and Review below.

A candidate should not submit a task book until they have completed all requirements and obtained all signatures. State Fire Training will reject and return an incomplete task book.

### Evaluator

An evaluator is any individual who verifies that the candidate can satisfactorily execute a job performance requirement (JPR).

An evaluator may verify satisfactory execution through the following methods:

- First-hand observation
- Review of documentation that verifies prior satisfactory execution

A qualified evaluator is designated by the candidate's fire chief\* and holds an equivalent or higher-level certification. If no such evaluator is present, the fire chief shall designate an individual with more experience than the candidate and a demonstrated ability to execute the job performance requirements.

A task book evaluator may be, but is not required to be, a registered skills evaluator who oversees a State Fire Training certification exam.

A certification task book may have more than one evaluator.

All evaluators shall:

1. Complete a block on the **Signature Verification** page with a handwritten signature.
2. Review and understand the candidate's certification task book requirements and responsibilities.
3. Verify the candidate's successful completion of one or more job performance requirements through observation or review.
  - Do not evaluate any job performance requirement (JPR) until after the candidate's fire chief initiates the task book.
  - Sign all appropriate lines in the certification task book with a handwritten signature or approved digital signature (e.g. Docusign or Adobe Sign) to record demonstrated performance of tasks.

\* For certification task books that do not require fire chief initiation, academy instructors serve as or designate evaluators.

## Fire Chief

The fire chief is the individual who initiates (when applicable) and then reviews and confirms the completion of a candidate's certification task book.

A fire chief may identify an authorized designee already on file with State Fire Training to fulfill any task book responsibilities assigned to the fire chief. (See *State Fire Training Procedures Manual*, 4.2.2: Authorized Signatories.)

## Initiation

The fire chief shall:

1. Review and understand the candidate's certification task book requirements and responsibilities.

2. Verify that the candidate has met all **Initiation Requirements** prior to initiating the candidate's task book.
3. Open the candidate's task book by signing the **Fire Chief Approval** verification statement with a handwritten (not stamped) signature.
4. Designate qualified evaluators.

## Completion

The fire chief shall:

1. Confirm that the candidate has obtained the appropriate signatures to verify successful completion of each job performance requirement.
  - Ensure that all **Job Performance Requirements** were evaluated after the initiation date.
2. Confirm that the candidate meets the **Completion Requirements**.
3. Sign and date the Fire Chief verification statement under **Review and Approval** with a handwritten signature.
  - If signing as an authorized designee, verify that your signature is on file with State Fire Training.

## Submission and Review

A candidate should not submit a task book until they have completed all requirements and obtained all signatures. State Fire Training will reject and return an incomplete task book.

To submit a completed task book, please send the following items to the address below:

- A copy of the completed task book (candidate may retain the original)
- All supporting documentation
- Payment

State Fire Training  
Attn: Certification  
PO Box 944246  
Sacramento, CA 94244-2460

State Fire Training reviews all submitted task books.

- If the task book is complete, State Fire Training will authorize the task book and retain a digital copy of the authorized task book in the candidate's State Fire Training file.
- If the task book is incomplete, State Fire Training will return the task book with a notification indicating what needs to be completed prior to resubmission.

Completion of this certification task book is one step in the certification process. Please refer to the *State Fire Training Procedures Manual* for the complete list of qualifications required for certification.

## Initiation Requirements

The following requirements must be completed prior to initiating this task book.

### Candidate Information

Name: \_\_\_\_\_

SFT ID Number: \_\_\_\_\_

Fire Agency: \_\_\_\_\_

### Prerequisites

The candidate meets the following prerequisites.

- OSFM Fire Fighter 1 certification  
**or**
- Appointment to the rank of Officer (Lieutenant or higher) **or** CAL FIRE rank of Fire Apparatus Engineer waives this certification prerequisite. *(Performing in an acting capacity does not fulfill this requirement.)*

Rank	Appointment Date

- OSFM Pumping Apparatus Driver/Operator certification
- Valid Class C Firefighter Endorsed **or** Commercial A **or** Commercial B driver’s license (per California Vehicle Code, Section 12804.11). *Submit a copy of the license.*

License or Permit	Granting Agency/Institution	License/Permit #	Expiration Date

*Include documentation to verify prerequisite requirements when you submit your task book unless verification is already documented in your SFT User Portal.*

## Education

The candidate has completed the following course(s).

- 1A: Fire Apparatus Driver/Operator (2017 or newer)
- 1B: Pumping Apparatus Operations (2017 or newer)
- 1D: Tillered Apparatus Operations (2017 or newer)

*Include documentation to verify course completion requirements when you submit your task book unless verification is already documented in your SFT User Portal.*

## Fire Chief Approval

Candidate's Fire Chief (please print): \_\_\_\_\_

I, the undersigned, am the person authorized to verify the candidate's task book initiation requirements and to initiate State Fire Training task books. I hereby certify under penalty of perjury under the laws of the State of California, that the completion of all requirements to open the task book documented herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documentation may be cause for rejection.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Signature Verification

The following individuals have the authority to verify portions of this certification task book using the signature recorded below.

Please print except for the Signature line where a handwritten signature is required.  
Add additional signature pages as needed.

<b>Name:</b> _____	<b>Name:</b> _____
Job Title: _____	Job Title: _____
Organization: _____	Organization: _____
Signature: _____	Signature: _____
<b>Name:</b> _____	<b>Name:</b> _____
Job Title: _____	Job Title: _____
Organization: _____	Organization: _____
Signature: _____	Signature: _____
<b>Name:</b> _____	<b>Name:</b> _____
Job Title: _____	Job Title: _____
Organization: _____	Organization: _____
Signature: _____	Signature: _____
<b>Name:</b> _____	<b>Name:</b> _____
Job Title: _____	Job Title: _____
Organization: _____	Organization: _____
Signature: _____	Signature: _____
<b>Name:</b> _____	<b>Name:</b> _____
Job Title: _____	Job Title: _____
Organization: _____	Organization: _____
Signature: _____	Signature: _____

## Job Performance Requirements

The candidate must complete each job performance requirement (JPR) in accordance with the standards of the authority having jurisdiction (AHJ) or the National Fire Protection Association (NFPA), whichever is more restrictive.

When California requirements exceed or require revision to the NFPA standard, the corresponding Office of the State Fire Marshal-approved (OSFM) additions or revisions appear in gray highlight.

All JPRs must be completed within a California fire agency or State Fire Training Accredited Regional Training Program (ARTP).

For JPRs that are not part of a candidate's regular work assignment or are a rare event, the evaluator may develop a scenario or interview that supports the required task and evaluate the candidate to the stated standard.

Each JPR shall be evaluated after the candidate's fire chief initiates the task book.

### Tillered Apparatus

#### Preventative Maintenance

1. Perform and document the visual and operational checks on the system and components unique to a tillered apparatus, given a tillered apparatus, tools and equipment, maintenance and inspection forms, manufacturer specifications and requirements, and policies and procedures of the jurisdiction, so that the operational readiness of the tillered apparatus is verified. (OSFM) (CTS 9-1)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

#### Operations

2. Perform the practical driving exercises specified in 11.3.2 through 11.3.5 in NFPA 1010 (2024) from the tractor and the tiller position, given a qualified driver/operator, an aerial apparatus equipped with a tiller, manufacturer requirements and specifications, and AHJ policies and procedures, so that each exercise is performed without striking the apparatus or obstructions. (NFPA 14.2.1) (CTS 10-1)

**Serpentine** (NFPA 11.3.3) (performed as the tractor operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Serpentine** (NFPA 11.3.3) (performed as the tiller operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Cul-de-Sac** (NFPA 11.3.4) (performed as the tractor operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Cul-de-Sac** (NFPA 11.3.4) (performed as the tiller operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Station Parking** (NFPA 11.3.2) (performed as the tractor operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Station Parking** (NFPA 11.3.2) (performed as the tiller operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Diminishing Clearance** (NFPA 11.3.5) (performed as the tractor operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Diminishing Clearance** (NFPA 11.3.5) (performed as the tiller operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

3. Operate an aerial apparatus equipped with a tiller from the tiller and the tractor position over a predetermined route on a public way that incorporates the maneuvers and features that the driver/operator is expected to encounter during normal operations (NFPA 1010 paragraph 11.3.1), given another driver/operator and an aerial apparatus equipped with a tiller, so that the apparatus is operated in compliance with all applicable state and local laws, departmental rules and regulations, and the requirements of NFPA 1500, Section 4.2. (NFPA 14.2.2) (CTS 10-2)

Maneuvers specified in 11.3.1:

- Four left turns
- Four right turns
- A straight section of urban business street or a two-lane rural road at least 1 mile (1.6 km) in length
- One through intersection
- Two intersections where a stop has to be made
- One railroad crossing
- One curve (either left or right)

- 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
- A downgrade steep enough and long enough to require downshifting and braking
- An upgrade steep enough and long enough to require gear changing to maintain speed
- One underpass, low clearance, or bridge

**Operate Over a Predetermined Route** (performed as the tractor operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Operate Over a Predetermined Route** (performed as the tiller operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

4. Position an aerial apparatus equipped with a tiller from the tractor and the tiller position, given an aerial apparatus equipped with a tiller, another driver/operator, the apparatus operating instructions, an incident location, a situation description, and an assignment, so that the aerial device is positioned and stabilized to accomplish the assignment. (NFPA 14.2.3) (CTS 10-3)

**Position an Apparatus** (performed as the tractor operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

**Position an Apparatus** (performed as the tiller operator)

Evaluator Signature: \_\_\_\_\_ Date Verified: \_\_\_\_\_

## Completion Requirements

The following requirements must be completed prior to submitting this task book.

### Experience

The candidate meets the following experience requirements.

- Have a minimum of one year full-time paid or two years' volunteer or part-time paid experience in a recognized California fire agency with the primary responsibility as a Pumping Apparatus Driver/Operator
- A minimum of one year full-time paid or two years' volunteer or part-time paid experience in a recognized California fire agency with the primary responsibility as a Tillered Apparatus Driver/Operator

Agency	Experience	Start Date	End Date

### Position

The candidate meets the position qualifications for this level of certification. The position requirement is met when the applicant fulfills the role of the specific duties as defined by the fire chief.

### Updates

The candidate has completed and enclosed all updates to this certification task book released by State Fire Training since its initial publication.

Number of enclosed updates: \_\_\_\_\_

### Completion Timeframe

The candidate has completed all requirements documented in this certification task book within five years of its initiation date.

Initiation Date (see Fire Chief signature under **Initiation Requirements**): \_\_\_\_\_

## Review and Approval

### Candidate

Candidate (please print): \_\_\_\_\_

I, the undersigned, am the person applying for certification. I hereby certify under penalty of perjury under the laws of the State of California, that the completion of all requirements documented herein is true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documentation may be cause for rejection or revocation.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

### Fire Chief

Candidate's Fire Chief (please print): \_\_\_\_\_

I, the undersigned, am the person authorized to verify the candidate's qualifications for certification. I hereby certify under penalty of perjury under the laws of the State of California, that the completion of all requirements documented herein are true in every respect. I understand that misstatements, omissions of material facts, or falsification of information or documentation may be cause for rejection.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_